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Nuclear Data Sheets for A = 112*

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Abstract: Evaluated nuclear structure and decay data for all nuclei within the A=112 mass chain are presented. The experimental data are evaluated and best values for level and gamma–ray energies, quantum numbers, lifetimes, gamma–ray intensities, and other nuclear properties are recommended. Inconsistencies and discrepancies that exist in the literature are noted. This work supersedes the earlier evaluation by D.De Frenne and E.Jacobs (1996De55), published in *Nuclear Data Sheets* **79**, 639 (1996).

Cutoff Date: All data received by **August 2014** have been compiled and evaluated.

General Policies and Organization of Material: see http://www.nndc.bnl.gov/nds/NDSPolicies.pdf.

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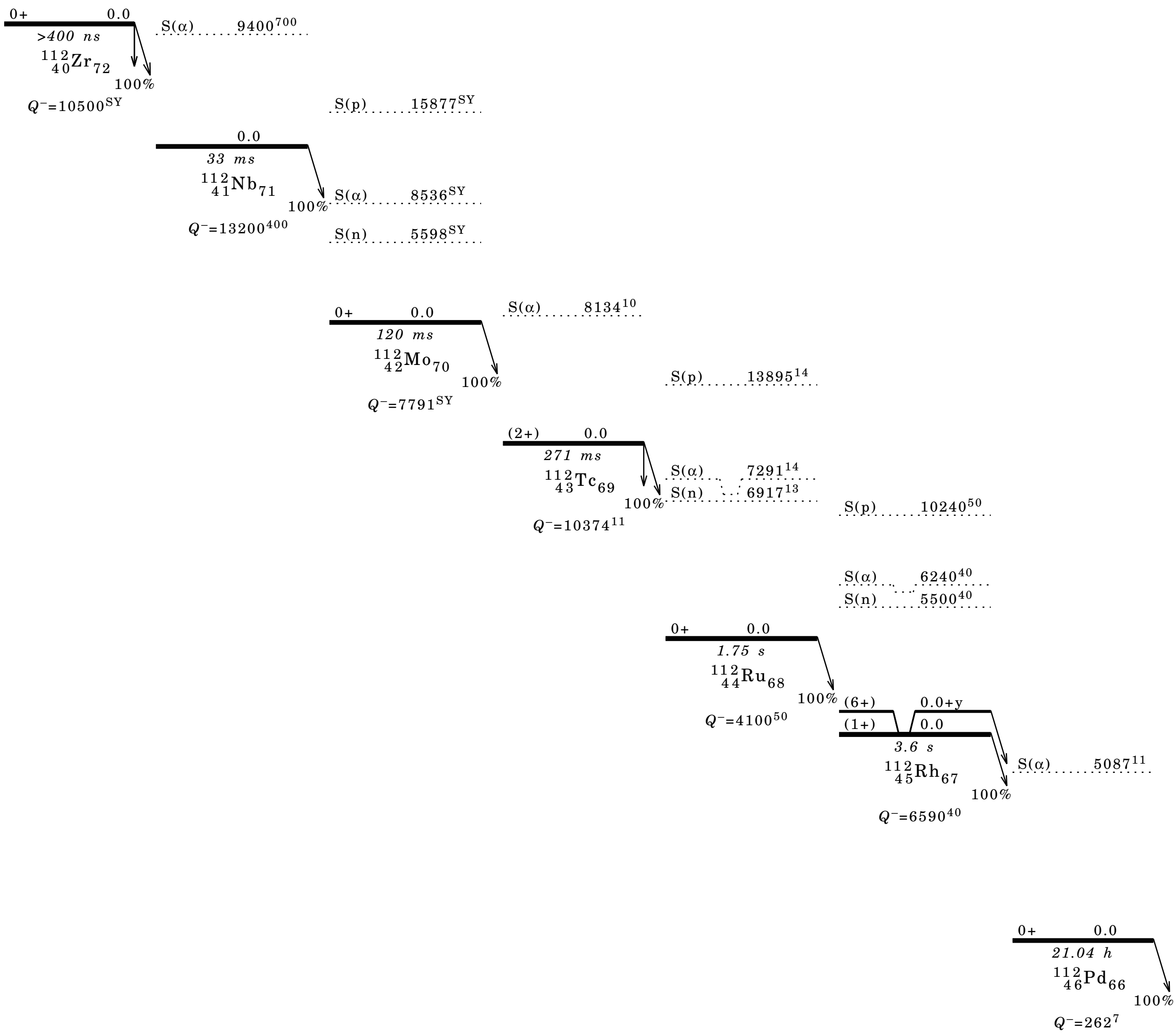
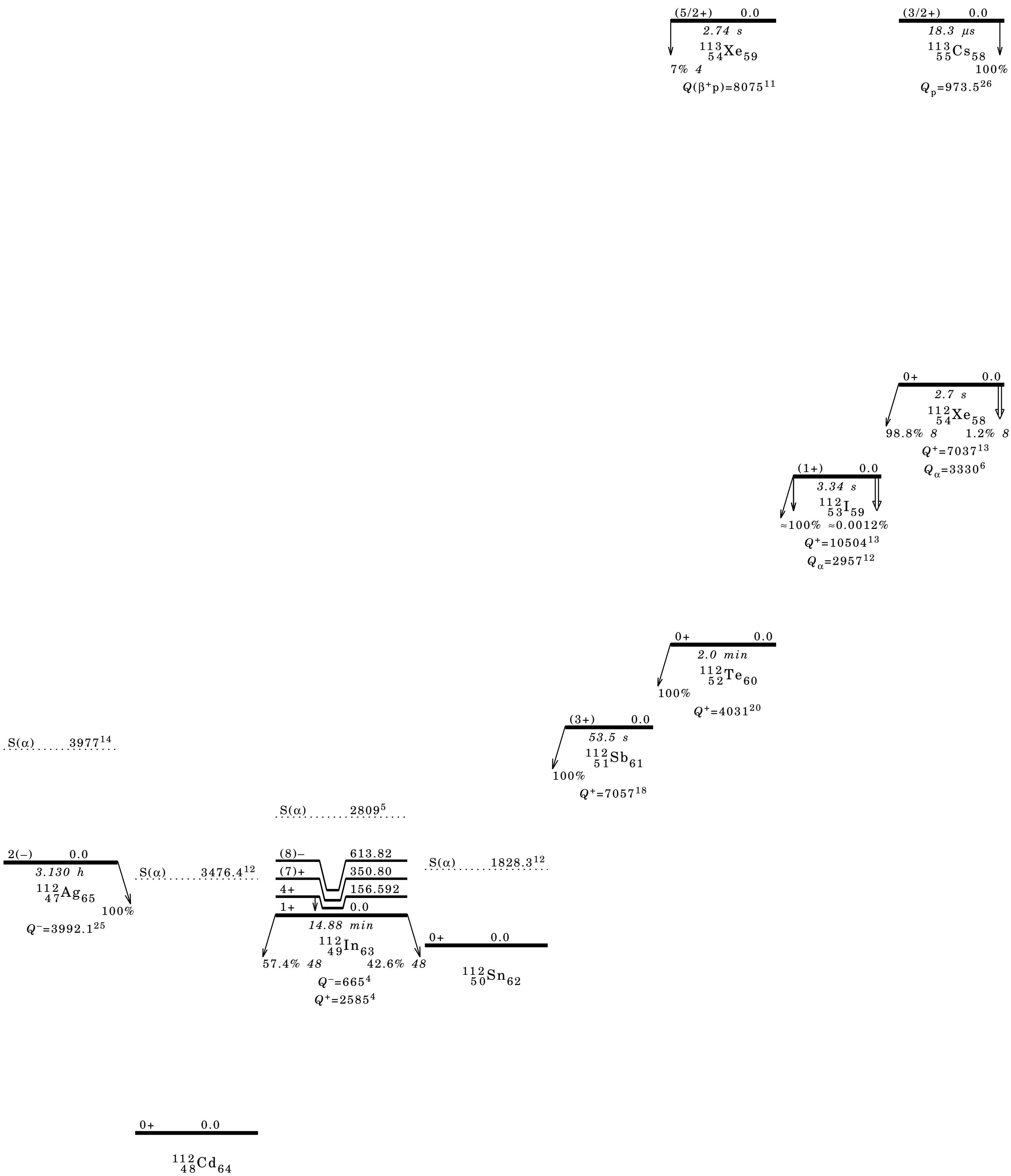
Index for A = 112

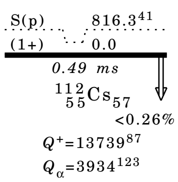
Skeleton Scheme for A=112



Skeleton Scheme for A=112 (continued)



Skeleton Scheme for A=112 (continued)



Ground–State and Isomeric–Level Properties

Nuclide	Level	Jπ	$T_{1/2}$	Decay Modes
^{112}Zr	0.0	0+	>400 ns	%β^-=100; %β^-n=?; %β^-2n=?
^{112}Nb	0.0		33 ms *+9−6*	%β^-=100
^{112}Mo	0.0	0+	120 ms *+13−11*	%β^-=100
^{112}Tc	0.0	(2+)	271 ms *15*	%β^-=100; %β^-n=1.5 *2*
^{112}Ru	0.0	0+	1.75 s *7*	%β^-=100
^{112}Rh	0.0	(1+)	3.6 s *3*	%β^-=100
	0.0+y	(6+)	6.76 s *12*	%β^-=100
^{112}Pd	0.0	0+	21.04 h *17*	%β^-=100
^{112}Ag	0.0	2(−)	3.130 h *8*	%β^-=100
^{112}Cd	0.0	0+	stable	
^{112}In	0.0	1+	14.88 min *15*	%β^-=42.6 *48*; %ε+%β^+=57.4 *48*
	156.592	4+	20.67 min *8*	%IT=100
	350.80	(7)+	0.69 μs *5*	
	613.82	(8)−	2.81 μs *3*	
^{112}Sn	0.0	0+	stable	
^{112}Sb	0.0	(3+)	53.5 s *6*	%ε+%β^+=100
^{112}Te	0.0	0+	2.0 min *2*	%ε+%β^+=100
^{112}I	0.0	(1+)	3.34 s *8*	%ε+%β^+≈100; %α≈0.0012; %εp=0.88 *10*; %εα=0.104 *12*
^{112}Xe	0.0	0+	2.7 s *8*	%ε+%β^+=98.8 *8*; %α=1.2 *8*
^{112}Cs	0.0	(1+)	0.49 ms *3*	%p=100; %α<0.26
^{113}Xe	0.0	(5/2+)	2.74 s *8*	%β^+p=7 *4*; ...
^{113}Cs	0.0	(3/2+)	18.3 μs *3*	%p=100

Adopted Levels

$Q(\beta^-)=10500$ *SY*; $S(n)=-4300$ *SY* 2012Wa38.

2010Oh02: ^{112}Zr nuclide identified in Be(^{238}U,F) and Pb(^{238}U,F) reactions with a $^{238}U^{86+}$ beam energy of 345 MeV/nucleon produced by the cascade operation of the RBIF accelerator complex at RIKEN. Identification of ^{112}Zr nuclei was made on the basis of magnetic rigidity, time–of–flight and energy loss of the fragments using BigRIPS fragment separator. 1 count was associated with ^{112}Zr, based on Z versus A/Q identification.

^{112}Zr Levels

E(level)	Jπ	$T_{1/2}$	Comments
0.0	0+	>400 ns	$\%\beta^-=100$; $\%\beta^-n=?$; $\%\beta^-2n=?$ Measured σ=7 pb (2010Oh02), systematic uncertainty≈40%. $T_{1/2}$: lower limit from time–of–flight in 2010Oh02. The actual half–life is expected to be much longer, ≈15 ms (from systematics). A value of ≈43 ms is predicted in 2003Mo09. $\%\beta^-n$,$\%\beta^-2n$: Calculated $\%\beta^-n=26.3$ and $\%\beta^-2n=0.47$ in 2003Mo09.

Adopted Levels

$Q(\beta^-)=13200$ *400*; $S(n)=-3.5\times10^3$ *4*; $Q(\alpha)=-9.4\times10^3$ *7* 2012Wa38.

^{112}Nb Levels

Cross Reference (XREF) Flags

A $^{238}U(^9Be,X\gamma)$

E(level)	XREF	$T_{1/2}$	Comments
0.0	A	33 ms *+9−6*	$\%\beta^-=100$. $T_{1/2}$: using maximum–likelihood analysis of HI–β(t) data in $^{238}U(^9Be,X\gamma)$ (2011Ni01). A value of ≈75 ms is predicted in 2003Mo09. $\%\beta^-n,\%\beta^-2n$: Calculated $\%\beta^-n=61.2$ and $\%\beta^-2n=1.7$ in 2003Mo09.

$^{238}U(^9Be,X\gamma)$ 2011Ni01

2011Ni01: ^{112}Nb nuclide produced in Be(^{238}U,F) reactions at E=345 MeV/nucleon produced by the cascade operation of the RBIF complex of accelerators at RIKEN. Target=550 mg/cm^2. Identification of ^{112}Nb made on the basis of magnetic rigidity, time–of–flight and energy loss. The separated nuclei were implanted in a nine–layer double–sided silicon–strip detector (DSSSD). Correlations were recorded between the heavy ions and β rays. The half–life of ^{112}Nb isotope was measured from the correlated ion–β decay curves and maximum likelihood analysis technique. In the analysis of the decay curve, β–detection efficiency, background rate, daughter and granddaughter (including those populated in delayed neutron decays) half–lives, and β–delayed neutron emission probabilities were considered.

^{112}Nb Levels

E(level)	$T_{1/2}$	Comments
0.0	33 ms *+9−6*	$T_{1/2}$: using maximum–likelihood analysis of HI–β(t) data in 2011Ni01.

Adopted Levels

$Q(\beta^-)=7791$ *SY*; $S(n)=5598$ *SY*; $S(p)=15877$ *SY*; $Q(\alpha)=-8536$ *SY* 2012Wa38.

Produced at the BigRIPS facility at RIKEN (2011Ni01). A mass separated source produced in the ^{238}U+Be reaction; Beam: E(^{238}U)=345 MeV/u, 0.3 pnA; Target: 550 mg/cm^2 Be; Detectors: BigRIPS, DSSD; Measured: implant–β(t); Also, from the same collaboration: 2011NiZY.

^{112}Mo Levels

E(level)	Jπ	$T_{1/2}$	Comments
0.0	0+	120 ms *+13−11*	$\%\beta^-=100$. $T_{1/2}$: from implant–β(t) using maximum–likelihood analysis (2011Ni01). A value of ≈103 ms is predicted in 2003Mo09. $\%\beta^-n$: Calculated $\%\beta^-n=4.4$ in 2003Mo09.

Adopted Levels, Gammas

Q(β⁻)=10374 *11*; S(n)=−4304 *12*; S(p)=−12606 *14*; Q(α)=−8134 *10* 2012Wa38.

^{112}Tc Levels

Cross Reference (XREF) Flags

A ^{112}Tc IT Decay
B ^{238}U(p,X),^{136}Xe(^{9}Be,X)

E(level)†	Jπ	XREF	$T_{1/2}$	Comments
0.0	(2+)	AB	271 ms *15*	%β⁻=100; %β⁻n=1.5 *2* (1999Wa09). %β⁻n: Other: 4 *1* (2009Pe06) and 2.6 *5* (1996Me09); calculated value of 0.9 in (2003Mo09). Jπ: Significant direct feeding to 2+ levels in ^{112}Ru, following ^{112}Tc β⁻ decay could be misleading given that the decay scheme is incomplete (pandemonium); expected configuration from systematics. The proposed assignment is tentative. $T_{1/2}$: Weighted average of 290 ms *20* (2009Pe09), 290 ms *20* (1999Wa09), 230 ms *20* (1996Me09), and 280 ms *30* (1990Ay02). A value of ≈135 ms is calculated in 2003Mo09. configuration: π5/2+[422]⊗ν1/2+[411]; Kπ=2+ is favored by the Gallagher–Moszkowski rule. The assignment is tentative. It should be noted that ν5/2+[402] orbital is a ground state in ^{111}Ru, while the ν1/2+[411]) one is located at 9.7 keV. The π5/2+[422] orbital is assigned to the ground state of ^{111}Tc.
258.0 *10*	(3+)	A		Jπ: 258γ to (2+); expected configuration from systematics. configuration: π5/2+[422]⊗ν1/2+[411]; Kπ=3+. The assignment is tentative.
350.0 *15*	(5+)	A	150 ns *17*	Jπ: 92γ to (3+); non-observation of 350γ to (2+) in 2010Br15. However, Jπ=4− assignment cannot be unambiguously excluded. $T_{1/2}$: From 258γ(t) in 2010Br15. Others: 218 ns *+60−43* in (2012Ka36) and <500 ns using 258γ(t) in 2009Fo05. configuration: π5/2+[422]⊗ν5/2+[402]; Kπ=5+ is favored by the Gallagher–Moszkowski rule. The assignment is tentative.

† From Eγ. The level energies are tentative and depend on the relative placement of the two γ-rays observed in coinc. in 2010Br15.

γ(^{112}Tc)

E(level)	Eγ†	Iγ†	Mult.	α	Comments
258.0	258 *1*	100			
350.0	92 *1*	100	[E2]	1.69 *8*	B(E2)(W.u.)=6.6 *8*.

† From 2010Br15. The relative placement of the two transitions in the cascade is tentative.

^{112}Tc IT Decay 2010Br15,2012Ka36

Parent ^{112}Tc: E=350.0 *15*; Jπ=(5+); $T_{1/2}$=150 ns *17*; %IT decay=100.
2010Br15: Facility: GSI–Darmstadt; Target: 1 g/cm^2 thick ^{9}Be; Beam: ^{238}U, E(^{238}U)=750 MeV/A; Detectors: Fragment Separator, scintillator detectors, ionization chambers, multiwire ionization chambers, RISING γ-ray array; Measured: Eγ, Iγ, $T_{1/2}$; Deduced: level scheme.
2012Ka36: Facility: RIBF at RIKEN; Beam: E(^{238}U)=345 MeV/nucleon; Detectors: BigRIPS, ZeroDegree spectrometer, energy degraders, particle detectors, aluminium stopper, three clover-type HPGe detectors; Measured: ToF, γ, γ-γ, Eγ, Iγ; Deduced: Z, A/Q, ^{112}Tc level energies, $T_{1/2}$.
Others: 2009Fo05.

^{112}Tc Levels

E(level)†	Jπ†	$T_{1/2}$†	Comments
0.0	(2+)	271 ms *15*	
258.0 *10*	(3+)		
350.0 *15*	(5+)	150 ns *17*	$T_{1/2}$: From 258γ(t) in 2010Br15. Others: 218 ns *+60−43* in (2012Ka36) and <500 ns using 258γ(t) in 2009Fo05.

† From the adopted levels.

^{112}Tc IT Decay 2010Br15,2012Ka36 (continued)

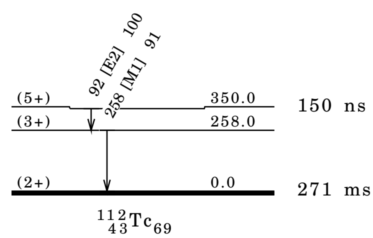
γ(^{112}Tc)

Eγ†	E(level)	Iγ†	Mult.‡
92 *1*	350.0	100	[E2]
258 *1*	258.0	91 *9*	[M1]

† From 2010Br15. The relative placement of the two transitions, observed in coinc., is tentative.
‡ From the proposed decay scheme.

Decay Scheme

Intensities: relative Iγ
%IT=100



^{238}U(p,X),^{136}Xe(^{9}Be,X) 2009Pe09,2007Ha20,1999Wa09

2009Pe09: Facility: Superconducting Cyclotron Laboratory at Michigan State University; Beam: ^{136}Xe at 120 MeV/a, I=1.5 pnA; Target: 1242 mg/cm^2 ^{9}Be; Detectors: fragment separator, three plastic scintillator detectors, degraders, four silicon PIN detector, 40x40 pixel double–sided silicon strip detector, 10 mm Ge detector, neutron detector (NERO) comprising 16 ^{3}He and 44 B_3F proportional gas counters; Measured: Time–of–flight, energy loss, HI positions, mass–to–charge ratio, HI–β and HI–β–n(t) correlations; Deduced: $β^-$n.

2007Ha20: Facility: IGISOL at Jyvaskyla; Beam: p at E=25 MeV; Target: 10 mg/cm^2 of natural uranium; Detectors: JYFLTRAP Penning trap, consisting of radiofrequency cooler, two Penning traps, superconducting magnet, microchannel plate detector; Measured: Time–of–flight, mass excess; Mass excess: −65250 *6* keV (2007Ha20) differs from the AME03 by 750 units which might be explained with a possible feeding of excited states in ^{112}Tc.

1999Wa09: Facility: IGISOL at Jyvaskyla; Beam: E(p)=50 MeV, I=10 μA; Target: ^{238}U; Detectors: collection tape, Mainz 4π neutron counter consisting of 42 ^{3}He ionization chambers, plastic scintillator, 23% HPGe; Measured: β, n, γ, β–n(t); Deduced: $β^-$n; Also, from the same authors: 1996Me09, 1990AyZX, 1990AyZY, 1990AyZZ, 1990JoZY, 1989TaZW.

Others: 2008Su19, 2000Lh02, 1990Ay02.

^{112}Tc Levels

E(level)†	Jπ†	$T_{1/2}$	Comments
0.0	(2+)	271 ms *15*	%$β^-$n=4 *1* (2009Pe06), 1.5 *2* (1999Wa09), and 2.6 *5* (1996Me09). $T_{1/2}$: Weighted average of 290 ms *20* (2009Pe09) 280 ms *30* (1990Ay02), 290 ms *20* (1999Wa09) and 230 ms *20* (1996Me09).

† From the adopted levels.

Adopted Levels, Gammas

Q(β⁻)=4100 *50*; S(n)=6917 *13*; S(p)=13895 *14*; Q(α)=−7291 *14* 2012Wa38.

^{112}Ru Levels

Cross Reference (XREF) Flags

A ^{112}Tc β⁻ Decay
B ^{197}Au(^{19}F,Fγ),^{232}Th(^{18}O,Fγ)...
C ^{252}Cf SF Decay
D ^{238}U(α,Fγ)
E ^{248}Cm SF Decay

E(level)[†]	Jπ[‡]	XREF	$T_{1/2}$[§]	Comments
0.0[#]	0+	ABCDE	1.75 s *7*	%β⁻=100. $T_{1/2}$: from 327.0γ(t), following ^{112}Ru β⁻–decay using a mass separated source (1991Jo11,1988Pe13,1988AyZZ). Others: 2.6 s 1, deduced from the growth and decay of 348γ in ^{112}Pd (1987GiZW), 4.65 s 14 (1970WiZN), 4.1 s 3 (1976MaYL), and 3.6 s 5 (1978Fr16), but some of these activities probably belong to ^{112}Rh.
236.69[#] *16*	2+	ABCDE	0.32 ns *3*	Jπ: 236.8γ E2 to the g.s. $T_{1/2}$: from recoil–distance Doppler–shift method (1974JaZN,1974JaYY). Other: 0.16 ns *4* (1970Ch11). μ: +0.88 *18*, deduced from g=+0.44 *9* (2004Sm04, 2005Sm08) using the time–integral correlation technique.
523.51[@] *16*	2+	A CDE		Jπ: 523.4γ to 0+; 287γ M1+E2 to 2+; band member.
644.97[#] *20*	4+	ABCDE		Jπ: 408.2γ E2 to 2+; band assignment.
747.48[@] *18*	3+	A CDE		Jπ: 224.0γ to 2+; 510.8γ to 2+; absence of 747γ to 0+; band assignment.
980.68[@] *18*	4+	CDE		Jπ: 233.2γ to 3+; 457.2γ to 2+; band assignment.
1026.7 *5*		A		
1179.4 *5*		A		
1189.79[#] *24*	6+	BCDE		Jπ: 544.7γ (E2) to 4+; band assignment.
1235.34[@] *21*	5+	CDE		Jπ: 487.9γ to 3+; 590.5γ to 4+; band assignment.
1413.6[&] *3*	(4+)	C		Jπ: 666.3γ to 4+; 890.0γ to 2+; band assignment.
1570.2[@] *3*	6+	CDE		Jπ: 334.8γ to 5+; 589.3γ to 3+; band assignment.
1649.5[&] *4*	(5+)	C		Jπ: 235.9γ to (4+), 902.1γ to 3+; band assignment.
1839.7[#] *3*	8+	BCDE	1.84 ps *28*	Jπ: 650.0γ (E2) to 6+; band assignment. $T_{1/2}$: Other: 1.7 ps *+13−5* in ^{252}Cf SF decay (2013Sn01) using DSAM.
1841.1[@] *3*	7+	CDE	2.50 ps *35*	Jπ: 270.8γ to 6+; 605.7γ (E2) to 5+; band assignment. $T_{1/2}$: Other: 2.2 ps *+7−14* in ^{252}Cf SF decay (2013Sn01) using DSAM.
1955.7[&] *4*	(6+)	C		Jπ: 542.0γ to (4+), 720.5γ to (5+); band assignment.
1995.1 *3*	(4−)	C		Jπ: 1014.4γ to 4+, 1247.5γ to 3+.
2003.3[a] *3*	(5−)	C	<1 ns	Jπ: 1022.5γ to 4+; 768.0γ to 5+; band assignment. $T_{1/2}$: From ^{252}Cf SF decay (2009Lu01).
2147.9 *4*	(5−)	C		Jπ: 1502.9γ to 4+.
2230.3[a] *3*	(6−)	C		Jπ: 235.1γ to (4−), 1040.6γ to 6+; band assignment.
2231.3[&] *5*	(7+)	C		Jπ: 581.9γ to (5+); band assignment.
2263.5[@] *5*	8+	CDE		Jπ: 693.3γ to 6+; band assignment.
2334.3[b] *4*	(6−)	C	<1 ns	Jπ: 1098.8γ to 5+, 331.0γ to (5−); band assignment. $T_{1/2}$: From ^{252}Cf SF decay (2009Lu01).
2392.0 *5*		C		
2489.3[a] *3*	(7−)	C		Jπ: 259.0γ to (6−), 341.4γ to (5−),1299.6γ D to 6+; band assignment.
2534.2[@] *4*	9+	CDE	1.23 ps *18*	Jπ: 694.4γ (E2) to 7+; band assignment. $T_{1/2}$: Other: 1.3 ps *+7−6* in ^{252}Cf SF decay (2013Sn01) using DSAM.
2563.0[#] *4*	10+	BCDE	1.05 ps *16*	Jπ: 723.3γ (E2) to 8+; band assignment. $T_{1/2}$: Other: 1.4 ps *3* in ^{252}Cf SF decay (2013Sn01) using DSAM.
2574.3[b] *4*	(7−)	C		Jπ: 426.3γ to (5−), 733.1γ to 7+,1384.6γ D to 6+; band assignment.
2574.6[&] *6*	(8+)	C		Jπ: 618.9γ to (6+); band assignment.
2771.8[a] *4*	(8−)	C		Jπ: 282.5γ to (7−), 541.5γ to (6−); band assignment.
2829.4[b] *5*	(8−)	C		Jπ: 255.1γ to (7−), 495.1γ to (6−); band assignment.
2899.9 *5*		C		
2909.2[&] *7*	(9+)	C		Jπ: 677.9γ to (7+); band assignment.
3033.6[@] *7*	10+	CD		Jπ: 770.1γ to 8+; band assignment.
3076.6[a] *4*	(9−)	C		Jπ: 304.8γ to (8−), 587.3γ to (7−); band assignment.
3094.2[b] *4*	(9−)	C		Jπ: 264.8γ to (8−), 519.8γ to (7−); band assignment.
3290.5[@] *7*	11+	CDE	0.78 ps *11*	Jπ: 756.3γ (E2) to 9+; band assignment. $T_{1/2}$: Other: 0.9 ps *5* in ^{252}Cf SF decay (2013Sn01) using DSAM.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{112}Ru Levels (continued)

E(level)[†]	Jπ[‡]	XREF	$T_{1/2}$[§]	Comments
3326.2[#] *6*	12+	CDE	0.93 ps *9*	Jπ: 763.2γ (E2) to 10+; band assignment. $T_{1/2}$: weighted average of 0.80 ps *12* in ^{248}Cm SF decay (2012Sm02) (Doppler–broadened lineshape technique) and 1.12 ps *+15–14* in ^{252}Cf SF decay (2013Sn01) (DSAM).
3379.9[b] *5*	(10–)	C		Jπ: 285.6γ to (9–), 550.6γ to (8–); band assignment.
3420.9[a] *5*	(10–)	C		Jπ: 344.3γ to (9–), 649.0γ to (8–); band assignment.
3519.8 *7*		C		
3711.7[b] *5*	(11–)	C		Jπ: 331.7γ to (10–), 617.4γ to (9–); band assignment.
3768.7[a] *5*	(11–)	C		Jπ: 347.8γ to (10–), 692.0γ to (9–); band assignment.
3870.9[@] *9*	12+	CD		Jπ: 837.3γ to (10+); band assignment.
4032.6[b] *7*	(12–)	C		Jπ: 321.0γ to (11–), 652.7γ to (10–); band assignment.
4095.4[@] *8*	13+	CD		Jπ: 804.9γ to 11+; band assignment.
4118.4[#] *8*	14+	CD	1.6 ps *3*	Jπ: 792.2γ to 12+; band assignment. $T_{1/2}$: from ^{252}Cf SF decay (2013Sn01) using DSAM.
4198.8[a] *6*	(12–)	C		Jπ: 430.1γ to (11–), 778.0γ to (10–); band assignment.
4213.4 *9*		C		
4428.5[b] *7*	(13–)	C		Jπ: 716.8γ to (11–); band assignment.
4561.8[a] *7*	(13–)	C		Jπ: 793.1γ to (11–); band assignment.
4764.2[@] *10*	14+	C		Jπ: 893.3γ to 12+; band assignment.
4769.7?[b] *6*	(14–)			
4788.9 *13*	(14+)	D		Jπ: 918γ to (12+); band assignment.
4950.7[@] *10*	15+	CD		Jπ: 855.3γ to 13+; band assignment.
4954.6[#] *10*	16+	CD		Jπ: 836.2γ to 14+; band assignment.
5072.9[a] *8*	(14–)	C		Jπ: 874.1γ to (12–); band assignment.
5228.0[b] *9*	(15–)	C		Jπ: 799.5γ to (13–); band assignment.
5700.8?[@] *7*	(16+)			
5830.0[#] *11*	18+	CD		Jπ: 875.4γ to 16+; band assignment.
5857.4[@] *11*	17+	CD		Jπ: 902.8γ to 15+; band assignment.
6725.4[#] *12*	(20+)	CD		Jπ: 895.4γ to 18+; band assignment.
6800.4[@] *15*	(19+)	D		Jπ: 943γ to 17+; band assignment.
7749.3[#] *13*	(22+)	D		Jπ: 1023.8γ to (20+); band assignment.

† From a least–squares fit to Eγ.
‡ From the deduced γ–ray transition multipolarities and the apparent band structures.
§ From ^{248}Cm SF decay (2012Sm02) using Doppler–broadened lineshape technique, unless otherwise stated.
\# (A): Kπ=0+, g.s. band.
@ (B): Kπ=2+,γ–vibrational band.
& (C): Rotational band built on the 1413.6 keV level.
a (D): Kπ=4–,ν1/2[411]⊗ν7/2[523] band. The experimental ABS(g_K–g_R) = 0.185 17 deduced from the cascade–to–crossover branching ratios agrees well with theoretical value of 0.186 for this configuration, using Q_0=3.4 *3 eb*.
b (E): Likely Kπ=6– band. The assignment is tentative.

γ(^{112}Ru)

E(level)	Eγ[†]	Iγ[†]	Mult.[@]	α	Comments
236.69	236.8[§] *2*	100[§]	E2	0.0602	Mult.: From the ce measurement in ^{112}Tc β⁻ decay (1990Ay02) and γ(ω) in ^{248}Cm SF decay (1994Sh26). B(E2)(W.u.)=70 *7*.
523.51	287.0[§] *2*	100[§] *12*	M1+E2	0.0183	Mult.: From ce measurements in ^{112}Tc β⁻ decay.
	523.4[§] *2*	73[§] *15*	[E2]	0.00467	Iγ: Other: 91.8 *14* in ^{252}Cf SF decay and 82 *16* in ^{248}Cm SF decay.
644.97	408.2[§] *2*	100[§]	E2	0.00988	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26).
747.48	224.0 *2*	38 *8*			Iγ: Other: 35.1 *6* in ^{252}Cf SF decay and ≈100 in 1990Ay02 (^{112}Tc β⁻ decay).
	510.8 *2*	100 *3*			Iγ: Other: ≈87 in 1990Ay02 (^{112}Tc β⁻ decay).
980.68	233.2 *2*	7.1 *14*			Iγ: Other: 5.6 *6* in ^{252}Cf SF decay.
	335.6 *2*	20 *4*			Iγ: Other: 22.0 *10* in ^{252}Cf SF decay.
	457.2 *2*	100 *20*			
	744.0 *2*	7.1 *14*			Iγ: Other: 3.6 *3* in ^{252}Cf SF decay.
1026.7	381.7[§] *5*	100[§]			
1179.4	152.7[§] *2*	100[§]			

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Adopted Levels, Gammas (continued)

γ(^{112}Ru) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[@]	α	Comments
1179.4	432.0 *10*				Eγ: From ^{112}Tc β⁻ decay.
1189.79	544.9 *2*	100	(E2)	0.00416	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26).
1235.34	254.7[‡] *5*	5.70[‡] *20*			
	487.9 *2*	100 *3*			
	590.3 *2*	8.1 *14*			
1413.6	666.3[‡] *5*	15.4[‡] *7*			
	890.0[‡] *5*	100[‡]			
1570.2	334.8[‡] *5*	2.6[‡] *3*			
	380.3[‡] *5*	1.20[‡] *20*			
	589.3[‡] *5*	100[‡]			
1649.5	235.9[‡] *5*	100[‡]			
	668.9[‡] *5*	5.6[‡] *4*			
	902.1[‡] *5*	22.2[‡] *11*			
1839.7	650.0 *2*	100	(E2)	0.00256	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26). B(E2)(W.u.)=82 *13*.
1841.1	270.8[‡] *5*	4.1[‡] *5*	[M1]	0.0213	B(M1)(W.u.)=0.017 *4*.
	605.7[‡] *5*	100[‡]	(E2)	0.00310	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26). B(E2)(W.u.)=83 *12*.
	651.2 *5*		[M1]	0.00250	Eγ: From ^{252}Cf SF decay.
1955.7	542.0[‡] *5*	100[‡]			
	720.5[‡] *5*	12.5[‡] *7*			
	975.0[‡] *5*	63[‡] *3*			
1995.1	1014.4[‡] *5*	33.3[‡] *24*			
	1247.5[‡] *5*	100[‡]			
	1350.2[‡] *5*	16.7[‡] *21*			
2003.3	589.7[‡] *5*	<38.7[‡]	[E1]	1.14×10^{-3}	B(E1)(W.u.)>1.8×10^{-7}.
	768.0 *5*		[E1]	6.41×10^{-4}	Eγ: From ^{252}Cf SF decay.
	1022.5[‡] *5*	100[‡]	[E1]	3.63×10^{-4}	B(E1)(W.u.)>1.8×10^{-7}.
	1358.3[‡] *5*	33[‡] *7*	[E1]	3.55×10^{-4}	B(E1)(W.u.)>2.5×10^{-8}.
2147.9	1167.2[‡] *5*	20[‡] *5*			
	1502.9[‡] *5*	100[‡]			
2230.3	226.9[‡] *5*	6.7[‡] *17*			
	235.1[‡] *5*	9.2[‡] *17*			
	660.1[‡] *5*	13.5[‡] *23*			
	994.9[‡] *5*	42[‡] *6*			
	1040.6[‡] *5*	100[‡]			
2231.3	581.9[‡] *5*	100[‡]			
	995.8[‡] *5*	68[‡] *4*			
2263.5	693.3[‡] *5*	100[‡]			
2334.3	331.0[‡] *5*	12.1[‡]	[M1]	0.01278	B(M1)(W.u.)>3.9×10^{-5}.
	764.1[‡] *5*	34[‡] *5*	[E1]	6.48×10^{-4}	B(E1)(W.u.)>1.2×10^{-7}.
	1098.8[‡] *5*	100[‡]	[E1]	3.17×10^{-4}	B(E1)(W.u.)>1.2×10^{-7}.
	1144.6[‡] *5*	40[‡] *10*	[E1]	3.09×10^{-4}	B(E1)(W.u.)>4.2×10^{-8}.
2392.0	1156.6[‡] *5*	100[‡]			
2489.3	259.0[‡] *5*	12.3[‡] *12*			
	341.4[‡] *5*	12.7[‡] *20*			
	486.0[‡] *5*	4.8[‡] *12*			
	919.1[‡] *5*	17[‡] *3*			
	1299.6[‡] *5*	100[‡]	D		Mult.: from (1299.6γ)(544.7γ)(θ): A_2=−0.090 *35*, A_4=−0.02 *6* in ^{252}Cf SF decay. The predicted values are a_2=−0.071, a_4=0 (for a dipole–quadrupole cascade and A_2=−0.102 and A_4=−0.051 for a quadrupole–quadrupole cascade.
2534.2	694.4 *2*	100	(E2)	0.00215	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26). B(E2)(W.u.)=89 *13*.
2563.0	723.3 *2*	100	(E2)	0.00193	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26). B(E2)(W.u.)=85 *13*.
2574.3	240.0[a] *5*				Eγ: From ^{252}Cf SF decay.
	426.3[‡] *5*	10[‡] *4*			
	733.1[‡] *5*	4.2[‡] *2*			
	1004.1[‡] *5*	11.8[‡] *15*			

Continued on next page (footnotes at end of table)

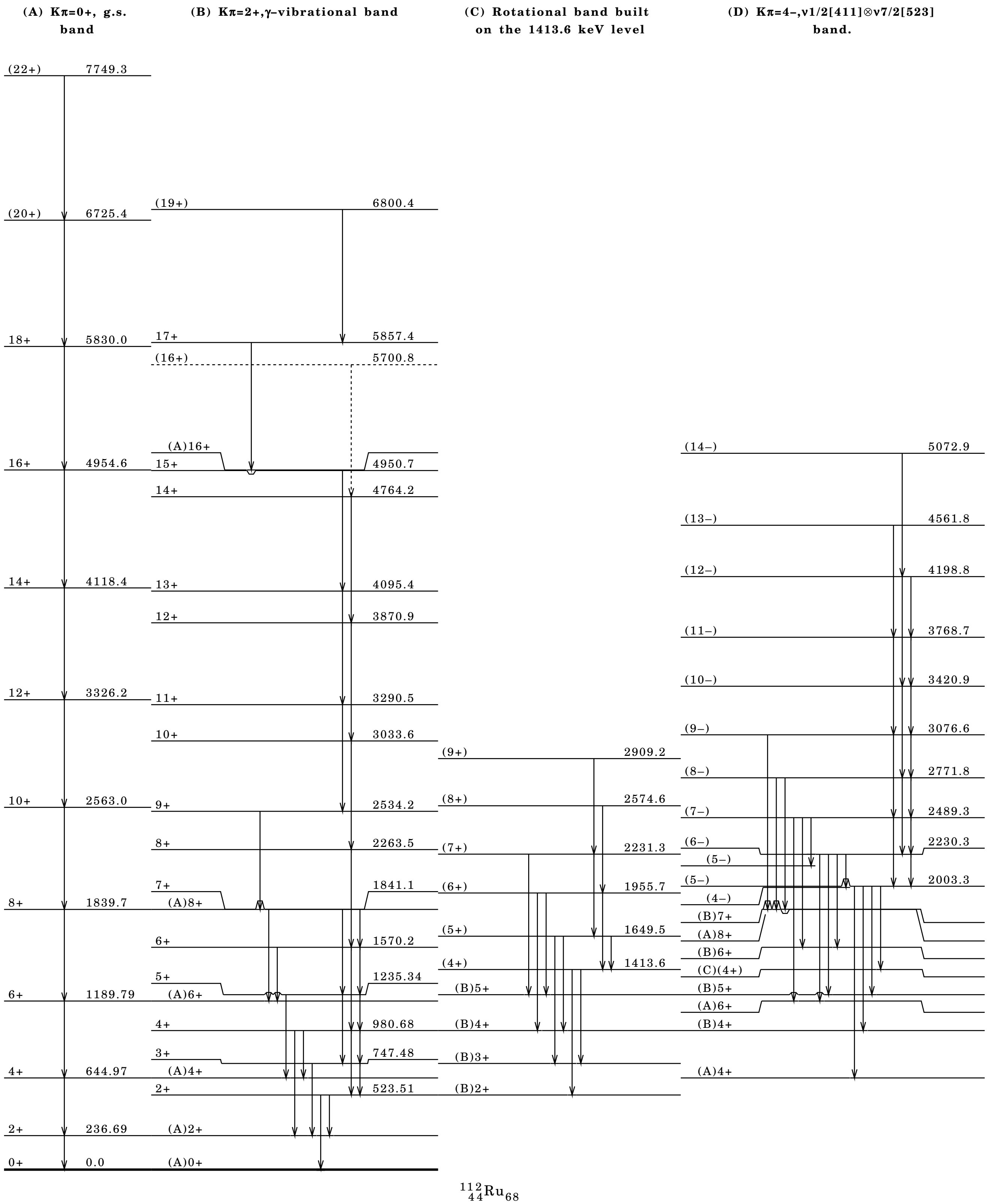
Adopted Levels, Gammas (continued)

γ(^{112}Ru) (continued)

E(level)	Eγ†	Iγ†	Mult.@	α	Comments
2574.3	1384.6‡ 5	100‡	D		Mult.: from (1384.6γ)(544.7γ)(θ): A_2=−0.07 6, A_4=−0.05 9 in 252CF SF DECAY. The predicted values are A_2=−0.071, A_4=0 for a for dipole–quadrupole cascade and A_2=−0.102 and A_4=−0.051 for a quadrupole–quadrupole cascade.
2574.6	618.9‡ 5	100‡			
2771.8	282.5‡ 5	24‡ 5			
	541.5‡ 5	100‡			
	930.7‡ 5	7.0‡ 18			
	932.0‡ 5	3.5‡ 8			
2829.4	255.1‡ 5	100.0‡ 24			Iγ: 100.22.4 in table 3 of 2009Lu18 seems a misprint.
	340.0‡a 5	4.5‡			
	495.1a 5				Eγ: From ^{252}Cf SF decay.
2899.9	507.9 5				Eγ: From ^{252}Cf SF decay.
	1058.8‡ 5	100‡			
2909.2	677.9‡ 5	100‡			
3033.6	770.1‡ 5	100‡			
3076.6	304.8‡ 5	11.0‡ 23			
	587.3‡ 5	100‡			
	1237.0‡ 5	40‡ 4			
3094.2	264.8‡ 5	9.3‡ 7			
	519.8‡ 5	100‡			
	830.7‡ 5	23‡ 8			
	1254.5‡ 5	35‡ 6			
3290.5	756.3‡ 5	100‡	(E2)	1.73×10^{-3}	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26). B(E2)(W.u.)=91 13.
3326.2	763.2‡ 5	100‡	(E2)	1.69×10^{-3}	Mult.: From γ(ω) in ^{248}Cm SF decay (1994Sh26). B(E2)(W.u.)=73 7.
3379.9	285.6‡ 5	17.4‡ 22			
	550.6‡ 5	100‡			
3420.9	344.3‡ 5	14‡ 3			
	649.0‡ 5	100‡			
3519.8	619.9‡ 5	100‡			
3711.7	331.7‡ 5	14.8‡ 13			
	617.4‡ 5	100‡			
	1148.8‡ 5	26‡ 3			
3768.7	347.8‡ 5	17‡ 5			
	692.0 5	100			
3870.9	837.3‡ 5	100‡			
4032.6	321.0a 5				Eγ: From ^{252}Cf SF decay.
	652.7‡ 5	100‡			
4095.4	804.9‡ 5	100‡			
4118.4	792.2‡ 5	100‡	[E2]	1.54×10^{-3}	B(E2)(W.u.)=35 7.
4198.8	430.1‡ 5	20‡ 6			
	778.0‡ 5	100‡			
4213.4	693.6‡ 5	100‡			
4428.5	716.8‡ 5	100‡			
4561.8	793.1‡ 5	100‡			
4764.2	893.3‡ 5	100‡			
4769.7?	737.1‡a 5	100‡			
4788.9	918# 1	100			
4950.7	855.3‡ 5	100‡			
4954.6	836.2‡ 5	100‡			
5072.9	874.1‡ 5	100‡			
5228.0	799.5‡ 5	100‡			
5700.8?	936.6‡a 5	100‡			
5830.0	875.4‡ 5	100‡			
5857.4	902.8‡ 5	100‡			
6725.4	895.4‡ 5	100‡			
6800.4	943# 1	100			
7749.3	1023.8# 5	100			

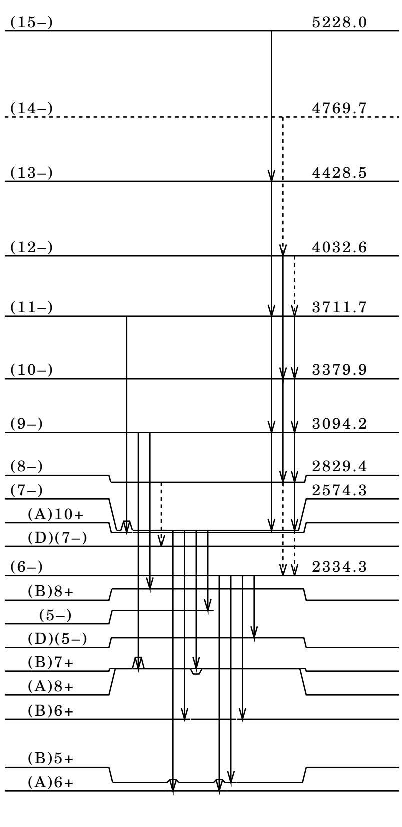
† From ^{248}Cm SF decay, unless otherwise stated.
‡ From ^{252}Cf SF decay.
§ From ^{112}Tc β^- decay.
# From ^{238}U(α,Fγ).
@ From angular correlation measurements in ^{252}Cf SF decay and ^{248}Cm SF decay, and the apparent band structures, unless otherwise stated.
a Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)

(E) Likely Kπ=6− band. The assignment is tentative.



$^{112}_{44}Ru_{68}$

^{112}Tc β^- Decay 1990Ay02

Parent ^{112}Tc: E=0.0; Jπ=(2+); $T_{1/2}$=271 ms *15*; Q(g.s.)=10374 *11*; %β^- decay=100.
1990Ay02: Facility: IGISOL at Jyvaskyla; Source: mass separated from ^{238}U(p,F); Beam: E(p)=20 MeV, Ic=1μA; Target: 10–20 mg/cm^2 natural uranium; Detectors: two intrinsic Ge, one planar Ge, one surface barrier ΔE detector, one plastic NE102 E–detector, ELLI detector comprising magnetic transport system, Si(Li); Measured: Eγ, Iγ, Ice, βγ, γγ; Deduced: ^{112}Ru level scheme; Also from the same team: 1991Jo11, 1988AyZZ.
Others: 2009Pe06.

^{112}Ru Levels

E(level)†	Jπ‡	$T_{1/2}$‡
0.0	0+	1.75 s *7*
236.64 *17*	2+	
523.56 *17*	2+	
644.9 *3*	4+	
747.6 *4*	3+	
1026.6 *5*		
1179.3 *6*		

† From a least–squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Ru)

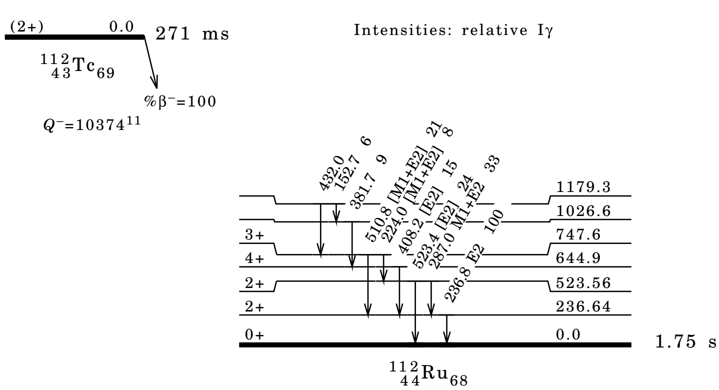
Iγ normalization: from I(γ+ce)(236.8γ)+I(γ+ce)(523.5γ)≤100. The decay scheme is incomplete (pandemonium) and no log *ft* values are given. The Iγ normalization is an upper limit.

Eγ†	E(level)	Iγ†‡	Mult.	α	Comments
152.7 *2*	1179.3	6 *3*			
224.0 *2*	747.6	8 *3*	[M1+E2]	0.054 *20*	Eγ: From adopted gammas. Eγ=223.5 keV *5* in 1990Ay02.
236.8 *2*	236.64	100	E2	0.0602	Mult.: From ce measurements in 1990Ay02.
287.0 *2*	523.56	33 *4*	M1+E2	0.025 *7*	Mult.: From ce measurements in 1990Ay02.
381.7 *5*	1026.6	9 *4*			
408.2 *2*	644.9	15 *5*	[E2]	0.00988	
432.0 *10*	1179.3				
510.8 *2*	747.6	21 *9*	[M1+E2]	0.0047 *3*	Eγ,Iγ: From adopted gammas. Eγ=511.5 keV *5* and Iγ=7 *7* in 1990Ay02.
523.4 *2*	523.56	24 *5*	[E2]	0.00467	

† From 1990Ay02, unless otherwise stated. ΔEγ estimated by the evaluators (1996De55) after discussion with the authors.
‡ For absolute intensity per 100 decays, multiply by ≤0.799.

Decay Scheme

Intensities: relative Iγ



^{248}Cm SF Decay 1994Sh26,2012Sm02

Parent ^{248}Cm: E=0.0; Jπ=0+; $T_{1/2}$=3.48×10^5 y *6*; %SF decay=8.39 *16*.
^{248}Cm–$T_{1/2}$: From ^{248}Cm Adopted Levels in ENSDF database.
1994Sh26: Source: 2 μCi ^{248}Cm in a KCl pellet; Detectors: EUROGAM array; Measured: γ–γ–γ, γγ(θ), Eγ, Iγ; 2x10^9 triple–γ coincidence events; Deduced: level scheme; Other from the same group: 2003Du25.
2012Sm02: Source: 5 mg ^{248}Cm oxide in a KCl pellet; Detectors: EUROGAM–2 array; Measured: triple–γ and higher coincidences, Eγ, Iγ, Doppler–broadened lineshapes; 2.5x10^9 triple–γ and higher coincidence events; Deduced: level lifetimes.

^{112}Ru Levels

E(level)†	Jπ‡	$T_{1/2}$§	Comments
0.0#	0+		
236.80# *16*	2+		
523.60@ *16*	(2+)		
645.20# *20*	4+		
747.60& *19*	(3+)		
980.80@ *18*	(4+)		
1190.1# *3*	6+		
1235.50& *23*	(5+)		
1570.5@ *3*	(6+)		
1840.1# *4*	8+	1.84 ps *28*	$T_{1/2}$: statistical uncertainty=0.20 ps and systematic uncertainty=0.19 ps taken in quadrature.
1841.4& *3*	(7+)	2.50 ps *35*	$T_{1/2}$: statistical uncertainty=0.25 ps and systematic uncertainty=0.25 ps taken in quadrature.
2263.8@ *4*	(8+)		
2534.5& *4*	(9+)	1.23 ps *17*	$T_{1/2}$: statistical uncertainty=0.12 ps and systematic uncertainty=0.12 ps taken in quadrature.
2563.4# *4*	10+	1.05 ps *16*	$T_{1/2}$: statistical uncertainty=0.12 ps and systematic uncertainty=0.10 ps taken in quadrature.
3290.5& *7*	(11+)	0.78 ps *11*	$T_{1/2}$: statistical uncertainty=0.08 ps and systematic uncertainty=0.08 ps taken in quadrature.
3326.5# *7*	12+	0.80 ps *12*	$T_{1/2}$: statistical uncertainty=0.09 ps and systematic uncertainty=0.08 ps taken in quadrature.

† From least–squares fit to Eγ's.
‡ From the deduced γ–ray transition multipolarities and the apparent band structures.
§ From 2012Sm02 using Doppler–broadened lineshape technique.
# (A): Kπ=0+, g.s. band.
@ (B): Kπ=2+,γ–vibrational band, α=0.
& (C): Kπ=2+,γ–vibrational band, α=1.

γ(^{112}Ru)

Eγ†	E(level)	Iγ†	Mult.§	Comments
224.0 *2*	747.60	9.1 *18*		
233.2 *2*	980.80	0.70 *14*		
236.8 *2*	236.80	100 *3*	E2	
286.8 *2*	523.60	11.2 *3*		
335.6 *2*	980.80	2.0 *4*		
408.4 *2*	645.20	55.5 *17*	E2	
457.2 *2*	980.80	9.8 *20*		
487.9 *2*	1235.50	21.1 *6*		
510.8 *2*	747.60	24.0 *7*		
523.6 *2*	523.60	9.2 *18*		
544.9 *2*	1190.1	40.8 *12*	(E2)	
589.7 *2*	1570.5	6.4 *13*		
590.3 *2*	1235.50	1.7 *3*		
605.9 *2*	1841.4	10.9 *3*	(E2)	Eγ: 605.3 in 2012Sm02.
650.0 *2*	1840.1	15.2 *5*	(E2)	Eγ: 649.7 in 2012Sm02.
693.3 *2*	2263.8	2.0 *4*	(E2)	
694.4 *2*	2534.5	3.1 *6*	(E2)	Eγ: 693.8 in 2012Sm02.
723.3 *2*	2563.4	4.1 *8*	(E2)	Eγ: 722.6 in 2012Sm02.
744.0 *2*	980.80	0.70 *14*		
756.0‡ *5*	3290.5		(E2)	

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^{248}Cm SF Decay 1994Sh26,2012Sm02 (continued)

γ(^{112}Ru) (continued)

Eγ†	E(level)	Mult.§
763.1‡ *5*	3326.5	(E2)

† From 1994Sh26, unless otherwise stated. Eγ are from the reported level energy differences with ΔEγ=0.2 keV. ΔIγ=20% for Iγ < 10 and ΔIγ=3 % for Iγ > 10.
‡ From 2012Sm02; ΔEγ=0.5 keV were estimated by the evaluators.
§ From angular correlation measurements in 1994Sh26 and the apparent band structures.

^{252}Cf SF Decay 2009Lu18,2009Zh24,2013Sn01

Parent ^{252}Cf: E=0.0; Jπ=0+; $T_{1/2}$=2.645 y *8*; %SF decay=3.092 *8*.
2009Lu18,2009Zh24: Facility: LBNL; Source: 62 μCi ^{252}Cf placed between two Fe foils of 10 mg/cm^2 thickness; Detectors: GAMMASPHERE; Measured: γ–γ–γ coin., γγ(θ), Eγ, Iγ; Deduced: level scheme; Also, from the same group: 2010Ha16, 2009Lu01, 2009Zh50, 2007Go21, 2007ChZZ, 2006Ch07, 2004Ha19, 2002Ha46, 1997Ha64, 1995Lu10.
2013Sn01: Facility: ANL; Source: 230 μCi ^{252}Cf, covered with 240 μg/cm^2 of Au, on a Pt backing of thickness of 440 mg/cm^2; Detectors: GAMMASPHERE and HERCULES array of 64 fast-plastic detectors; Measured: γ–γ–γ coin., Eγ, Iγ and $T_{1/2}$ (using DSAM).
Others: 2004Sm04, 2005Sm08, 1974JaZN, 1974JaYY, 1970Ch11.

^{112}Ru Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0@	0+		
236.8@ *4*	2+	0.32 ns *3*	$T_{1/2}$: from recoil–distance Doppler–shift method (1974JaZN,1974JaYY). Other: 0.16 ns *4* (1970Ch11). μ: +0.88 *18*, deduced from g=+0.44 *9* (2004Sm04, 2005Sm08), using the time–integral correlation technique.
523.6& *4*	2+		
645.0@ *5*	4+		
747.6a *5*	3+		
980.8& *5*	4+		
1189.8@ *5*	6+		
1235.4a *5*	5+		
1413.7§ *5*	(4+)		
1570.2& *5*	6+		
1649.6# *5*	(5+)		
1839.7@ *6*	8+	1.7 ps *+13–5*	$T_{1/2}$: using DSAM for 650.0γ in 2013Sn01.
1841.1a *5*	7+	2.2 ps *+7–14*	$T_{1/2}$: using DSAM for 605.7γ in 2013Sn01, but the branching intensities for the 270.8γ and 605.7γ were not taken into account.
1955.8§ *5*	(6+)		
1995.2 *5*	(4−)		
2003.4d *5*	(5−)	<1 ns	$T_{1/2}$: From 2009Lu01.
2148.0 *5*	(5−)		
2230.3e *5*	(6−)		
2231.4# *6*	(7+)		
2263.5& *6*	8+		
2334.3c *5*	(6−)	<1 ns	$T_{1/2}$: From 2009Lu01.
2392.0f *6*			
2489.3d *5*	7−		
2534.7a *7*	(9+)	1.3 ps *+7–6*	$T_{1/2}$: using DSAM for 693.6γ in 2013Sn01.
2562.7@ *7*	10+	1.4 ps *3*	$T_{1/2}$: using DSAM for 723.0γ in 2013Sn01.
2574.3b *5*	7−		
2574.7§ *8*	(8+)		
2771.8e *6*	(8−)		
2829.3c *6*	(8−)		
2899.9f *7*			
2909.3# *8*	(9+)		
3033.6& *8*	(10+)		
3076.6d *6*	(9−)		
3094.2b *6*	(9−)		

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^{252}Cf SF Decay 2009Lu18,2009Zh24,2013Sn01 (continued)

^{112}Ru Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
3291.0[a] *9*	(11+)	0.9 ps *5*	$T_{1/2}$: using DSAM for 756.0γ in 2013Sn01.
3325.9[@] *9*	12+	1.12 ps *+15−14*	$T_{1/2}$: using DSAM for 763.4γ in 2013Sn01.
3379.9[c] *7*	(10−)		
3420.9[e] *6*	(10−)		
3519.8[f] *8*			
3711.6[b] *7*	(11−)		
3768.7[d] *7*	(11−)		
3870.9[&] *10*	(12+)		
4032.6[c] *8*	(12−)		
4095.9[a] *10*	(13+)		
4118.1[@] *10*	14+	1.6 ps *3*	$T_{1/2}$: using DSAM for 791.9γ in 2013Sn01.
4198.8[e] *7*	(12−)		
4213.4[f] *10*			
4428.4[b] *8*	(13−)		
4561.8[d] *9*	(13−)		
4764.2[&] *11*	(14+)		
4769.7[c] *6*	(14−)		
4951.2[a] *12*	(15+)		
4954.3[@] *11*	16+	1.32 ps *+24−19*	$T_{1/2}$: using DSAM for 836.0γ in 2013Sn01.
5072.9[e] *9*	(14−)		
5227.9[b] *10*	(15−)		
5700.8[&] *7*	(16+)		
5829.7[@] *12*	18+		
5854.0[a] *13*	(17+)		
6725.2[@] *13*	20+		

[†] From least–squares fit to Eγ's.
[‡] From 2009Lu18 and 2009Zh24 based on γγ(θ) for selected cascades and the observed band structures.
[§] (A): Possible two–phonon γ–vibrational band,α=0.
[#] (B): Possible two–phonon γ–vibrational band,α=1.
[@] (C): Kπ=0+, g.s. band.
[&] (D): Kπ=2+,γ–vibrational band,α=0.
[a] (E): Kπ=2+,γ–vibrational band,α=1.
[b] (F): likely Kπ=6− band (α=1). The assignment is tentative.
[c] (G): likely Kπ=6− band (α=0). The assignment is tentative.
[d] (H): Kπ=4−,ν1/2[411]⊗ν7/2[523] band, α=1.
[e] (I): Kπ=4−,ν1/2[411]⊗ν7/2[523] band, α=0.
[f] (J): γ–ray cascade built on the top of the 2392 keV level.

γ(^{112}Ru)

E(level)	Eγ[†]	Iγ[†]
236.8	236.8 *5*	100
523.6	286.8 *5*	100
	523.6 *5*	91.8 *14*
645.0	408.2 *5*	100
747.6	224.0 *5*	35.1 *6*
	510.8 *5*	100
980.8	233.2 *5*	5.6 *6*
	335.6 *5*	22.9 *10*
	457.2 *5*	100
	744.1 *5*	3.6 *3*
1189.8	544.7 *5*	100
1235.4	254.7 *5*	5.7 *2*
	487.8 *5*	100
	590.5 *5*	6.9 *4*
1413.7	666.3 *5*	15.4 *7*
	890.0 *5*	100
1570.2	334.8 *5*	2.6 *3*
	380.3 *5*	1.2 *2*
	589.3 *5*	100

Continued on next page (footnotes at end of table)

^{252}Cf SF Decay 2009Lu18,2009Zh24,2013Sn01 (continued)

$\gamma(^{112}Ru)$ (continued)

E(level)	Eγ†	Iγ†	Mult.	Comments
1649.6	235.9 *5*	100		
	668.9 *5*	5.6 *4*		
	902.1 *5*	22.2 *11*		
1839.7	650.0 *5*	100	[E2]	Iγ: 100 in 2013Sn01.
1841.1	270.8 *5*	4.1 *5*		
	605.7 *5*	100	[E2]	Iγ: 44.5 in 2013Sn01.
	651.2 *5*			
1955.8	542.0 *5*	100		
	720.5 *5*	12.5 *7*		
	975.0 *5*	63 *3*		
1995.2	1014.4 *5*	33.3 *24*		
	1247.5 *5*	100		
	1350.2 *5*	16.7 *21*		
2003.4	589.7 *5*	<38.7		
	768.0 *5*			
	1022.5 *5*	100		
	1358.3 *5*	33 *7*		
2148.0	1167.2 *5*	20 *5*		
	1502.9 *5*	100		
2230.3	226.9 *5*	6.7 *17*		
	235.1 *5*	9.2 *17*		
	660.1 *5*	13.5 *23*		
	994.9 *5*	42 *6*		
	1040.6 *5*	100		
2231.4	581.9 *5*	100		
	995.8 *5*	68 *4*		
2263.5	693.3 *5*	100		
2334.3	331.0 *5*	12.1		
	764.1 *5*	34 *5*		
	1098.8 *5*	100		
	1144.6 *5*	40 *10*		
2392.0	1156.6 *5*	100		
2489.3	259.0 *5*	12.3 *12*		
	341.4 *5*	12.7 *20*		
	486.0 *5*	4.8 *12*		
	919.1 *5*	17 *3*		
	1299.6 *5*	100	D	Mult.: from (1299.6γ)(544.7γ)(θ): A_2=−0.090 *35*, A_4=−0.02 *6*. The predicted values for dipole–quadrupole cascade are: A_2=−0.071, A_4=0; and for quadrupole–quadrupole cascade are: A_2=−0.102 and A_4=−0.051.
2534.7	693.6 *5*	100	[E2]	Iγ: 26.5 in 2013Sn01.
2562.7	723.0 *5*	100	[E2]	Iγ: 55.9 in 2013Sn01.
2574.3	240.0‡ *5*			Eγ: from Figure 3 of 2009Lu18.
	426.3 *5*	10 *4*		
	733.1 *5*	4.2 *2*		
	1004.1 *5*	11.8 *15*		
	1384.6 *5*	100	D	Mult.: from (1384.6γ)(544.7γ)(θ): A_2=−0.07 *6*, A_4=−0.05 *9*. The predicted values for dipole–quadrupole cascade are: A_2=−0.071, A_4=0; and for quadrupole–quadrupole cascade are: A_2=−0.102 and A_4=−0.051.
2574.7	618.9 *5*	100		
2771.8	282.5 *5*	24 *5*		
	541.5 *5*	100		
	930.7 *5*	7.0 *18*		
	932.0 *5*	3.5 *8*		
2829.3	255.1 *5*	100.2 *24*		Iγ: 100.22.4 in table 3 of 2009Lu18 seems a misprint.
	340.0‡ *5*	4.5		
	495.1‡ *5*			
2899.9	507.9 *5*			
	1058.8 *5*	100		
2909.3	677.9 *5*	100		
3033.6	770.1 *5*	100		
3076.6	304.8 *5*	11.0 *23*		
	587.3 *5*	100		
	1237.0 *5*	40 *4*		

Continued on next page (footnotes at end of table)

^{252}Cf SF Decay 2009Lu18,2009Zh24,2013Sn01 (continued)

γ(^{112}Ru) (continued)

E(level)	Eγ†	Iγ†	Mult.	Comments
3094.2	264.8 *5*	9.3 *7*		
	519.8 *5*	100		
	830.7 *5*	23 *8*		
	1254.5 *5*	35 *6*		
3291.0	756.3 *5*	100	[E2]	Iγ: 10.2 in 2013Sn01.
3325.9	763.2 *5*	100	[E2]	Iγ: 31.3 in 2013Sn01.
3379.9	285.6 *5*	17.4 *22*		
	550.6 *5*	100		
3420.9	344.3 *5*	14 *3*		
	649.0 *5*	100		
3519.8	619.9 *5*	100		
3711.6	331.7 *5*	14.8 *13*		
	617.4 *5*	100		
	1148.8 *5*	26 *3*		
3768.7	347.8 *5*	17 *5*		
	692.0 *5*	100		
3870.9	837.3 *5*	100		
4032.6	321.0‡ *5*			Eγ: Reported only in 2010Ha16.
	652.7 *5*	100		
4095.9	804.9 *5*	100		
4118.1	792.2 *5*	100	[E2]	Iγ: 12.3 in 2013Sn01.
4198.8	430.1 *5*	20 *6*		
	778.0 *5*	100		
4213.4	693.6 *5*	100		
4428.4	716.8 *5*	100		
4561.8	793.1 *5*	100		
4764.2	893.3 *5*	100		
4769.7	737.1‡ *5*	100		
4951.2	855.3 *5*	100		
4954.3	836.2 *5*	100	[E2]	Iγ: 7.1 in 2013Sn01.
5072.9	874.1 *5*	100		
5227.9	799.5 *5*	100		
5700.8	936.6‡ *5*	100		
5829.7	875.4 *5*	100		
5854.0	902.8 *5*	100		
6725.2	895.4 *5*	100		

† From 2009Lu18 and 2009Zh24, unless otherwise noted. ΔEγ's were assigned by the evaluators. The Iγ values quoted from 2013Sn01 have uncertainties of 3 % for the strong transitions up to 40 % for the weak ones.
‡ Placement of transition in the level scheme is uncertain.

^{197}Au(^{19}F,Fγ),^{232}Th(^{18}O,Fγ),^{238}U(^{7}Li,Fγ) 1990DuZW

Facilities: ANL and Daresbury; Measured: Eγ, γγ, γγγ; Deduced: level scheme.

^{112}Ru Levels

E(level)†	Jπ‡
0.0	0+
236.0 *10*	2+
644.0 *15*	4+
1188.0 *18*	6+
1837.0 *20*	8+
2559.0 *23*	10+

† From a least–squares fit to Eγ. ΔEγ=1 keV assumed by the evaluators.
‡ From adopted levels.

^{197}Au(^{19}F,Fγ),^{232}Th(^{18}O,Fγ),^{238}U(^{7}Li,Fγ) 1990DuZW (continued)

γ(^{112}Ru)

Eγ†	E(level)
236	236.0
408	644.0
544	1188.0
649	1837.0
722	2559.0

† From 1990DuZW.

^{238}U(α,Fγ) 2006Wu01,2003Hu05

2003Hu05,2006Wu01: Facility: 88–inch cyclotron at LBNL; Beam: E(α)=30 MeV; Target: 300 μg/cm^2 ^{238}U on a 30 μg/cm^2 carbon backing; Detectors: CHICO and GAMMASPHERE; Measured: particle–γ–γ coin; Deduced: level scheme.

^{112}Ru Levels

E(level)†	Jπ#	Comments
0.0‡	0+	
236.6‡ *5*	2+	
523.7§ *5*	2+	
645.0‡ *6*	4+	
747.6§ *8*	3+	
980.6§ *7*	4+	
1189.9‡ *8*	6+	
1235.6§ *13*	5+	
1570.6§ *12*	6+	
1839.4‡ *10*	8+	
1840.6§ *16*	7+	
2263.6§ *16*	8+	
2534.6§ *19*	9+	
2562.7‡ *11*	10+	
3032.6§ *19*	10+	
3290.6§ *22*	11+	
3325.8‡ *12*	12+	
3868.6§ *21*	12+	
4095.6§ *24*	13+	
4117.7‡ *13*	14+	
4786.7§ *24*	14+	E(level): 4749.1 keV in 2006Wu01 probably is missprint. Does not fit with 918γ to 3869–keV level.
4953§ *3*	15+	
4953.8‡ *14*	16+	
5827.0‡ *15*	18+	
5857§ *3*	17+	
6722.6‡ *16*	20+	
6800§ *3*	19+	
7746.5‡ *17*	22+	

† From a least–squares fit to Eγ.
‡ Kπ=0+, g.s. band.
§ Kπ=2+, γ–vibrational band.
# From 2006Wu01, based on the observed band structures.

γ(^{112}Ru)

Eγ†	E(level)	Comments
224 *1*	747.6	
236.6‡ *5*	236.6	
287.1 *7*	523.7	Eγ: Deduced by the evaluators from the level–energy differences in Fig.7 (2006Wu01).
335.6 *8*	980.6	Eγ: Deduced by the evaluators from the level–energy differences in Fig.7 (2006Wu01).

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$^{238}U(\alpha,F\gamma)$ 2006Wu01,2003Hu05 (continued)

$\gamma(^{112}Ru)$ (continued)

Eγ†	E(level)	Comments
408.4‡ *5*	645.0	
457 *1*	980.6	
488 *1*	1235.6	
510.9 *8*	747.6	Eγ: Deduced by the evaluators from the level–energy differences in Fig.7 (2006Wu01).
523.7 *5*	523.7	Eγ: Deduced by the evaluators from the level–energy differences in Fig.7 (2006Wu01).
544.9‡ *5*	1189.9	
590 *1*	1570.6	
605 *1*	1840.6	
649.5‡ *5*	1839.4	
693 *1*	2263.6	
694 *1*	2534.6	
723.3‡ *5*	2562.7	
744.0 *8*	980.6	Eγ: Deduced by the evaluators from the level–energy differences in Fig.7 (2006Wu01).
756 *1*	3290.6	
763.1‡ *5*	3325.8	
769 *1*	3032.6	
791.9‡ *5*	4117.7	
805 *1*	4095.6	
836 *1*	3868.6	
836.1‡ *5*	4953.8	
857 *1*	4953	
873.2‡ *5*	5827.0	Eγ: 875 keV in 2006Wu01.
895.6‡ *5*	6722.6	
904 *1*	5857	
918 *1*	4786.7	
943 *1*	6800	
1023.8‡ *5*	7746.5	Eγ: 1026 keV in 2006Wu01.

† From 2006Wu01, unless otherwise stated. ΔEγ were estimated by the evaluators.
‡ From 2003Hu05.

Adopted Levels, Gammas

Q(β⁻)=6590 *40*; S(n)=5500 *40*; S(p)=10240 *50*; Q(α)=–6240 *40* 2012Wa38.

^{112}Rh Levels

Cross Reference (XREF) Flags

A ^{112}Ru β⁻ Decay
B ^{252}Cf SF Decay
C ^{208}Pb(^{18}O,Fγ)

E(level)†	Jπ	XREF	$T_{1/2}$	Comments
0.0	(1+)	A	3.6 s *3*	%β⁻=100. Jπ: Direct β⁻ decay feeding to the 0+ and 2+ states in ^{112}Pd; systematics of known Jπ and configurations in neighbouring nuclei. $T_{1/2}$: weighted average of 3.5 s *4* (1999Lh01) and 3.8 s *6* (1988Ay02); Others: 2.1 s *3* (1991Jo11), 1.2 s 6 (1987GiZW), 0.8 s *1* (1976MaYL), 5.17 s *7* (1969WiZX), <1.5 s (1978Fr16), 0.7 s *3* (1985Bu05). configuration: π7/2+[413]⊗ν5/2+[413] and prolate deformation from systematics of known orbitals in neighbouring nuclei (π7/2+[413] in even–Z ^{111}Ru and ^{113}Pd nuclei and ν5/2+[413] in even–n $^{107-111}$Rh nuclei); the assignment is supported by the Gallagher–Moszkowski rule.
82.27 *17*	(1+,2+)	A		Jπ: 82.3γ M1+E2 to (1+).
327.03 *17*	(1+)	A		Jπ: 327.0γ M1+E2 to (1+), 244.8γ M1(+E2) to (1+,2+); possible direct feeding in ^{112}Ru (Jπ=0+) β⁻ decay.
542.0 *5*	(1,2)	A		Jπ: 459.5γ to (1,2)+.
670.2 *5*	(1)	A		Jπ: 128.0γ to (1,2), 588.1γ to (1,2)+; possible direct feeding in ^{112}Ru (Jπ=0+) β⁻ decay.
0.0+y	(6+)	BC	6.76 s *12*	%β⁻=100. Jπ: direct β⁻ feeding to 5+ and 6+ states in ^{112}Pd; systematics of known Jπ and configurations in neighbouring nuclei. $T_{1/2}$: weighted average of 6.73 s *15* (1999Lh01) and 6.8 s *2* (1988Ay02). configuration: π7/2+[413]⊗ν5/2+[413] and prolate deformation from systematics of known orbitals in neighbouring nuclei (π7/2+[413] in even–Z ^{111}Ru and ^{113}Pd nuclei and ν5/2+[413] in even–n $^{107-111}$Rh nuclei); the assignment is supported by the Gallagher–Moszkowski rule.
60.58+y‡ *10*	(7–)	BC		Jπ: 60.58γ (E1) to (6+).
219.86+y§ *13*	(8–)	BC		Jπ: 159.16γ (M1+E2) to (7–); band member.
402.89+y‡ *13*	(9–)	BC		Jπ: 183.03γ (M1+E2) to (8–), 342.42γ to (7–); band member.
557.7+y# *3*	(9–)	B		Jπ: 337.9γ to (8–), 497.2γ to (7–).
671.45+y§ *14*	(10–)	BC		Jπ: 268.55γ to (9–), 451.46γ to (8–); band member.
802.6+y# *3*	(10–)	B		Jπ: 244.9γ to (9–), 582.8γ to (8–); band member.
913.45+y‡ *15*	(11–)	BC		Jπ: 241.98γ to(10–), 510.7γ to (9–); band member.
1230.2+y# *4*	(11–)	B		Jπ: 427.6γ to (10–), 672.5γ to (9–); band member.
1241.41+y§ *15*	(12–)	BC		Jπ: 327.96γ to (11–), 569.86γ to (10–); band member.
1515.1+y# *5*	(12–)	B		Jπ: 284.9γ to (11–), 712.5γ to (10–); band member.
1603.90+y‡ *16*	(13–)	BC		Jπ: 362.43γ to (12–), 690.56γ to (11–); band member.
1938.0+y# *7*	(13–)	B		Jπ: 422.9γ to (12–), 707.8γ to (11–); band member.
1947.55+y§ *17*	(14–)	BC		Jπ: 343.68γ to (13–), 706.08γ to (12–); band member.
2433.99+y‡ *17*	(15–)	B		Jπ: 486.47γ to (14–), 830.10γ to (13–); band member.
2769.36+y§ *18*	(16–)	B		Jπ: 335.4γ to (15–), 821.77γ to (14–); band member.

† From a least–squares fit to Eγ.
‡ (A): Member of the π7/2+[413]⊗ν7/2–[523],α=1 band.
§ (B): Member of the π7/2+[413]⊗ν7/2–[523],α=0 band.
# (C): Rotational band built on the (9–) state at 557.7+y keV.

γ(^{112}Rh)

E(level)	Eγ†	Iγ†	Mult.§	δ§	α	Comments
82.27	82.3‡ *2*	100‡	M1+E2	0.45 *+20–24*	1.0 *3*	Mult.,δ: from α(K)exp=0.77 *19* in 1991Jo11. Other: α(K)exp=0.45 from KX/γ–ray ratio (1991Jo11).
327.03	244.8‡ *2*	32‡ *2*	M1(+E2)	0.3 *3*	0.033 *5*	Mult.,δ: from α(K)exp=0.028 *9* in 1991Jo11. α(K)exp=0.053 *14* from KX/γ–ray ratio (1991Jo11).
	327.0‡ *2*	100‡ *7*	M1+E2	≈1.9	0.0197	Mult.,δ: from α(K)exp=0.017 *5* in 1991Jo11.

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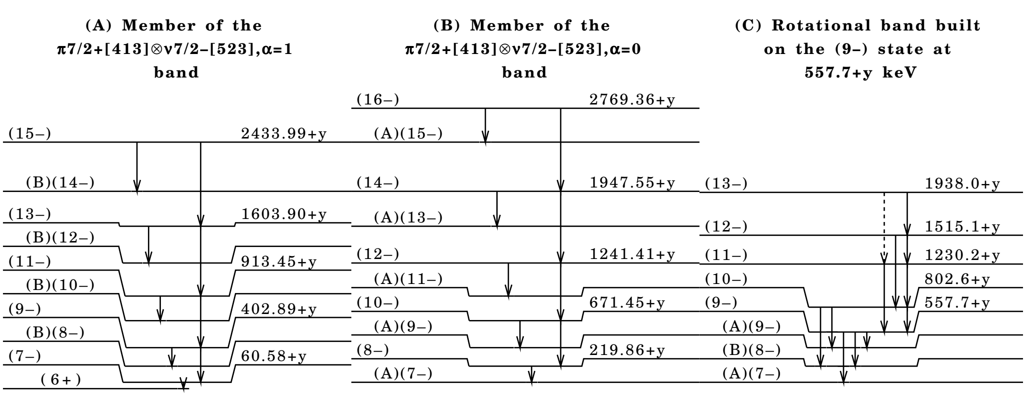
Adopted Levels, Gammas (continued)

γ(^{112}Rh) (continued)

E(level)	Eγ†	Iγ†	Mult.§	Comments
542.0	459.5‡ 5	100‡		
670.2	128.0‡ 5	11‡ 3		
	588.1‡ 5	100‡ 12		
60.58+y	60.58 10	100	(E1)	Mult.: Assumed assignment from similarities with ^{110}Rh in ^{252}Cf SF decay (2004Lu03).
219.86+y	159.16 10	100	(M1+E2)	Mult.: α(exp)=0.10 4 in ^{252}Cf SF decay (2004Lu03), assuming 60.58γ is E1.
402.89+y	183.03 10	100	(M1+E2)	Mult.: α(exp)=0.06 3 in ^{252}Cf SF decay (2004Lu03), assuming 60.58γ is E1.
	342.42 10	6.6		
557.7+y	154.7 5			
	337.9 5			
	497.2 5			
671.45+y	268.55 10	100		
	451.46 10	17		
802.6+y	244.9 5			
	399.6 5			
	582.8 5			
913.45+y	241.98 10	100 11		Iγ: From ^{208}Pb(^{18}O,Fγ).
	510.7 1	29 7		Iγ: From ^{208}Pb(^{18}O,Fγ).
1230.2+y	427.6 5			
	672.5 5			
1241.41+y	327.96 10	67		
	569.86 10	100		
1515.1+y	284.9 5			
	712.5 5			
1603.90+y	362.43 10	61		
	690.56 10	100		
1938.0+y	422.9 5			
	707.8# 5			
1947.55+y	343.68 10	46		
	706.08 10	100		
2433.99+y	486.47 10			
	830.10 10			
2769.36+y	335.4 1			
	821.77 10			

† From ^{252}Cf SF decay, unless otherwise noted.
‡ From ^{112}Ru β^- decay.
§ From α(K)exp in ^{112}Ru β^- decay (1991Jo11), unless otherwise noted.
# Placement of transition in the level scheme is uncertain.



$^{112}_{45}Rh_{67}$

^{112}Ru β^- Decay 1991Jo11

Parent ^{112}Ru: E=0.0; Jπ=0+; $T_{1/2}$=1.75 s *7*; Q(g.s.)=4104 *45*; %β^- decay=100.

1991Jo11: Facility: IGISOL at Jyvaskyla; Source: Mass separated from ^{238}U(p,F). E(p)=20 MeV: Detectors: ΔE–E telescope comprising one Si(Au) surface barrier detector and one plastic scintillator, two HPGe, CE spectrometer ELLI; Measured: Q_β, Eγ, Iγ, CE, $T_{1/2}$; Deduced: level scheme, Jπ, log *ft*; Also from the same group: 1990AyZX, 1990JoZY, 1990JoZS.

^{112}Rh Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	(1+)	2.1 s *3*	$T_{1/2}$: From 1991Jo11 using a two component fit to 777.5γ–β(t) (^{112}Pd), one associated with decay from ^{112}Ru (1.75 s *7*) and the other with a direct population of ^{112}Rh in fission.
82.27 *17*	(1+,2+)		
327.03 *17*	(1+)		
542.0 *5*			
670.2 *5*	(1)		

† From a least–squares fit to Eγ.
‡ From Adopted levels.

β^- radiations

Eβ⁻	E(level)	Iβ⁻†‡	Log *ft*†	Comments
(3430 *50*)	670.2	≈1.9	≈5.5	
(3560 *50*)	542.0	≈0.2	≈6.5	
(3780 *50*)	327.03	≈24.4	≈4.5	Eβ⁻: 4190 keV *80* using a sum gates on 245γ and 327γ (1991Jo11).
(4020 *50*)	82.27	≈3.5	≈5.5	
(4100 *50*)	0.0	≈70	≈4.2	Iβ⁻: 70 *+15–70* in 1991Jo11 using a fit to 777.5γ–β(t) (^{112}Pd).

† The decay scheme is incomplete, the quoted values are approximate.
‡ Absolute intensity per 100 decays.

γ(^{112}Rh)

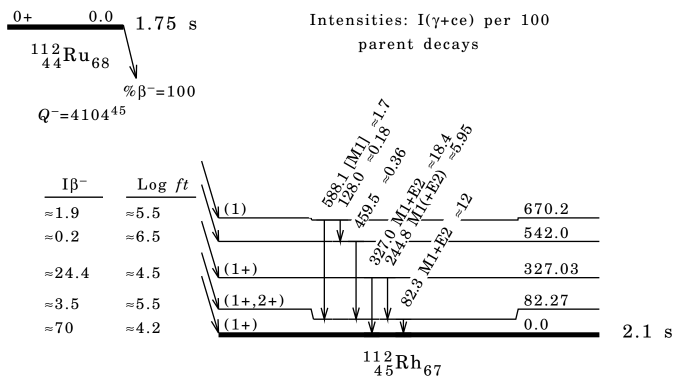
Iγ normalization: From I(γ+ce)(82.3γ) + I(γ+ce)(327.0γ)≈30. The decay scheme is incomplete and the quoted value is approximate.

Eγ†	E(level)	Iγ†§	Mult.‡	δ	α	Comments
82.3 *2*	82.27	320 *20*	M1+E2	0.45 *+20–24*	1.0 *3*	Mult.,δ: from α(K)exp=0.77 *19* in 1991Jo11. α(K)exp=0.45 from KX/γ–ray ratio (1991Jo11).
128.0 *5*	670.2	10 *3*				
244.8 *2*	327.03	320 *20*	M1(+E2)	0.3 *3*	0.033 *5*	Mult.,δ: from α(K)exp=0.028 *9* in 1991Jo11. α(K)exp=0.053 *14* from KX/γ–ray ratio (1991Jo11).
327.0 *2*	327.03	1000 *70*	M1+E2	≈1.9	0.0197	Mult.,δ: from α(K)exp=0.017 *5* in 1991Jo11.
ˣ429						
459.5 *5*	542.0	20 *6*				
588.1 *5*	670.2	94 *11*	[M1]		0.00347	

† From 1991Jo11.
‡ From α(K)exp in 1991Jo11.
§ For absolute intensity per 100 decays, multiply by ≈0.018.
ˣ γ ray not placed in level scheme.

^{112}Ru β^- Decay 1991Jo11 (continued)

Decay Scheme



^{252}Cf SF Decay 2004Lu03,2013Li23

Parent ^{252}Cf: E=0; Jπ=0+; $T_{1/2}$=2.645 y *8*; %SF decay=3.086 *8*.

2004Lu03,2013Li23, : Source: 62 μCi ^{252}Cf, placed between 10 mg/cm^2 thick Fe foils; Detectors: GAMMASPHERE array consisting of 102 Compton–suppressed Ge detectors; Measured γγ, γγγ, Eγ, Iγ; Deduced: ^{112}Rh level scheme.

Others: 1972Ho08, 1971Ho29, 1974ClZX, 1970Jo20, 1969WiZX.

^{112}Rh Levels

E(level)†	Jπ‡	Comments
y	(6+)	
y+60.58§ *10*	(7−)	$T_{1/2}$: 24 ns *6* for 60.3γ originating from a nuclide with A=112 *1* in 1970Jo20; 45 ns *3* for 60.6γ in 1974ClZX, assigned to ^{111}Rh by the authors.
y+219.86# *13*	(8−)	
y+402.88§ *13*	(9−)	
y+557.8@ *4*	(9−)	
y+671.44# *14*	(10−)	
y+802.7@ *4*	(10−)	
y+913.45§ *15*	(11−)	
y+1230.3@ *5*	(11−)	
y+1241.41# *15*	(12−)	
y+1515.2@ *6*	(12−)	
y+1603.90§ *16*	(13−)	
y+1938.1@ *8*	(13−)	
y+1947.55# *17*	(14−)	
y+2433.99§ *17*	(15−)	
y+2769.36# *18*	(16−)	

† From least–squares fit to Eγ.
‡ From 2004Lu03 and 2013Li23.
§ (A): $\pi g_{9/2}\otimes\nu h_{11/2}$, α=1 rotational band.
# (B): member of $\pi g_{9/2}\otimes\nu h_{11/2}$, α=0 rotational band.
@ (C): rotational band built on the (9−) state at y+557.8 keV.

γ(^{112}Rh)

Eγ†	E(level)	Iγ†	Mult.§	Comments
60.58 *10*	y+60.58	>200	(E1)	Mult.: Assumed assignment from similarities with ^{110}Rh.
154.7‡ *5*	y+557.8			
159.16 *10*	y+219.86	100	(M1+E2)	Mult.: α(exp)=0.10 *4*, assuming 60.58γ is E1.
183.03 *10*	y+402.88	55.9	(M1+E2)	Mult.: α(exp)=0.06 *3*, assuming 60.58γ is E1.

Continued on next page (footnotes at end of table)

^{252}Cf SF Decay 2004Lu03,2013Li23 (continued)

γ(^{112}Rh) (continued)

Eγ†	E(level)	Iγ†	Comments
x189.5			Eγ: from 1970Jo20, originating from a nuclide with A=112 *1*, but not seen in 2004Lu03. It is probably the ^{111}Rh γ ray depopulating the 1/2− level at 492.7 keV. The γ(t) analysis in 1970Jo20 gives $T_{1/2}$=7 ns *2*; Others: 5.7 ns *12* in 1974ClZX, but no mass assignment was made.
241.98 *10*	y+913.45	8.4	
244.9‡ *5*	y+802.7		
268.55 *10*	y+671.44	29.5	
284.9‡ *5*	y+1515.2		
327.96 *10*	y+1241.41	6.9	
335.4 *1*	y+2769.36		
337.9‡ *5*	y+557.8		
342.42 *10*	y+402.88	3.7	Eγ: 342.3 in figure 7 of 2004Lu03.
343.68 *10*	y+1947.55	2.0	
362.43 *10*	y+1603.90	3.1	
399.6‡ *5*	y+802.7		
422.9‡ *5*	y+1938.1		
427.6‡ *5*	y+1230.3		
451.46 *10*	y+671.44	5.1	
486.47 *10*	y+2433.99	1.6	
497.2‡ *5*	y+557.8		
510.7 *1*	y+913.45		Eγ: 510.6 in figure 7 of 2004Lu03.
569.86 *10*	y+1241.41	10.3	
582.8‡ *5*	y+802.7		
672.5‡ *5*	y+1230.3		
690.56 *10*	y+1603.90	5.1	
706.08 *10*	y+1947.55	4.4	
707.8‡# *5*	y+1938.1		
712.5‡ *5*	y+1515.2		
821.77 *10*	y+2769.36		
830.10 *10*	y+2433.99		

† From 2004Lu03, unless otherwise noted.
‡ From 2013Li23. Uncertainties were estimated by the evaluators.
§ From the intensity imbalances and α in 2004Lu03.
# Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{208}Pb(^{18}O,Fγ) 2003Po11,2003Fo09

2003Po11: Facility: IReS Vivitron accelerator; Beam: E(^{18}O)=85 MeV; Target: 20 mg/cm^2 ^{208}Pb; Detectors: EUROBALL IV consisting of 15 Cluster, 26 Clover and 30 single HPGe detectors; Measured: γγ, γγγ, Eγ, Iγ; Deduced: ^{112}Rh level scheme.

2003Fo09: Facility: 88-inch cyclotron at LBNL and Gammasphere. In addition to the ^{208}Pb(^{18}O,Fγ) reaction (91 MeV beam energy with a 45 mg/cm^2 thick target and 100 detectors), the ^{173}Yb(^{24}Mg,Fγ) (134.5 MeV, 1 mg/cm^2 thick target on a 7 mg/cm^2 thick Au backing and 92 detectors) and ^{173}Yb(^{23}Na,Fγ) (129 MeV, 1 mg/cm^2 thick target on a 10 mg/cm^2 thick Au backing and 100 detectors) were used. Measured: 3- and 4-fold γ-ray coincidences; Eγ, Iγ; Deduced: level scheme.

^{112}Rh Levels

E(level)†	Jπ‡
y	(6+)
y+59.7§ *4*	(7−)
y+218.3 *5*	(8−)
y+400.6# *5*	(9−)
y+668.8§ *6*	(10−)
y+910.4# *6*	(11−)
y+1238.4§ *6*	(12−)
y+1600.7# *7*	(13−)

Continued on next page (footnotes at end of table)

$^{208}Pb(^{18}O,F\gamma)$ 2003Po11,2003Fo09 (continued)

^{112}Rh Levels (continued)

E(level)†	Jπ‡
y+1943.9§ 7	(14−)

† From least-squares fit to Eγ's.
‡ From the adopted levels.
§ (A): member of $\pi g_{9/2}\otimes\nu h_{11/2}$, α=1 rotational band.
# (B): member of $\pi g_{9/2}\otimes\nu h_{11/2}$, α=0 rotational band.

γ(^{112}Rh)

Eγ†	E(level)	Iγ†	Comments
59.7‡ 4	y+59.7		Eγ: Not reported in 2003Fo09.
158.6‡ 2	y+218.3		Eγ: 159.8 in 2003Fo09.
182.4 2	y+400.6	100 10	Eγ,Iγ: Eγ=182.8 and Iγ=100 in 2003Fo09.
241.5 2	y+910.4	45 5	Eγ,Iγ: Eγ=241.7 and Iγ=50.3 5 in 2003Fo09.
268.2 2	y+668.8	52 5	Eγ,Iγ: Eγ=268.3 and Iγ=55.4 5 in 2003Fo09.
327.8 4	y+1238.4	20 5	Eγ,Iγ: Eγ=327.8 and Iγ=23.9 3 in 2003Fo09.
343.5 5	y+1943.9	5 2	
362.2 4	y+1600.7	9 3	Eγ,Iγ: Eγ=362.1 and Iγ=11.9 2 in 2003Fo09.
449.9 7	y+668.8	10 3	Eγ,Iγ: Eγ=451.2 and Iγ=10.3 2 in 2003Fo09.
510.0 5	y+910.4	13 3	Eγ,Iγ: Eγ=510.2 and Iγ=19.7 3 in 2003Fo09.
569.7 5	y+1238.4	8 2	Eγ,Iγ: Eγ=569.7 and Iγ=6.0 8 in 2003Fo09.
690.5 5	y+1600.7	11 3	Eγ,Iγ: Eγ=690.2 and Iγ=5.6 5 in 2003Fo09.
705.3 5	y+1943.9	4 2	

† From 2003Po11.
‡ The ordering of the 59.7–keV and 158.6–keV transitions in 2003Po11 is reversed by the evaluators in the adopted level scheme, based on the ^{252}Cf SF decay data.

Adopted Levels, Gammas

$Q(\beta^-)$=262 *7*; S(n)=–8407 *7*; S(p)=–11306 *9*; $Q(\alpha)$=–5087 *11* 2012Wa38.

^{112}Pd Levels

Cross Reference (XREF) Flags

A ^{112}Rh β^- Decay (3.6 s)	D ^{110}Pd(t,p)
B ^{112}Rh β^- Decay (6.76 s)	E ^{110}Pd(t,pγ)
C ^{252}Cf SF Decay	F ^{208}Pb(^{18}O,Xγ)

E(level)†	Jπ‡	XREF	$T_{1/2}$	Comments
0.0§	0+	ABCDEF	21.04 h *17*	%β^-=100. $T_{1/2}$: Weighted average of 21.045 h +29–65 (1977Gi11), 21.12 h 8 (1974Ro18), 20.12 h 6 (1971Ba28), 21.0 h 5 (1959Gi66) and 21.02 h 2 (1957Me49).
348.66§ *13*	2+	ABCDEF	84 ps *14*	XREF: D(351). Jπ: L=2 in ^{110}Pd(t,p) (1972Ca10); 348.7γ to 0+. $T_{1/2}$: from recoil–distance Doppler–shift method in ^{252}Cf SF decay (1986Ma22) Other: <1 ns from ^{252}Cf SF decay (1970Ch11); Also: $T_{1/2}$ might be overestimated according to B(E2) systematics in 2011Ki17.
736.72# *14*	2+	ABCDEF		Jπ: 388.0γ E2(+M1) to 2+ and 736.7γ (E2) to 0+; systematics of the second 2+ states; Other: (4+) from L(t,p)=(4) in ^{110}Pd(t,p) (1972Ca10).
882.96§ *16*	4+	ABCDEF		XREF: D(882). Jπ: 534.3γ E2 to 2+; band member; Other: (2+) from L=(2) in ^{110}Pd(t,p) (1972Ca10).
923.7 *7*	1,2+	DE		XREF: D(928). Jπ: 924.4γ to 2+, 574.4γ to 0+.
1096.27# *16*	3+	ABC EF		Jπ: 359.6γ E2(+M1) to 2+, 213.3γ to 4+; band member.
1125.48c *21*	0+	A DE		XREF: D(1123). Jπ: L=0 in ^{110}Pd(t,p); 1125.3γ E0 to 0+.
1139.83 *21*	(0,1,2)+	A		Jπ: 791.2γ E2 to 2+; Direct feeding from Jπ=(1+) in ^{112}Rh β^- decay (3.6 s).
1362.37# *17*	(4+)	BC EF		Jπ: 625.7γ to 2+, 479.4γ to 4+; band member.
1402.64 *17*	2+	A		Jπ: 519.8γ to 4+, 1402.6γ to 0+.
1422.68c *15*	2+	AB F		Jπ: 539.7γ to 4+, 1422.6γ to 0+; band member.
1550.47§ *19*	6+	BC EF		Jπ: 667.3γ E2 to 4+; band member.
1714.87 *17*	(3,4+)	BC F		Jπ: 978.2γ to 2+ and 831.9γ to 4+; near–yrast state populated in ^{252}Cf SF decay (1999Bu32); not observed in ^{112}Rh β^- decay (3.6 s), (1+) (1999Lh01).
1747.5? *5*	(1,2+)	A		Jπ: 1398.8γ to 2+; observation in ^{112}Rh β^- decay (3.6 s), Jπ=(1+).
1758.97# *19*	(5+)	BC F		Jπ: 662.7γ to 3+, 876.0γ to 4+; no observation γ rays to 2+ states; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+); band member.
1774.4? *5*	(1,2+)	A		Jπ: 1425.7γ to 2+; observation in ^{112}Rh β^- decay (3.6 s), Jπ=(1+).
1887.4c *3*	(4+)	B F		XREF: F(1886.4). Jπ: 464.7γ to 2+, 791.1γ M1+E2 to 3+, a tentative 1004.7γ to 4+; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+); band member.
1951.6 *4*	(3,4+)	B		Jπ: 1069.2γ to 4+ and 1214.8γ to 2+; not observed in ^{112}Rh β^- decay (3.6 s), (1+) (1999Lh01).
2002.73# *23*	(6+)	BC EF		Jπ: 640.4γ to (4+); band member.
2036.47 *25*	(2–,3,4+)	B		Jπ: 1687.8γ to 2+; 158.1γ from (4)–.
2107.4 *4*	(1,2+)	A		Jπ: 1758.7γ to 2+, a tentative 2106.6γ to 0+; direct feeding in ^{112}Rh β^- decay (3.6 s), Jπ=(1+).
2158.0 *4*	(3,4,5+)	B		Jπ: 1061.7γ to 3+; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+).
2194.57 *17*	(4)–	BC F		Jπ: 1098.6γ E1(+M2) to 3+, 1311.6γ E1+M2 to 4+; 435.6γ to (5+).
2200.59 *18*	(5,6+)	B F		XREF: F(2199.6). Jπ: 1317.6γ to 4+ and 650.1γ to 6+; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+).
2269.38@ *21*	(5–)	BC F		Jπ: 1386.4γ to 4+.
2318.3§ *4*	8+	C EF		Jπ: 767.8γ E2 to 6+; band member.
2334.1 *4*	(5,6+)	B		Jπ: 1451.1γ to 4+; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+).
2354.47 *19*	(4,5+)	BC F		Jπ: 159.9γ to (4)–, 1471.5γ to 4+, 1258.2γ to 3+. No transitions to 2+; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+).
2356.7 *7*	(1,2+)	A		Jπ: 2008.1γ to 2+; observation in ^{112}Rh β^- decay (3.6 s), Jπ=(1+).
2395.17 *22*	(5+)	B		Jπ: 1298.9γ to 3+ and 1512.1γ to 4+; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+).
2430.8 *5*	(5,6+)	B		Jπ: 1547.8γ to 4+; observation in ^{112}Rh β^- decay (3.76 s), Jπ=(6+).
2432.5? *5*	(1,2+)	A		Jπ: 2432.7γ to 0+; observation in ^{112}Rh β^- decay (3.6 s), Jπ=(1+).

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Adopted Levels, Gammas (continued)

^{112}Pd Levels (continued)

E(level)†	Jπ‡	XREF	Comments
2441.4 *3*	(5,6+)	B	Jπ: 726.5γ to (3,4+) and 890.9γ to 6+; observation in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
2466.1? *6*	(1,2+)	A	Jπ: 2117.4γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2482.9# *5*	(7+)	C F	Jπ: 724.0γ to (5+); band member.
2496.87 *24*	(0+,1,2)	A	Jπ: 1760.1γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2509.8 *6*	(1,2+)	A	Jπ: 2161.1γ to 2+, 2511.2γ to 0+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2540.5 *5*	(0+,1,2)	A	Jπ: 1803.8γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2543.2 *3*	(5+)	B	Jπ: 1446.9γ to 3+ and 1660.3γ to 4+; direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
2578.7& *4*	(6−)	BC F	Jπ: 1028.3γ to 6+, 309.2γ to (5−). No γ transitions to 4+ states; band member.
2603.9 *5*	(0+,1,2)	A	Jπ: 1867.2γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2614.5a *8*	(6−)	F	Jπ: 855γ to (5+); band member.
2629.7 *6*	(5,6,7)	B	Jπ: 1079.2γ to 6+; direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
2638.6# *6*	(8+)	F	Jπ: 1088γ to 6+; band member.
2665.5 *5*	(1,2+)	A	Jπ: 2316.8γ to 2+, 2664.7γ to 0+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2688.14 *24*	(0+,1,2)	A	Jπ: 2339.7γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2691.2 *4*	(8+)	C F	Jπ: 1140.3γ to 6+.
2704.5@ *4*	(7−)	C F	Jπ: 1153.9γ to 6+, 434.8γ to (5−); band member.
2711.4b *5*	(7−)	C F	Jπ: 1161.5γ to 6+; band member.
2747.3 *3*	(1,2+)	A	Jπ: 2746.7γ to 0+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2754.78 *17*	5+	BC F	Jπ: 1204.3γ M1+E2 to 6+,1658.5γ to 3+; direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+); Others: J=4 in ^{252}Cf SF decay (1999Bu32) and ^{208}Pb(^{18}O,Xγ) (2001Kr08).
2770.0 *7*	(0+,1,2)	A	Jπ: 2421.3γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2795.8? *6*	(0+,1,2)	A	Jπ: 2447.1γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2836.4 *5*	(0+,1,2)	A	Jπ: 2488.2γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
2898.9& *4*	(8−)	C F	Jπ: 320.2γ to (6−); band member.
2966.60 *23*	(5,6+)	BC	Jπ: 1604.2γ to (4+), 1416.1γ to 6+; direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
2977.2? *6*	(0+,1,2)	A	Jπ: 2628.6γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
3013.8 *5*	(0+,1,2)	A	Jπ: 2665.0γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
3043.3 *4*	(5,6)	B	Jπ: 1493.1γ to 6+; direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
3045.5a *13*	(8−)	F	Jπ: 431γ to (6−); band member.
3050.1§ *6*	10+	C F	Jπ: 731.9γ E2 to 8+; band member.
3084.7# *6*	(9+)	C F	Jπ: 393γ to (8+), 601.9γ to (7+); band member.
3137.3@ *4*	(9−)	C F	Jπ: 432.9γ to (7−), 819.0γ to 8+; band member.
3175.3 *11*		F	
3225.5 *6*	(0+,1,2)	A	Jπ: 2876.6γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
3260.9 *11*		F	
3265.2b *6*	(9−)	C F	XREF: C(3266.0)F(3263.4). Jπ: 554.1γ to (7−), 946γ to 8+; band member.
3327.0# *7*	(10+)	F	Jπ: 689γ to (8+); band member.
3337.9? *9*	(0+,1,2)	A	Jπ: 2989.2γ to 2+; direct feeding in ^{112}Rh β⁻ decay (3.6 s), Jπ=(1+).
3447.2& *6*	(10−)	C F	Jπ: 548.0γ to (8−); band member.
3597.9§ *8*	(12+)	C F	Jπ: 547.8γ to 10+; band member.
3625.7# *12*	(11+)	F	Jπ: 541γ to (9+); band member.
3654.5a *16*	(10−)	F	Jπ: 609γ to (8−); band member.
3744.7@ *6*	(11−)	C F	Jπ: 297γ to (10−), 607.7γ to (9−); band member.
3759.6 *5*	(5,6+)	B	Jπ: 2208.9γ to 6+, 2397.6γ to (4+); direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
3772.0 *8*	(5,6+)	B	Jπ: 2409.6γ to (4+); direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
3794.3 *9*	(5,6+)	B	Jπ: 2911.3γ to 4+; direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
3940.3 *9*	(5,6+)	B	Jπ: 3057.3γ to 4+; direct feeding in ^{112}Rh β⁻ decay (3.76 s), Jπ=(6+).
3951.2b *12*	(11−)	F	Jπ: 686γ to (9−); band member.
4046.3 *15*		F	
4086.3 *15*		F	
4117.0& *9*	(12−)	F	Jπ: 373γ to (11−), 669γ to (10−); band member.
4321.9§ *9*	(14+)	C F	Jπ: 724.0γ to (12+); band member.
4327.7# *16*	(13+)	F	Jπ: 702γ to (11+); band member.
4391.5a *19*	(12−)	F	Jπ: 737γ to (10−); band member.
4477.7@ *12*	(13−)	F	Jπ: 733γ to (11−); band member.
4748.2b *16*	(13−)	F	Jπ: 797γ to (11−); band member.
4931.3 *18*		F	
5221.9§ *14*	(16+)	F	Jπ: 900γ to (14+); band member.

† From a least squares fit to γ ray energies.
‡ Based on the band structure, unless otherwise noted.
§ (A): Member of ΔJ=2 ground-state band.

Footnotes continued on next page

Adopted Levels, Gammas (continued)

^{112}Pd Levels (continued)

\# (B): Member of the quasi–gamma band.
@ (C): Member of ΔJ=2 band built on the (5–) state; configuration=$\nu h_{11/2} \otimes (g_{7/2},d_{5/2})$, α=1.
& (D): Member of ΔJ=2 band built on the (6–) state; configuration=$\nu h_{11/2} \otimes (g_{7/2},d_{5/2})$, α=0.
a (E): Member of ΔJ=2 band built on the (6–) state; configuration=$\nu h_{11/2} \otimes (s_{1/2},d_{3/2})$, α=0.
b (F): Member of ΔJ=2 band built on the (7–) state; configuration=$\nu h_{11/2} \otimes (s_{1/2},d_{3/2})$, α=1.
c (G): Probable member of ΔJ=2 intruder band (1999Lh01).

γ(^{112}Pd)

E(level)	Eγ[†]	Iγ[†]	Mult.	δ[†&]	α	Comments
348.66	348.7 2	100	(E2)		0.0181	B(E2)(W.u.)=40 7.
736.72	388.0 2	100 7	E2(+M1)	−4.7 +17−35	0.01276 23	Mult.: A_2=0.08 4; A_4=0.28 5, gated on 388.0γ and 348.8γ in ^{252}Cf SF decay (1999Bu32); A_{22}=0.089 34 gated on 348.7γ and 388.0γ in 1999Lh01.
	736.7 2	31 4	(E2)		0.00209	Mult.: A_{22}=−0.208 41 gated on 359.6γ and 736.7γ in 1999Lh01.
882.96	534.3 2	100	E2		0.00494	Mult.: A_2=0.14 2; A_4=−0.01 2, gated on 534.3γ and 348.8γ in ^{252}Cf SF (1999Bu32); A_{22}=0.105 34 gated on 348.7γ and 534.3γ in 1999Lh01.
923.7	574.4[‡]	100[‡]				
	924.4[‡]	19[‡]				
1096.27	213.3 2	3.6 6				
	359.6 2	100 8	M1+E2		0.01252	Mult.: A_2=−0.16 7; A_4=−0.06 8, gated on 359.4γ and 736.8γ in ^{252}Cf SF (1999Bu32); A_{22}=0.041 35 gated on 348.7γ and 359.6γ in 1999Lh01.
	747.6 2	79 8	E2(+M1)	−1.65 10	0.00205	Mult.: A_{22}=−0.485 47 gated on 348.7γ and 747.6γ in 1999Lh01.
1125.48	386.2					Eγ: from ^{110}Pd(t,pγ).
	776.9 2	100	E2		0.00183	Mult.: A_{22}=0.493 66 gated on 348.7γ and 776.9 in ^{112}Rh β^- decay (1999Lh01).
	1125.3		E0			Eγ: from ^{110}Pd(t,pγ). Mult.: from I(E0,K)/I(tot)>58×10^6 (1987Es01) and I(ce(K) 1125)/Iγ(777γ)=1.26×10^{-4} in 110Pd(t,pγ) (1987Es01,1986HeZT).
1139.83	402.8[@] 4	31[@] 7				
	791.2[@] 2	100[@] 14	E2		1.75×10^{-3}	Mult.: A_{22}=0.34 8 in ^{112}Rh β^- decay (3.6 s) (1999Lh01).
1362.37	479.4 2	25 4				
	625.7 2	100 9				
	1013.9[a] 4	4.7 25				
1402.64	519.8[@] 5	9.3[@] 23				
	665.8[@] 5	30[@] 12				
	1054.0[@] 2	100[@] 14				
	1402.6[@] 3	67[@] 9				
1422.68	297.1[@] 4	14[@] 3				
	326.6[@] 3	28[@] 6				
	539.7[@] 3	25[@] 6				
	686.0[@] 2	100[@] 11				
	1074.0[@] 2	56[@] 11				
	1422.6[@] 3	81[@] 17				
1550.47	667.5 2	100	E2		0.00269	Mult.: A_2=0.13 2; A_4=−0.03 3, gated on 667.3γ and 534.3 in ^{252}Cf SF (1999Bu32); A_{22}=0.097 45 gated on 348.7γ and 667.5γ in ^{112}Rh β^- decay (6.76 s) (1999Lh01).
1714.87	618.6 2	100 11				
	831.9 2	26 5				
	978.2 5	53 5				
	1366.2[a] 4	11 5				
1747.5?	1398.8[@a] 4	100[@]				
1758.97	396.6[a] 4	5.2 17				
	662.7 2	100 10				

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{112}Pd)$ (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.	δ[†&]	α	Comments
1758.97	876.0 *4*	3.5 *17*				
1774.4?	1425.7[@a] *4*	100[@]				
1887.4	464.7 *4*	50 *17*				
	791.1 *3*	100 *33*	M1+E2		0.00191	Mult.: A_{22}=0.339 *77* gated on 348.7γ and 791.1γ in ^{112}Rh β^- decay (6.76 s) (1999Lh01).
	1004.7[a] *5*	23 *10*				
1951.6	855.1 *5*	80 *20*				
	1069.2 *6*	42 *10*				
	1214.8 *5*	100 *40*				
2002.73	453.8[‡a]	45[‡]				
	640.4 *2*	100				
2036.47	1687.8 *5*	100				
2107.4	1758.7[@] *3*	100[@] *21*				
	2106.6[@a] *5*	19[@] *5*				
2158.0	1061.7 *3*	100				
2194.57	158.1 *2*	0.18 *6*				
	435.6 *2*	0.8 *2*				
	479.7 *2*	3.4 *4*				
	832.2 *2*	0.28 *6*				
	1098.3 *2*	100 *10*	E1(+M2)	−0.43 *32*	0.0006 *4*	Mult.: A_2=0.07 *5*; A_4=0.03 *6*, gated on 1098.6γ and 359.4γ in ^{252}Cf SF (1999Bu32); A_{22}=0.014 *40* gated on 359.6γ and 1098.3γ in ^{112}Rh β^- decay (6.76 s) (1999Lh01).
	1311.6 *2*	17.2 *22*	E1+M2	−0.43 *32*	0.00053 *21*	Mult.: A_{22}=0.169 *52* gated on 348.7γ and 1311.6γ in ^{112}Rh β^- decay (6.76 s) (1999Lh01).
	1457.9[a] *2*	0.4 *4*				
	1845.9 *5*	1.0 *4*				
2200.59	441.3[a] *4*	25 *13*				
	485.7 *2*	100 *13*				
	650.1 *2*	50 *13*				
	838.2 *2*	100 *25*				
	1317.6 *3*	63 *25*				
2269.38	1386.4 *2*	100				
2318.3	767.8[§] *3*	100[§]	E2		0.00188	Mult.: A_2=0.16 *5*; A_4=−0.01 *6*, gated on 767.8γ and 667.3γ in 252Cf SF (1999Bu32).
2334.1	1451.1 *3*	100				
2354.47	159.9 *3*	7.4 *18*				
	993.3[a] *6*	2.1 *9*				
	1258.2 *2*	29 *6*				
	1471.5 *2*	100 *15*	M1		5.57×10^{-4}	Mult.: A_{22}=0.188 *65* gated on 348.7γ and 1471.5γ in 1999Lh01; δ:−0.017 in 1999Lh01.
2356.7	2008.1[@a] *6*	100[@]				
2395.17	1298.9 *3*	100 *17*				
	1512.1 *5*	83 *17*				
2430.8	1547.8 *4*	100				
2432.5?	2083.4[a] *7*	100				
	2432.7[a] *6*	100				
2441.4	726.5 *3*	100 *25*				
	890.9 *3*	58 *13*				
2466.1?	2117.4[@a] *5*	100[@]				
2482.9	724.0[§] *5*	100[§]				
2496.87	1074.3[@] *3*	54[@] *13*				
	1094.2[@] *4*	50[@] *17*				
	1760.1[@] *4*	100[@] *17*				
	2147.7[@] *7*	25[@] *13*				
2509.8	2161.1[@] *5*	100[@] *33*				
	2511.2[@a] *7*	25[@] *8*				
2540.5	1803.8[@] *4*	100[@]				
2543.2	1446.9 *3*	100 *15*				
	1660.3 *5*	38 *8*				
2578.7	309.2 *5*					Eγ: From ^{252}Cf SF decay.
	1028.3 *4*	100				

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{112}Pd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.	α	Comments
2603.9	1867.2[@] 4	100[@]			
2614.5	855[#] 1	100[#]			
2629.7	1079.2 5	100			
2638.6	636[#] 1	[#]			
	1088[#] 1	[#]			
2665.5	2316.8[@] 4	100[@] 25			
	2664.7[@a]	69[@] 50			
2688.14	1265.5[@] 4	31[@] 9			
	1285.2[@] 5	28[@] 9			
	1951.3[@] 4	41[@] 9			
	2339.7[@] 4	100[@] 16			
2691.2	688.5[§] 5	100[§]			
	1140.3 5				Eγ: from ^{252}Cf SF decay.
2704.5	434.8[a] 5				Eγ: from ^{252}Cf SF decay.
	1153.9[§] 5	100[§]			
2711.4	1161.5[§] 5	100[§]			
2747.3	1344.8[@] 3	25[@] 6			
	1607.3[@] 4	19[@] 4			
	2398.7[@] 5	100[@] 13			
	2746.6[@a] 5	21[@] 4			
2754.78	359.6 2	0.48 16			
	400.3 2	6.6 8			
	485.4 2	1.9 3			
	554.2 2	1.61 16			
	560.2 2	100 10	D		Mult.: A_2=0.14 3; A_4=−0.02 4, gated on 560.5γ and 1098.6γ in ^{252}Cf SF (1999Bu32).
	802.9[a] 4	0.32 16			
	995.8 2	3.7 5			
	1039.9 2	1.9 3			
	1204.3 2	4.3 7	M1+E2	7.60×10^{-4}	Mult.: A_{22}=0.078 73 gated on 348.7γ and 1204.3γ in ^{112}Rh β^- decay (6.76 s) (1999Lh01).
	1392.4 3	0.81 16			
	1658.5 3	5.5 8	(E2)	4.98×10^{-4}	Mult.: A_{22}=−0.105 89 gated on 359.6γ and 1658.5γ in 1999Lh01 would suggest D, but the level scheme requires ΔJ=2.
	1871.8 4	3.7 7			
2770.0	2421.3[@] 6	100[@]			
2795.8?	2447.1[@a] 6	100[@]			
2836.4	1413.5[@] 5	100[@] 27			
	2488.2[@] 7	64[@] 27			
2898.9	188[#] 1	[#]			
	194[#] 1	[#]			
	284[#] 1	[#]			
	320.2[§] 5	100[§]			
	416[#] 1	[#]			
2966.60	963.9 2	86 14			
	1416.1 2	100 14			
	1604.2 5	43 14			
2977.2?	2628.6[@a] 5	100[@]			
3013.8	1611.2[@] 5	48[@] 11			
	2665.0[@] 7	100[@] 19			
3043.3	842.4 5	100 33			
	1493.1 4	100 33			
3045.5	431[#] 1	100[#]			
3050.1	411[#] 1	[#]			
	731.9[§] 5	100[§]	E2	0.00212	Mult.: A_2=0.14 5; A_4=0.02 5, gated on 731.9γ and 767.8γ in 252Cf SF (1999Bu32).
3084.7	393 1				Eγ: From ^{208}Pb(^{18}O,Xγ).
	601.9 5				Eγ: From ^{252}Cf SF decay.
3137.3	239[#] 1	[#]			
	426[#] 1	[#]			
	432.9[§] 5	100[§]			
	819.0[§] 5	39[§]			
3175.3	857[#] 1	100[#]			

Continued on next page (footnotes at end of table)

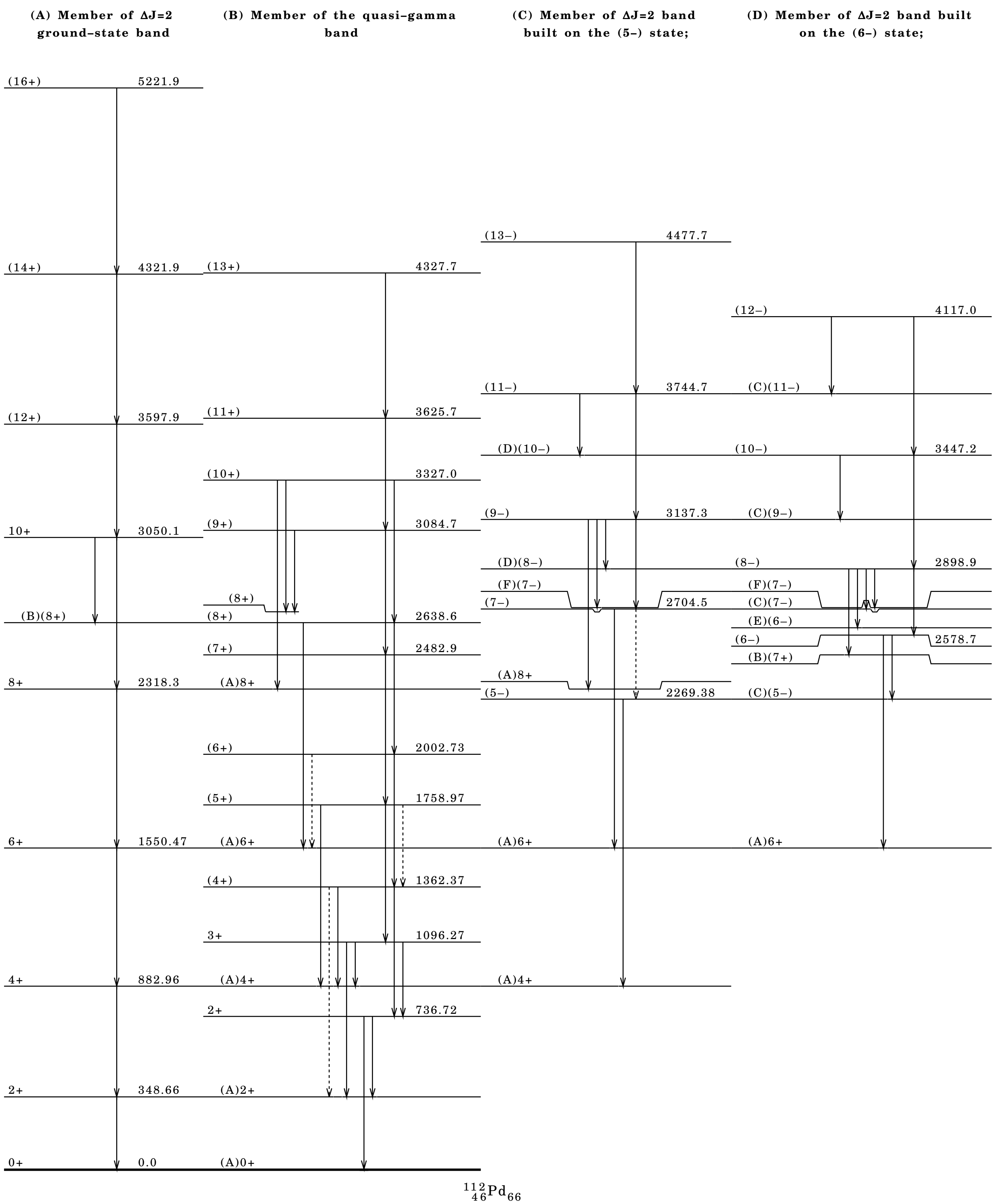
Adopted Levels, Gammas (continued)

γ(^{112}Pd) (continued)

E(level)	Eγ†	Iγ†	Comments
3225.5	1823.1@ *8*	56@ *31*	
	2876.6@ *7*	100@ *31*	
3260.9	778# *1*	#	
3265.2	554.1 *5*		Eγ: from ^{252}Cf SF decay.
	560# *1*	#	
	946# *1*	#	
3327.0	635# *1*	#	
	689# *1*	#	
	1009# *1*	#	
3337.9?	2989.2@a *9*	100@	
3447.2	310# *1*	#	
	548.0§ *5*	§	
3597.9	547.8§ *5*	100§	
3625.7	541# *1*	100#	
3654.5	609# *1*	100#	
3744.7	297# *1*	#	
	607.7§ *5*	100§	
3759.6	2208.9 *5*	100 *33*	
	2397.6 *8*	50 *17*	
3772.0	2409.6 *7*	100	
3794.3	2911.3 *8*	100	
3940.3	3057.3 *8*	100	
3951.2	686# *1*	100#	
4046.3	871# *1*	100#	
4086.3	911# *1*	100#	
4117.0	373# *1*	#	
	669# *1*	#	
4321.9	724.0§ *5*	100§	
4327.7	702# *1*	100#	
4391.5	737# *1*	100#	
4477.7	733# *1*	100#	
4748.2	797# *1*	100#	
4931.3	885# *1*	100#	
5221.9	900# *1*	100#	

† From ^{112}Rh β^- decay (6.76 s), unless otherwise noted.
‡ From ^{110}Pd(t,pγ).
§ From ^{252}Cf SF decay.
# From ^{208}Pb(^{18}O,Xγ).
@ From ^{112}Rh β^- decay (3.6 s).
& If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
a Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas (continued)

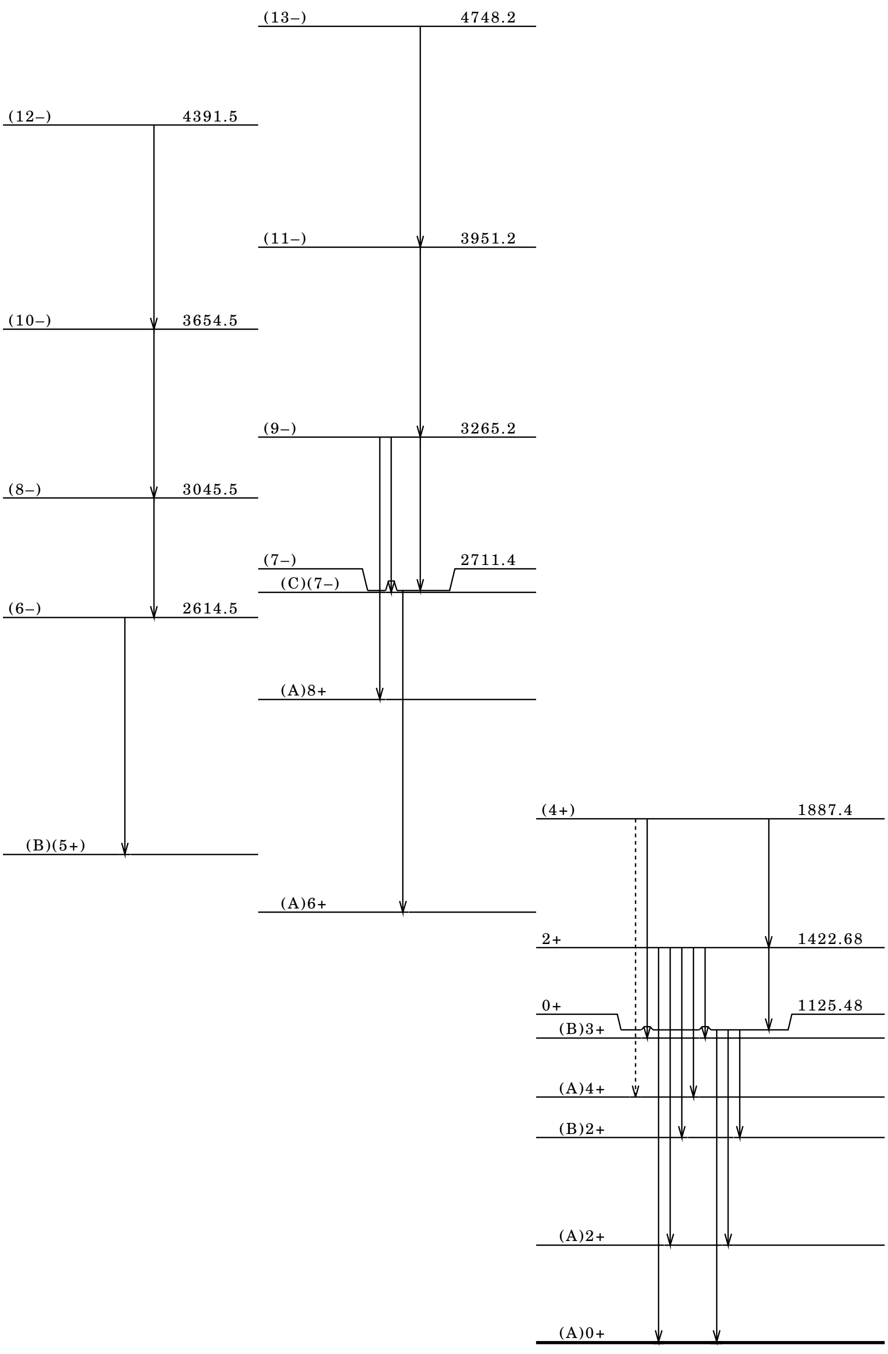


Adopted Levels, Gammas (continued)

(E) Member of ΔJ=2 band built on the (6−) state;

(F) Member of ΔJ=2 band built on the (7−) state;

(G) Probable member of ΔJ=2 intruder band (1999Lh01)



$^{112}_{46}Pd_{66}$

^{112}Rh β^- Decay (3.6 s) 1999Lh01

Parent ^{112}Rh: E=0.0; Jπ=(1+); $T_{1/2}$=3.6 s *3*; Q(g.s.)=6589 *44*; %β⁻ decay=100.

1999Lh01: Facility: IGISOL at Jyvaskyla; Source: mass separated fission products from ^{238}U(p,F). E(p)=25 MeV. Detectors: four Ge detectors from EUROGAM I, plastic scintillators; Measured: β–ce and γ–γ coinc, γ(θ), β–γ(t), Eγ, Iγ; Deduced: ^{112}Pd level scheme, Iβ(g.s.), log *ft*, upper limit of 0.5 ns for $T_{1/2}$ for all states from centroid shift measurements.

Others: 1998Lh04, 1988AyZZ, 1988Ay02, 1985Bu05, 1976MaYL, 1970WiZN.

^{112}Pd Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0+	1774.4? *5*	(1,2+)	2688.11 *24*	(0+,1,2)
348.63 *13*	2+	2107.3 *4*	(1,2+)	2747.18 *23*	(1,2+)
736.68 *14*	2+	2356.8 *6*	(1,2+)	2770.0 *7*	(0+,1,2)
882.92 *18*	4+	2432.5? *5*	(1,2+)	2795.8? *6*	(0+,1,2)
1096.22 *17*	3+	2466.1? *6*	(1,2+)	2836.4 *5*	(0+,1,2)
1125.54 *22*	0+	2496.83 *23*	(0+,1,2)	2977.3? *6*	(0+,1,2)
1139.71 *21*	(0,1,2)+	2509.7 *6*	(1,2+)	3013.8 *5*	(0+,1,2)
1402.59 *16*	2+	2540.5 *5*	(0+,1,2)	3225.5 *6*	(0+,1,2)
1422.66 *15*	2+	2603.9 *5*	(0+,1,2)	3337.9? *9*	(0+,1,2)
1747.5? *5*	(1,2+)	2665.5 *5*	(1,2+)		

† From a least squares fit to Eγ.
‡ From the adopted levels.

β⁻ radiations

The level scheme is incomplete (pandemonium), and hence, Iβ⁻ and log *ft* values should be considered as approximate.

Eβ⁻	E(level)	Iβ⁻†	Log *ft*	Comments
(3360 *50*)	3225.5	0.75 *22*	6.17 *14*	
(3580 *50*)	3013.8	1.20 *18*	6.08 *8*	
(3750 *50*)	2836.4	0.54 *13*	6.52 *12*	
(3820 *50*)	2770.0	0.39 *12*	6.70 *14*	
(3840 *50*)	2747.18	3.1 *3*	5.81 *6*	
(3900 *50*)	2688.11	1.92 *22*	6.04 *7*	
(3920 *50*)	2665.5	0.48 *12*	6.66 *12*	
(3990 *50*)	2603.9	1.17 *18*	6.30 *8*	
(4050 *50*)	2540.5	0.27 *6*	6.97 *11*	
(4080 *50*)	2509.7	0.36 *12*	6.86 *15*	
(4090 *50*)	2496.83	1.65 *22*	6.20 *8*	
(4480 *50*)	2107.3	1.3 *3*	6.48 *11*	
(5170 *50*)	1422.66	2.3 *3*	6.50 *7*	
(5190 *50*)	1402.59	0.8 *4*	6.97 *22*	
(5450 *50*)	1139.71	1.23 *22*	6.88 *9*	
(5460 *50*)	1125.54	2.8 *3*	6.52 *6*	
(5850 *50*)	736.68	5 *3*	6.4 *3*	
(6240 *50*)	348.63	10 *6*	6.2 *3*	
(6590 *50*)	0.0	≈65	≈5.5	Iβ⁻: From 65 *+11–29* in 1999Lh01.

† From intensity imbalances.

γ(^{112}Pd)

Iγ normalization: from (100–Iβ(g.s.))/Σ I(γ+ce)(g.s.) and Iβ(g.s.)≈65, based on 65 *+11–29* estimate in 1999Lh01.

Eγ†	E(level)	Iγ†§	Mult.	α	Comments
213.3 *2*	1096.22	0.022 *8*	[M1+E2]	0.0479	Eγ,Iγ: From adopted gammas with Iγ(213.3γ)/Iγ(359.6γ)=0.036 *7*.
297.1 *4*	1422.66	0.5 *1*	[E2]	0.0306	
326.6 *3*	1422.66	1.0 *2*	[M1+E2]	0.01594	
348.7 *2*	348.63	100 *15*	(E2)	0.0181	
359.6 *2*	1096.22	0.6 *2*	M1+E2	0.01252	Mult.: A_{22}=0.041 *35* gated on 348.7γ and 359.6γ in 1999Lh01.

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^{112}Rh β^- Decay (3.6 s) 1999Lh01 (continued)

$\gamma(^{112}Pd)$ (continued)

Eγ†	E(level)	Iγ†§	Mult.	δ†‡	α	Comments
388.0 *2*	736.68	23 *8*	E2(+M1)	−4.7 *+17−35*	0.01276 *23*	Mult.,δ: A_{22}=0.089 *34* gated on 348.7γ and 388.7γ in 1999Lh01.
402.8 *4*	1139.71	1.3 *3*	[E2]		0.01145	
519.8 *5*	1402.59	0.4 *1*	[E2]		0.00534	
534.3 *2*	882.92	1.3 *2*	E2		0.00494	Mult.: A_{22}=0.105 *34* gated on 348.7γ and 534.3γ in 1999Lh01.
539.7 *3*	1422.66	0.9 *2*	[E2]		0.00480	
665.8 *5*	1402.59	1.3 *5*	[M1+E2]		0.00283	
686.0 *2*	1422.66	3.6 *4*	[M1+E2]		0.00264	
736.7 *2*	736.68	7.3 *25*	(E2)		0.00209	
747.6 *2*	1096.22	0.47 *17*	E2(+M1)	−1.65 *10*	0.00205	Iγ: From adopted gammas using Iγ(747.6γ)/Iγ(359.6γ)=0.79 *10*. Mult.: A_{22}=−0.485 *47* gated on 348.7γ and 747.6γ in 1999Lh01.
776.9 *2*	1125.54	9.9 *10*	E2		0.00183	Mult.: A_{22}=0.493 *66* gated on 348.7γ E2 and 776.9 in 1999Lh01.
791.1 *2*	1139.71	4.2 *6*	E2		1.75×10^{-3}	Mult.: A_{22}=0.34 *8* in 1999Lh01.
1054.0 *2*	1402.59	4.3 *6*	[M1+E2]		1.01×10^{-3}	
1074.0 *2*	1422.66	2.0 *4*	[M1+E2]		9.65×10^{-4}	
1074.3 *3*	2496.83	1.3 *3*				
1094.2 *4*	2496.83	1.2 *4*				
1265.5 *4*	2688.11	1.0 *3*				
1285.2 *5*	2688.11	0.9 *3*				
1344.8 *3*	2747.18	1.8 *4*				
1398.8# *4*	1747.5?	1.6 *4*				
1402.6 *3*	1402.59	2.9 *4*	[E2]		5.40×10^{-4}	
1413.5 *5*	2836.4	1.1 *3*				
1422.6 *3*	1422.66	2.9 *6*	[E2]		5.32×10^{-4}	
1425.7# *4*	1774.4?	1.9 *5*				
1607.3 *4*	2747.18	1.4 *3*				
1611.2 *5*	3013.8	1.3 *3*				
1758.7 *3*	2107.3	4.2 *9*				
1760.1 *4*	2496.83	2.4 *4*				
1803.8 *4*	2540.5	0.9 *2*				
1823.1 *8*	3225.5	0.9 *5*				
1867.2 *4*	2603.9	3.9 *6*				
1951.3 *4*	2688.11	1.3 *3*				
2008.1# *6*	2356.8	0.7 *3*				
2083.4# *7*	2432.5?	0.9 *3*				
2106.6# *5*	2107.3	0.8 *2*				
2117.4# *5*	2466.1?	0.7 *3*				
2147.7 *7*	2496.83	0.6 *3*				
2161.1 *5*	2509.7	1.2 *4*				
2316.8 *4*	2665.5	1.6 *4*				
2339.7 *4*	2688.11	3.2 *5*				
2398.7 *5*	2747.18	7.2 *9*				
2421.3 *6*	2770.0	1.3 *4*				
2432.7# *6*	2432.5?	0.9 *3*				
2447.1# *6*	2795.8?	0.9 *4*				
2488.2 *7*	2836.4	0.7 *3*				
2511.2# *7*	2509.7	0.3 *1*				
2628.6# *5*	2977.3?	1.4 *4*				
2664.7#	2665.5	1.1 *8*				
2665.0 *7*	3013.8	2.7 *5*				
2746.6 *5*	2747.18	1.5 *3*				
2876.6 *7*	3225.5	1.6 *5*				
2989.2# *9*	3337.9?	0.5 *2*				

† From 1999Lh01.

‡ If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

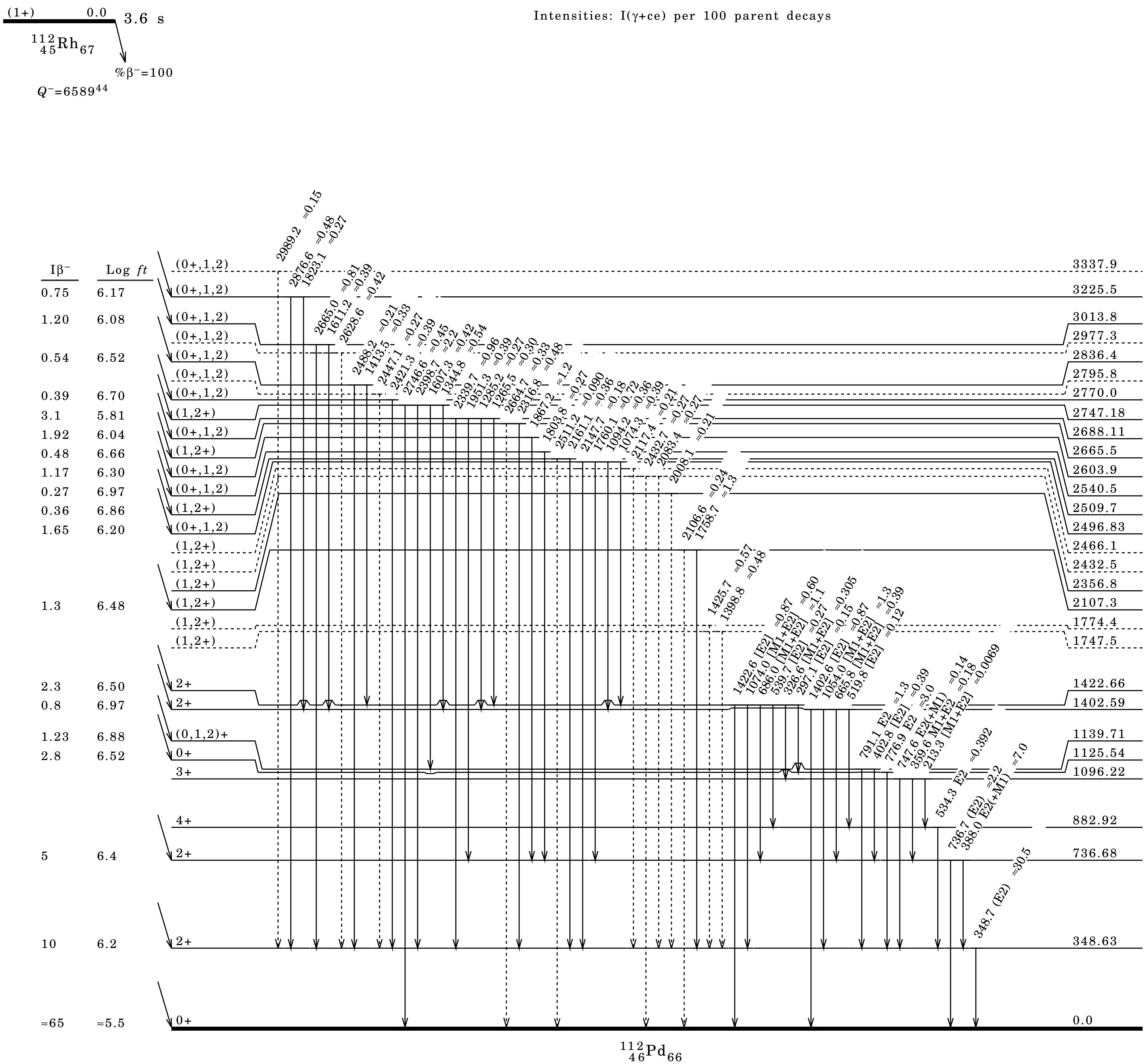
§ For absolute intensity per 100 decays, multiply by ≈0.30.

Placement of transition in the level scheme is uncertain.

^{112}Rh β^- Decay (3.6 s) 1999Lh01 (continued)

Decay Scheme

Intensities: I(γ+ce) per 100 parent decays



^{112}Rh β^- Decay (6.76 s) 1999Lh01

Parent ^{112}Rh: E=y; Jπ=(6+); $T_{1/2}$=6.76 s *12*; Q(g.s.)=6589 *44*; %β^- decay=100.

1999Lh01: Facility: IGISOL at Jyvaskyla; Source: mass–separated fission products from ^{238}U(p,F); Beam: E(p)=25 MeV; Detectors: four Ge from EUROGAM I, plastic scintillators; Measured: γ–γ and β–ce coinc., Eγ, Iγ, β–γ(t); Deduced: ^{112}Pd level scheme, Iβ(g.s.), log *ft*.

Others: 1998Lh04, 1988Ay02, 1985Bu05, 1976MaYL, 1970WiZN.

^{112}Pd Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0+	1951.7 *4*	(3,4+)	2441.4 *3*	(5,6+)
348.70 *16*	2+	2002.76 *25*	(6+)	2543.2 *3*	(5+)
736.70 *16*	2+	2036.5 *3*	(2–,3,4+)	2578.8 *5*	(6–)
882.99 *18*	4+	2158.0 *4*	(3,4,5+)	2629.7 *11*	(5,6,7)
1096.31 *18*	3+	2194.61 *19*	(4)–	2754.81 *19*	5+
1362.39 *19*	(4+)	2200.62 *20*	(5,6+)	2966.64 *24*	(5,6+)
1422.7 *6*	2+	2269.40 *23*	(5–)	3043.4 *4*	(5,6)
1550.50 *20*	6+	2334.1 *4*	(5,6+)	3759.6 *5*	(5,6+)
1714.91 *18*	(3,4+)	2354.51 *20*	(4,5+)	3772.0 *8*	(5,6+)
1759.00 *21*	(5+)	2395.20 *24*	(5+)	3794.3 *9*	(5,6+)
1887.4 *4*	(4+)	2430.8 *5*	(5,6+)	3940.3 *9*	(5,6+)

† From a least squares fit to Eγ.
‡ From the adopted levels.

β^- radiations

The level scheme is incomplete (pandemonium), and hence, $I\beta^-$ and log *ft* values should be considered as approximate.

Eβ⁻	E(level)	Iβ⁻†‡	Log *ft*	Eβ⁻	E(level)	Iβ⁻†‡	Log *ft*
(2650+y *50*)	3940.3	0.53 *18*	6.16	(4150+y *50*)	2441.4	0.56 *10*	6.97
(2790+y *50*)	3794.3	0.45 *18*	6.33	(4160+y *50*)	2430.8	0.62 *18*	6.93
(2820+y *50*)	3772.0	0.45 *9*	6.34	(4190+y *50*)	2395.20	0.71 *16*	6.89
(2830+y *50*)	3759.6	0.80 *20*	6.10	(4230+y *50*)	2354.51	<1.2	>7.1
(3550+y *50*)	3043.4	0.53 *13*	6.70	(4320+y *50*)	2269.40	0.7 *4*	6.95
(3620+y *50*)	2966.64	1.42 *16*	6.31	(4390+y *50*)	2200.62	1.1 *3*	6.78
(3830+y *50*)	2754.81	72 *6*	4.71	(4590+y *50*)	2002.76	1.07 *20*	6.88
(3960+y *50*)	2629.7	0.24 *7*	7.25	(4830+y *50*)	1759.00	2.9 *7*	6.54
(4010+y *50*)	2578.8	0.11 *4*	7.61	(5040+y *50*)	1550.50	3.7 *10*	6.52
(4050+y *50*)	2543.2	1.60 *20*	6.47				

† From intensity imbalances.
‡ Absolute intensity per 100 decays.

γ(^{112}Pd)

Iγ normalization: from Σ I(γ+ce)(g.s.)=100%.

Eγ†	E(level)	Iγ†§	Mult.	δ†‡	α	Comments
158.1 *2*	2194.61	0.09 *3*				
159.9 *3*	2354.51	0.25 *6*	[E1]		0.0398	
213.3 *2*	1096.31	1.3 *2*	[M1+E2]		0.0479	
348.7 *2*	348.70	100	(E2)		0.0181	
359.6 *2*	1096.31	36.5 *28*	M1+E2		0.01252	Mult.: A_{22}=0.041 *35* gated on 348.7γ and 359.6γ in 1999Lh01.
	2754.81	0.3 *1*	[E2+M1]		0.01252	
388.0 *2*	736.70	33.7 *23*	E2(+M1)	–4.7 *+17–35*	0.01276 *23*	Mult.,δ: A_{22}=0.089 *34* gated on 348.7γ and 388.7γ in 1999Lh01.
396.6# *4*	1759.00	0.3 *1*	[M1+E2]		0.00981	
400.3 *2*	2754.81	4.1 *5*	M1+E2		0.00959	Mult.: A_{22}=–0.131 *54* gated on 400.3γ and 534.3γ in 1999Lh01.
435.6 *2*	2194.61	0.4 *1*	[E1]		0.00265	
441.3# *4*	2200.62	0.2 *1*				
464.7 *4*	1887.4	0.3 *1*	[E2]		0.00741	
479.4 *2*	1362.39	1.4 *2*	[M1+E2]		0.00617	

Continued on next page (footnotes at end of table)

^{112}Rh β⁻ Decay (6.76 s) 1999Lh01 (continued)

γ(^{112}Pd) (continued)

Eγ†	E(level)	Iγ†§	Mult.	δ†‡	α	Comments
479.7 2	2194.61	1.7 2	[E1]		0.00210	
485.4 2	2754.81	1.2 2	[E1]		0.00204	
485.7 2	2200.62	0.8 1				
534.3 2	882.99	37 3	E2		0.00494	Mult.: A_{22}=0.105 34 gated on 348.7γ and 534.3γ in 1999Lh01.
554.2 2	2754.81	1.0 1				
560.2 2	2754.81	62 6	[E1]		1.45×10^{-3}	Mult.: A_{22}=0.013 35 gated on 359.6γ and 560.2γ in 1999Lh01.
618.6 2	1714.91	3.8 4				
625.7 2	1362.39	5.7 5	[E2]		0.00319	
640.4 2	2002.76	1.8 2	[E2]		0.00300	
650.1 2	2200.62	0.4 1				
662.7 2	1759.00	5.8 6	[E2]		0.00274	
667.5 2	1550.50	9.2 10	E2		0.00269	Mult.: A_{22}=0.097 45 gated on 348.7γ and 667.5γ in 1999Lh01.
726.5 3	2441.4	0.4 1				
736.7 2	736.70	10.6 12	(E2)		0.00209	Mult.: A_{22}=−0.208 41 gated on 359.6γ and 736.7γ in 1999Lh01.
747.6 2	1096.31	29 3	E2(+M1)	−1.65 10	0.00205	Mult.: A_{22}=−0.485 47 gated on 348.7γ and 747.6γ in 1999Lh01.
791.1 3	1887.4	0.6 2	M1+E2		0.00191	Mult.: A_{22}=0.339 77 gated on 348.7γ and 791.1γ in 1999Lh01.
802.9# 4	2754.81	0.2 1				
831.9 2	1714.91	1.0 2				
832.2 2	2194.61	0.14 3	[E1]		6.17×10^{-4}	
838.2 2	2200.62	0.8 2				
842.4 5	3043.4	0.3 1				
855.1 5	1951.7	0.4 1				
876.0 4	1759.00	0.2 1	[M1+E2]		1.51×10^{-3}	
890.9 3	2441.4	0.23 5				
963.9 2	2966.64	0.6 1				
978.2 2	1714.91	2.0 2				
993.3# 6	2354.51	0.07 3	[M1+E2]		1.14×10^{-3} 2	
995.8 2	2754.81	2.3 3	[M1+E2]		1.14×10^{-3}	
1004.7# 5	1887.4	0.14 6	[M1+E2]		1.12×10^{-3}	
1013.9# 4	1362.39	0.27 14	[E2]		9.76×10^{-4}	
1028.3 4	2578.8	0.12 4	[E1]		4.07×10^{-4}	
1039.9 2	2754.81	1.2 2	[M1,E2]		1.04×10^{-3}	
1061.7 3	2158.0	0.4 1				
1069.2 6	1951.7	0.21 5				
1079.2	2629.7	0.27 7				
1098.3 2	2194.61	50 5	E1(+M2)	−0.03 5	3.62×10^{-4} 11	Mult.: A_{22}=0.014 40 gated on 359.6γ and 1098.3γ in 1999Lh01.
1204.3 2	2754.81	2.5 4	M1+E2		7.60×10^{-4}	Mult.: A_{22}=0.078 73 gated on 348.7γ and 1204.3γ in 1999Lh01.
1214.8 5	1951.7	0.5 2				
1258.2 2	2354.51	1.0 2	[E2]		6.28×10^{-4}	
1298.9 3	2395.20	0.6 1	[E2]		5.97×10^{-4}	
1311.6 2	2194.61	8.6 11	E1+M2	−0.43 32	0.00053 21	Mult.: A_{22}=0.169 52 gated on 348.7γ and 1311.6γ in 1999Lh01.
1317.6 3	2200.62	0.5 2				
1366.2# 4	1714.91	0.4 2				
1386.4 2	2269.40	2.0 3	[E1]		3.91×10^{-4}	
1392.4 3	2754.81	0.5 1	[M1+E2]		5.95×10^{-4}	
1416.1 2	2966.64	0.7 1				
1446.9 3	2543.2	1.3 2	[E2]		5.24×10^{-4}	
1451.1 3	2334.1	0.5 1				
1457.9# 2	2194.61	0.2 2	[M2]		1.10×10^{-3}	
1471.5 2	2354.51	3.4 5	M1		5.57×10^{-4}	Mult.: A_{22}=0.188 65 gated on 348.7γ and 1471.5γ in 1999Lh01; δ:−0.017 in 1999Lh01.
1493.1 4	3043.4	0.3 1				
1512.1 5	2395.20	0.5 1	[M1+E2]		5.43×10^{-4}	
1547.8 4	2430.8	0.7 2				

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^{112}Rh β^- Decay (6.76 s) 1999Lh01 (continued)

$\gamma(^{112}Pd)$ (continued)

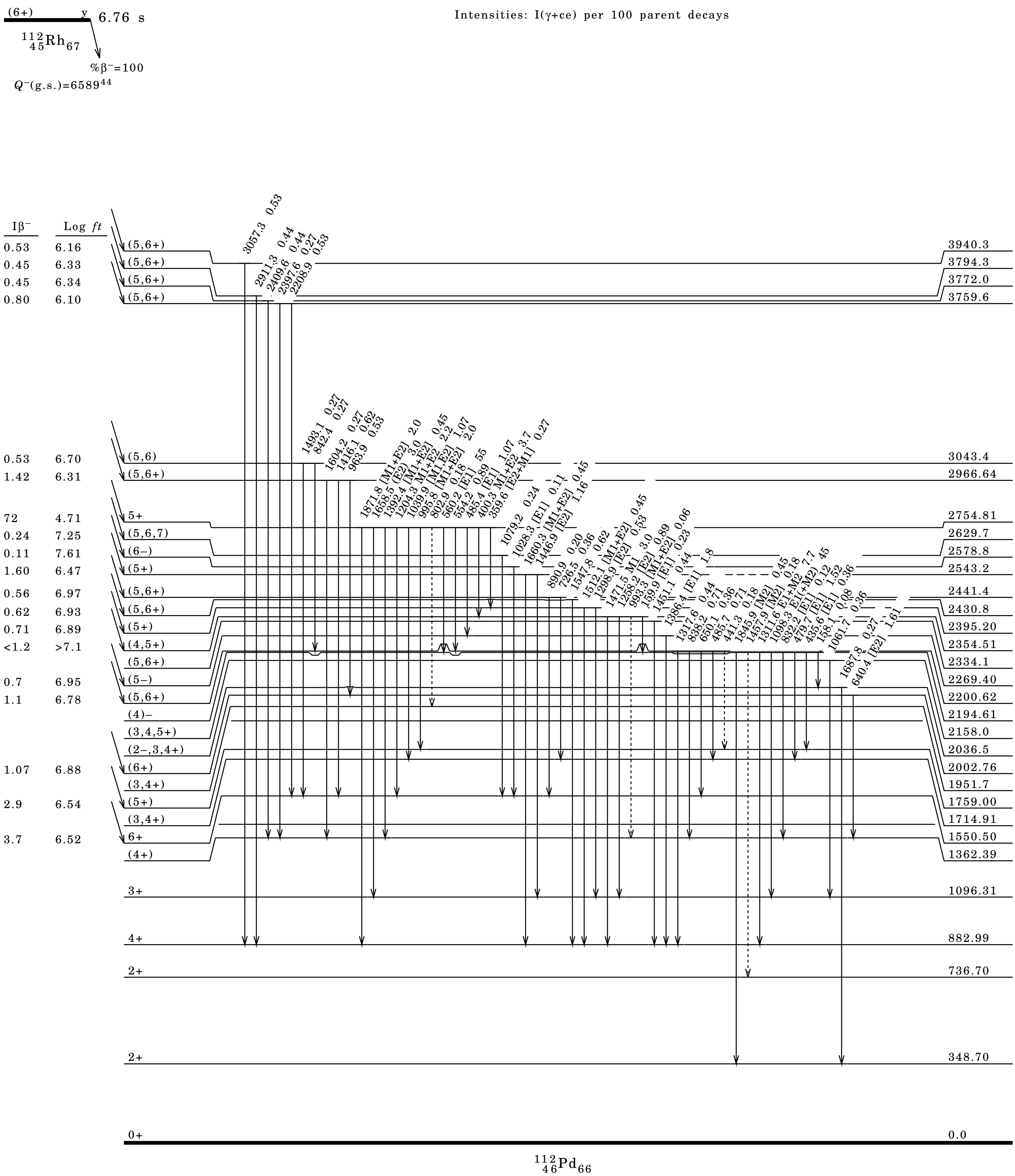
Eγ†	E(level)	Iγ†§	Mult.	α	Comments
1604.2 *5*	2966.64	0.3 *1*			
1658.5 *3*	2754.81	3.4 *5*	(E2)	4.98×10^{-4}	Mult.: A_{22}=−0.105 *89* gated on 359.6γ and 1658.5γ in 1999Lh01 would suggest D, but the level scheme requires ΔJ=2.
1660.3 *5*	2543.2	0.5 *1*	[M1+E2]	5.16×10^{-4}	
1687.8 *5*	2036.5	0.3 *1*			
1845.9 *5*	2194.61	0.5 *2*	[M2]	7.24×10^{-4}	
1871.8 *4*	2754.81	2.3 *4*	[M1+E2]	5.24×10^{-4}	
2208.9 *5*	3759.6	0.6 *2*			
2397.6 *8*	3759.6	0.3 *1*			
2409.6 *7*	3772.0	0.5 *1*			
2911.3 *8*	3794.3	0.5 *2*			
3057.3 *8*	3940.3	0.6 *2*			

† From 1999Lh01.
‡ If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
§ For absolute intensity per 100 decays, multiply by 0.890 *9*.
\# Placement of transition in the level scheme is uncertain.

^{112}Rh β^- Decay (6.76 s) 1999Lh01 (continued)

Decay Scheme

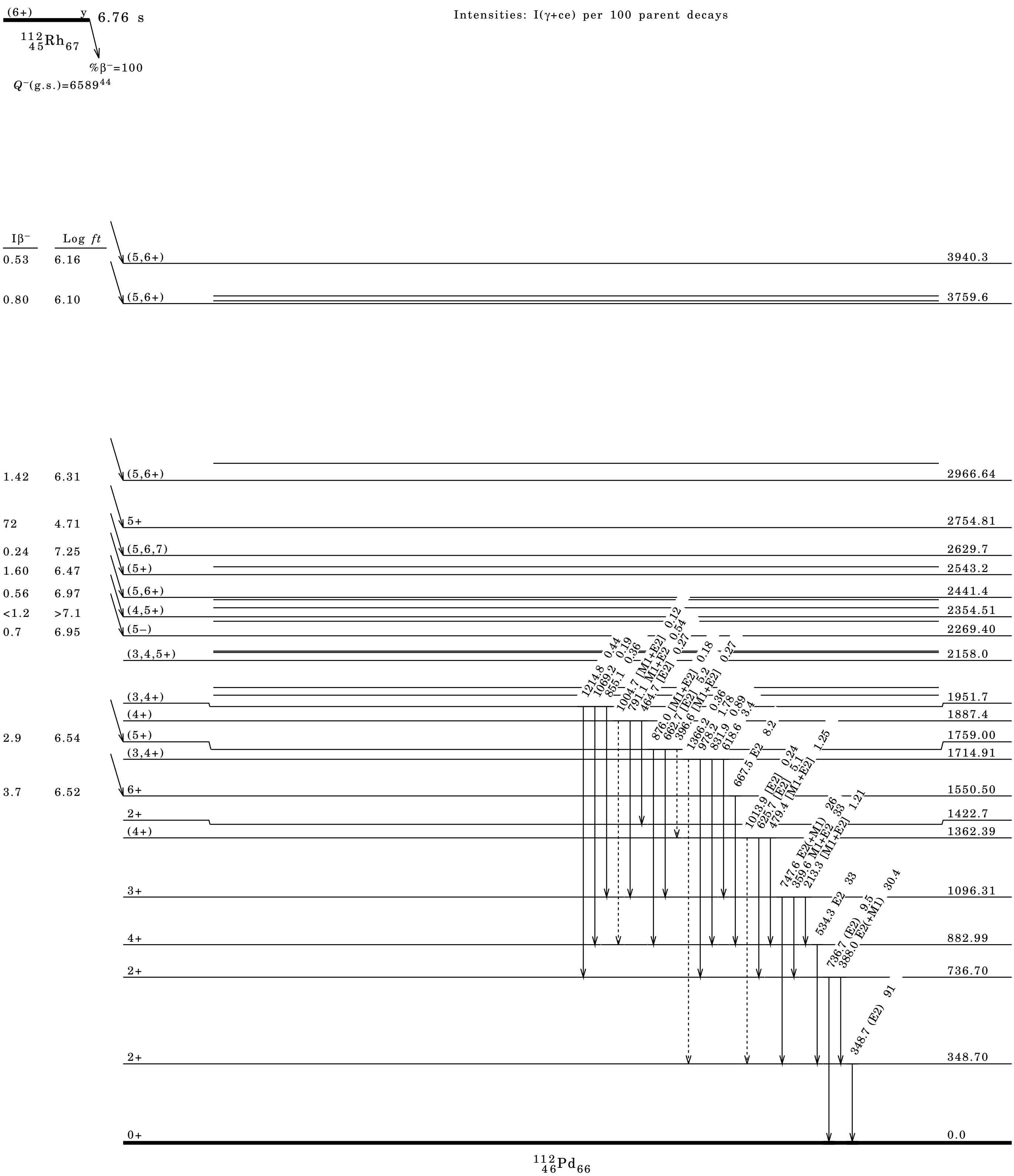
Intensities: I(γ+ce) per 100 parent decays



^{112}Rh β^- Decay (6.76 s) 1999Lh01 (continued)

Decay Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays



^{252}Cf SF Decay 1999Bu32,1993Ar05,1986Ma22

Parent ^{252}Cf: E=0.0; Jπ=0+; $T_{1/2}$=2.645 y *8*; %SF decay=3.092 *8*.

1999Bu32, 1993Ar05: Facility: Holifield Heavy Ion (HI) Research Facility, Oak Ridge National Laboratory; Source: 0.1 μg thick ^{252}Cf source of 6 μCi activity, placed behind a 250μm thick Be window; Detectors: Gammasphere array, 2.5 cm^3 LEPS, 25% n–type Ge, 5 cm x 5 cm liquid scintillator (BC–501); Measured: γ–γ–γ coinc., X–rays, HI–γ–n, Eγ, γ(θ), Iγ; Deduced: ^{112}Pd level scheme, band structure, Jπ.

1986Ma22: Source: ^{252}Cf on 100 μg/cm^2 Ni foil; Detectors: one Ge(Li), stopper consisting of 20 μg/cm^2 C foil, one surface barrier detector; Measured: HI–γ coinc., HI–γ(t), Eγ, Iγ; Deduced: $T_{1/2}$ from RDM.

Others: 2002Ha46, 1998JoZX, 1998SiZW, 1997Ha64, 1993Ar05, 1990DuZW, 1970Ch11, 1971Ch44.

^{112}Pd Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
0.0[§]	0+		
348.8[§] *3*	2+	84 ps *14*	$T_{1/2}$: from recoil–distance measurements in 1986Ma22; Other: <0.1 ns (1970Ch11).
736.8[#] *3*	2+		
883.1[§] *4*	4+		
1096.2[#] *4*	3+		
1362.1[#] *5*	(4+)		
1550.4[§] *4*	6+		
1715.3 *4*	(3−,4+)		
1758.5[#] *5*	(5+)		
2002.2[#] *6*	(6+)		
2194.8 *4*	(4)−		
2269.5[@] *5*	(5−)		
2318.2[§] *5*	8+		
2355.1 *5*			
2482.5[#] *7*	(7+)		
2578.7[&] *6*	(6−)		
2690.7[#] *6*	(8+)		
2704.3[@] *6*	(7−)		
2711.9[a] *7*	(7−)		
2755.3 *4*	(4)		Jπ: (4+,5+) in the adopted levels.
2898.9[&] *8*	(8−)		
2966.0 *6*			
3050.1[§] *7*	10+		
3084.4[#] *9*	(9+)		
3137.2[@] *6*	(9−)		
3266.0[a] *9*	(9−)		
3446.9[&] *9*	(10−)		
3597.9[§] *9*	(12+)		
3744.9[@] *8*	(11−)		
4321.9[§] *10*	(14+)		

[†] From a least–squares fit to Eγ.
[‡] From 1999Bu32, based on angular correlation measurements and observed band structure.
[§] (A): Member of ΔJ=2 ground–state band.
[#] (B): Member of ΔJ=1 quasi–gamma band.
[@] (C): Member of ΔJ=2 band based on (5−); configuration=$\nu h_{11/2}\otimes(g_{7/2}d_{5/2})$, α=1.
[&] (D): Member of ΔJ=2 band based on (6−); configuration=$\nu h_{11/2}\otimes(g_{7/2}d_{5/2})$, α=0.
[a] (E): Member of ΔJ=2 band based on (7−); configuration=$\nu h_{11/2}\otimes(s_{1/2}d_{3/2})$, α=1.

γ(^{112}Pd)

Iγ normalization: from 1971Ch44.

Eγ[†]	E(level)	Iγ[†‡]	Mult.[†]	Comments
213.1 *5*	1096.2	2.8		
309.2 *5*	2578.7			
320.2 *5*	2898.9	1.1		
348.8 *3*	348.8	100	(E2)	
359.4 *3*	1096.2	14	M1+E2	Mult.: A_2=−0.16 *7*; A_4=−0.06 *8*, gated on 359.4γ and 736.8γ in 1999Bu32.
388.0 *3*	736.8	22	M1+E2	Mult.: A_2=0.08 *4*; A_4=0.28 *5*, gated on 388.0γ and 348.8γ in 1999Bu32.
400.2 *5*	2755.3			
432.9 *5*	3137.2	2.8		
434.8[§] *5*	2704.3			

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^{252}Cf SF Decay 1999Bu32,1993Ar05,1986Ma22 (continued)

γ(^{112}Pd) (continued)

Eγ†	E(level)	Iγ†‡	Mult.†	Comments
436.3 *5*	2194.8			
479.0 *5*	1362.1	4.8		
479.5 *5*	2194.8			
485.8 *5*	2755.3			
534.3 *3*	883.1	64	E2	Mult.: A_2=0.14 *2*; A_4=−0.01 *2*, gated on 534.3γ and 348.8γ in 1999Bu32.
547.8 *5*	3597.9	3.5		
548.0 *5*	3446.9	0.8		
554.1 *5*	3266.0	1.3		
560.5 *5*	2755.3		D	Mult.: A_2=0.14 *3*; A_4=−0.02 *4*, gated on 560.5γ and 1098.6γ in 1999Bu32.
601.9 *5*	3084.4			
607.7 *5*	3744.9			
619.1 *5*	1715.3			
625.3 *5*	1362.1	3.5		
640.1 *5*	2002.2	1.3		
662.3 *5*	1758.5	2.1		
667.3 *3*	1550.4	35	E2	Mult.: A_2=0.13 *2*; A_4=−0.03 *3*, gated on 667.3γ and 534.3 in 1999Bu32.
688.5 *5*	2690.7	0.8		
724.0 *5*	2482.5	0.4		
	4321.9	0.8		
731.9 *5*	3050.1	5.3	E2	Mult.: A_2=0.14 *5*; A_4=0.02 *5*, gated on 731.9γ and 767.8γ in 1999Bu32.
736.8 *5*	736.8	7.2		
747.4 *3*	1096.2	12		
767.8 *3*	2318.2	11	E2	Mult.: A_2=0.16 *5*; A_4=−0.01 *6*, gated on 767.8γ and 667.3γ in 1999Bu32.
819.0 *5*	3137.2	1.1		
832.2 *5*	1715.3			
963.8 *5*	2966.0	0.4		
978.5 *5*	1715.3			
996.8 *5*	2755.3			
1028.3 *5*	2578.7	2.0		
1040.0 *5*	2755.3			
1098.6 *5*	2194.8		E1	Mult.: A_2=0.07 *5*; A_4=0.03 *6*, gated on 1098.6γ and 359.4γ in 1999Bu32.
1140.3 *5*	2690.7			
1153.9 *5*	2704.3	4.3		
1161.5 *5*	2711.9	3.0		
1204.9 *5*	2755.3			
1311.7 *5*	2194.8			
1386.4 *5*	2269.5	5.0		
1415.6 *5*	2966.0	2.6		
1472.0 *5*	2355.1			
1659.1 *5*	2755.3			
1872.2 *5*	2755.3			

† From 1999Bu32. ΔE_γ=0.3 for Iγ>10 and 0.5 for Iγ<10 set by the evaluators.
‡ For intensity per 100 fissions, multiply by 0.0077 *19*.
§ Placement of transition in the level scheme is uncertain.

^{110}Pd(t,p) 1972Ca10

1972Ca10: Facility: Los Alamos Van de Graaff; Beam: E(t)=15 MeV; Target: 125 μg/cm^2 enriched to 97.4% in ^{110}Pd; Detectors: Elbek–type magnetic spectrograph, nuclear emulsions; Measured: E(p), FWHM≈15 keV, σ(E,θ), Q − value; Deduced: ^{112}Pd level scheme, L, Jπ, DWBA.

^{112}Pd Levels

E(level)†	Jπ‡	L§
0.0	0+	0
351 *5*	2+	2

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^{110}Pd(t,p) 1972Ca10 (continued)

^{112}Pd Levels (continued)

E(level)†	Jπ‡	L§	Comments
736 *8*	(4+)	(4)	Jπ: 2+ in the adopted levels. L: 20° data contains impurities, which leads to an ambiguous L–value; dσ/dΩ analysis in 1972Ca10 favors rather L=4 than L=0 or 2.
882 *8*	(2+)	(2)	Jπ: 4+ in the adopted levels.
928 *8*			
1123 *8*	0+	0	

† From 1972Ca10.
‡ Based on L.
§ From DWBA analysis in 1972Ca10.

^{110}Pd(t,pγ) 1987Es01,1986HeZT

1987Es01, 1986HeZT: Facility: Van de Graaff accelerator at Los Alamos; Beam: E(t)=16 MeV; Target: self–supporting 0.5 mg/cm^2 enriched to 97.7% in ^{110}Pd; Detectors: solenoid spectrometer, plastic scintillators, HPGe detector, aluminium absorbers; Measured: ce, p–γ, and ce–γ coinc. Eγ, Iγ; Deduced: ^{112}Pd level scheme, E0 transitions, Jπ, intensity branching ratios, E0/E2 branching.

^{112}Pd Levels

E(level)†	Jπ‡	Comments
0.0	0+	
349.0 *6*	2+	
737.4 *7*	2+	
883.4 *10*	4+	
923.9 *8*	1,2+	
1096.7 *9*	3+	
1125.0 *7*	0+	B(E0; 1123γ)/B(E2; 774γ)=0.016 *9* (1987Es01). B(E0; 1123γ)/B(E2; 386γ)>0.0005 (1987Es01).
1362.9 *9*	(4+)	
1550.8 *14*	6+	
2003.3 *13*	(6+)	
2318.5?	8+	

† From a least–squares fit to Eγ. ΔEγ=1 keV assumed by the evaluators.
‡ From the adopted levels.

γ(^{112}Pd)

E(level)	Eγ†	Iγ‡	Mult.	I(γ+ce)	Comments
349.0	348.7	100			
737.4	388.0	82			
	736.8	18			
883.4	534.2	100			
923.9	574.4	84			
	924.4	16			
1096.7	359.6	57			
	747.5	43			
1125.0	386.2				Iγ/Iγ(777γ)<1.04 from the two ratios relative to I(ce(K) 1125).
	777.0	100			
	1125.3		E0	0.014	Mult.: Based on ce measurements (1987Es01,1986HeZT). I(E0,K)/I(tot)>58×10^6 (1987Es01). I(ce(K) 1125)/Iγ(777γ)=1.26×10^{-4}.
1362.9	479.2	19			
	625.5	77			
	1014.2	4			
1550.8	667.4	100			
2003.3	453.8§	31			

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^{110}Pd(t,pγ) 1987Es01,1986HeZT (continued)

γ(^{112}Pd) (continued)

E(level)	Eγ†	Iγ‡
2003.3	640.4	69
2318.5?	768.2§	100

† From 1986HeZT.
‡ Branching ratios from 1986HeZT.
§ Placement of transition in the level scheme is uncertain.

^{208}Pb(^{18}O,Xγ) 2001Kr08

2001Kr08: Facility: 88–inch cyclotron at LBNL; Target: 45mg/cm^2 ^{208}Pb; Beam: E(^{18}O)=91 MeV; Detectors: Gammasphere array consisting of 100 Compton– suppressed Ge detectors; Measured: γ–γ–γ coinc., Eγ, Iγ; Deduced: ^{112}Pd level scheme, rotational bands; Also from the same group: 2000KrZX.

Others: 1999Ho25: ^{238}U(^{12}C,Fγ) induced fission at E(^{12}C)=90 MeV; Detectors: Euroball III; Measured: γ–γ–γ coinc., Eγ; Also from the same group: 2000LuZY, 1990DuZW.

^{112}Pd Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0§	0+	2482.1# *12*	(7+)	3446.7& *13*	(10−)
348.0§ *8*	2+	2577.7& *12*	(6−)	3597.2§ *17*	(12+)
736.0# *8*	(2+)	2613.6a *12*	(6−)	3625.3# *17*	(11+)
882.5§ *9*	(4+)	2637.9# *12*	(8+)	3653.6a *19*	(10−)
1095.6# *9*	(3+)	2691.4 *12*		3743.4@ *14*	(11−)
1361.8# *10*	(4+)	2703.4@ *11*	(7−)	3949.4b *16*	(11−)
1422.2 *12*		2710.1b *12*	(7−)	4045.5 *18*	
1550.0§ *11*	(6+)	2754.4 *10*		4085.5 *18*	
1714.6 *10*		2897.7& *11*	(8−)	4116.0& *15*	(12−)
1758.4# *10*	(5+)	3044.6a *16*	(8−)	4321.2§ *19*	(14+)
1886.4 *12*		3049.2§ *13*	(10+)	4327.3# *19*	(13+)
2001.7# *11*	(6+)	3084.3# *13*	(9+)	4390.6a *22*	(12−)
2194.3 *10*		3136.5@ *12*	(9−)	4476.4@ *17*	(13−)
2199.6 *14*		3174.5 *15*		4746.4b *19*	(13−)
2268.5@ *11*	(5−)	3260.1 *16*		4930.5 *21*	
2317.5§ *12*	(8+)	3263.4b *12*	(9−)	5221.2§ *22*	(16+)
2354.4 *12*		3326.6# *12*	(10+)		

† From a least–squares fit to Eγ, assuming ΔEγ=1.
‡ From 2001Kr08 based on the observed band structures.
§ (A): Member of ΔJ=2 yrast band.
\# (B): Member of ΔJ=1 quasi–gamma band.
@ (C): Member of ΔJ=2 band built on (5−) state; configuration=$\nu h_{11/2}\otimes(g_{7/2}d_{5/2})$, α=1.
& (D): Member of ΔJ=2 band built on (6−) state; configuration=$\nu h_{11/2}\otimes(g_{7/2}d_{5/2})$, α=0.
a (E): Member of ΔJ=2 band built on (6−) state; configuration=$\nu h_{11/2}\otimes(s_{1/2}d_{3/2})$, α=0.
b (F): Member of ΔJ=2 band built on (7−) state; configuration=$\nu h_{11/2}\otimes(s_{1/2}d_{3/2})$, α=1.

γ(^{112}Pd)

Eγ†	E(level)	Eγ†	E(level)	Eγ†	E(level)
188	2897.7	348	348.0	431	3044.6
194	2897.7	359	1095.6	433	3136.5
213	1095.6	373‡	4116.0	435	2703.4
239	3136.5	388	736.0	464	1886.4
284	2897.7	393	3084.3	479	1361.8
297	3743.4	400	2754.4		2194.3
309	2577.7	411	3049.2	485	2199.6
310	3446.7	416	2897.7	486	2754.4
320	2897.7	426	3136.5	534	882.5

Continued on next page (footnotes at end of table)

$^{208}Pb(^{18}O,X\gamma)$ 2001Kr08 (continued)

$\gamma(^{112}Pd)$ (continued)

Eγ†	E(level)	Eγ†	E(level)	Eγ†	E(level)
541	3625.3	702	4327.3	946	3263.4
548	3597.2	724	2482.1	979	1714.6
549	3446.7		4321.2	996	2754.4
553	3263.4	732	3049.2	1009	3326.6
560	2754.4	733	4476.4	1014	1361.8
	3263.4	736	736.0	1028	2577.7
602	3084.3	737	4390.6	1074	1422.2
607	3743.4	748	1095.6	1088	2637.9
609	3653.6	768	2317.5	1099	2194.3
618	1714.6	778	3260.1	1141	2691.4
626	1361.8	791	1886.4	1153	2703.4
635	3326.6	797	4746.4	1160	2710.1
636	2637.9	819	3136.5	1204	2754.4
640	2001.7	855	2613.6	1312	2194.3
663	1758.4	857	3174.5	1386	2268.5
667	1550.0	871	4045.5	1472	2354.4
669	4116.0	876	1758.4	1659	2754.4
686	3949.4	885	4930.5		
689	3326.6	900	5221.2		
690	2691.4	911	4085.5		

† From 2001Kr08.
‡ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

$Q(\beta^-)$=3992.1 *25*; S(n)=–6439 *3*; S(p)=–7886 *3*; $Q(\alpha)$=–3977 *14* 2012Wa38.

^{112}Ag Levels

Cross Reference (XREF) Flags

A ^{112}Pd β^- Decay
B ^{176}Yb(^{28}Si,Xγ)

E(level)†	Jπ	XREF	$T_{1/2}$	Comments
0.0	2(–)	AB	3.130 h *8*	%β^-=100. Jπ: J=2 from atomic beam (1964Ch06); similarities to ^{110}Ag. Given the known proton and neutron orbitals near the Fermi surface, no intrinsic state with π=+ and J=2 can be expected at low energy. μ=0.0547 *5* (1964Ch06), using atomic–beam magnetic–resonance method. $T_{1/2}$: Weighted average of 3.14 h 2 (1972Wa03), 3.12 h 1 (1968RoZZ), 3.14 h 5 (1962In01) and 3.16 h 2 (1969Sa09). configuration: $\pi p_{1/2}\otimes\nu(d_{5/2}/g_{7/2})$.
18.5 *5*	(1+)	A		Jπ: direct feeding in ^{112}Pd β^- decay (Jπ=0+); similarities to ^{110}Ag. configuration: $\pi g_{9/2}\otimes\nu g_{7/2}$.
x	(6+)	B		E(level): X≈137 keV, using E(6^+)=118 keV for the same configuration in ^{110}Ag. Probably a long–lived isomeric state. Jπ: 97.5γ from (6–); similarities to ^{110}Ag. $T_{1/2}$: possibly a long–lived isomeric state. configuration: $\pi g_{9/2}\otimes\nu g_{7/2}$.
x+97.5‡ *3*	(6–)	B		Jπ: from 2011Po11, based on systematics and similarities to ^{110}Ag.
y§	(7–)	B		Jπ: 74.6γ from (8–); band member.
y+74.6‡ *5*	(8–)	B		Jπ: based on systematics.
y+178.1§ *6*	(9–)	B		Jπ: 103.5γ to (8–); band member.
y+565.1‡ *6*	(10–)	B		Jπ: 387.0γ to (9–); band member.
y+889.8§ *7*	(11–)	B		Jπ: 711.8γ to (9–), 324.7γ to (10–); band member.
y+1337.9‡ *7*	(12–)	B		Jπ: 448.1γ to (11–); band member.
y+1818.9§ *10*	(13–)	B		Jπ: 929γ to (11–), 481γ to (12–); band member.

† From a least–squares fit to Eγ.
‡ (A): Member of $\pi g_{9/2}\nu h_{11/2}$, α=+1/2 band.
§ (B): Member of $\pi g_{9/2}\nu h_{11/2}$, α=–1/2 band.

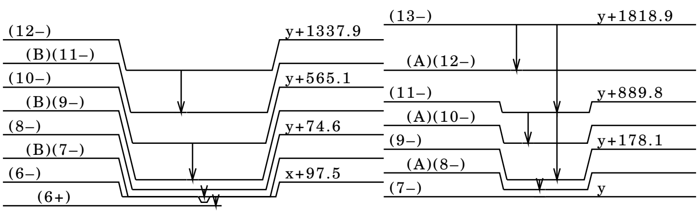
γ(^{112}Ag)

E(level)	Eγ†	Iγ†	Comments
18.5	18.5 *5*	100	Eγ,Iγ: From ^{112}Pd β–decay.
x+97.5	97.5 *3*	100	
y+74.6	74.6 *5*	100	
y+178.1	103.5 *2*	100	
y+565.1	387.0 *2*	100	
y+889.8	324.7 *3*	100 *15*	
	711.8 *5*	89 *15*	
y+1337.9	448.1 *3*	100	
y+1818.9	481 *1*	67 *22*	
	929 *1*	100 *22*	

† From ^{176}Yb(^{28}Si,Xγ) (2002Po11), unless otherwise stated.

Adopted Levels, Gammas (continued)

(A) Member of $\pi g_{9/2}\nu h_{11/2}$, α=+1/2 band **(B) Member of $\pi g_{9/2}\nu h_{11/2}$, α=−1/2 band**



$^{112}_{47}Ag_{65}$

^{112}Pd β^- Decay 1955Nu11,1953Nu04

Parent ^{112}Pd: E=0.0; Jπ=0+; $T_{1/2}$=21.04 h *17*; Q(g.s.)=262 *7*; %β^- decay=100.

1955Nu11,1953Nu04: Facility: Synchrocyclotron at IKO, Amsterdam; Source: ^{112}Pd from D induced U fission, E(D)=28 MeV; Detectors: one alcohol–argon end–window counter, three argon–hydrogen counters, one NaI(Tl); Measured: βγ, Eγ, Iγ, Eβ. Deduced: ^{112}Ag levels, log *ft*. β–feeding is determined by the assumption of no ground–state branch. $I\beta^-$ to g.s. <0.006% for log *ft*>8.5.

Others: 1977Gi11, 1974Ro18, 1971Ba28.

^{112}Ag Levels

E(level)†	Jπ‡	$T_{1/2}$‡
0.0	(2)−	3.130 h *8*
18.5 *5*	(1+)	

† From Eγ.
‡ From adopted levels.

β^- radiations

$E\beta^-$	E(level)	$I\beta^-$†	Log *ft*	Comments
(244 *7*)	18.5	100	4.32 *9*	$E\beta^-$: 280 *20* (1955Nu11).

† Absolute intensity per 100 decays.

γ(^{112}Ag)

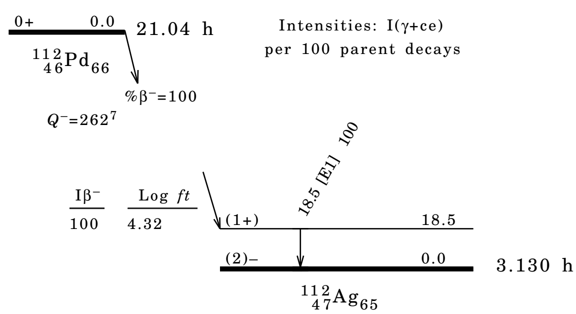
Iγ normalization: Based on the assumption that there is no direct ground state feeding. The decay scheme is incomplete.

Eγ†	E(level)	Iγ‡	Mult.	α	I(γ+ce)‡	Comments
18.5 *5*	18.5	27.0 *17*	[E1]	2.71 *23*	100	Iγ: from I(γ+ce) and α=2.71. Iγ: ≈0.08 photons per 617γ in ^{112}Ag reported by 1955Nu11 corresponds to Iγ(18.5γ)=3.4 which is much smaller than the value of 27 obtained with the assumption of a pure E1. I(γ+ce): from the assumption that 100% of the decay of ^{112}Pd passes through the 18.5-keV level.

† From 1955Nu11.
‡ Absolute intensity per 100 decays.

$^{112}Pd\ \beta^-$ Decay 1955Nu11,1953Nu04 (continued)

Decay Scheme



$^{176}Yb(^{28}Si,X\gamma)$ 2002Po11

Facility: VIVITRON; Beam: ^{28}Si, E=145 MeV; Target: 1.5 mg/cm^2 of ^{176}Yb with 15 mg/cm^2 Au backing; Detectors: Eurogam2 array consisting of 30 HPGe and 24 Clover detectors; Measured: γγ, γγγ, Eγ, Iγ; Deduced: level scheme.

^{112}Ag Levels

E(level)†	Jπ‡
0.0	2(−)
x	(6+)
x+97.5# *3*	(6−)
y@	(7−)§
y+74.6# *5*	(8−)
y+178.1@ *6*	(9−)§
y+565.1# *6*	(10−)
y+889.8@ *7*	(11−)§
y+1337.9# *7*	(12−)
y+1818.9@ *10*	(13−)§

† From a least–squares fit to Eγ.
‡ From 2002Po11, unless otherwise stated.
§ From adopted levels.
\# (A): Member of $\pi g_{9/2}\nu h_{11/2}$, α=+1/2 band.
@ (B): Member of $\pi g_{9/2}\nu h_{11/2}$, α=−1/2 band.

$\gamma(^{112}Ag)$

Eγ†	E(level)	Iγ†
74.6 *5*	y+74.6	70 *20*
97.5 *3*	x+97.5	120 *15*
103.5 *2*	y+178.1	100 *10*
324.7 *3*	y+889.8	26 *4*
387.0 *2*	y+565.1	50 *5*
448.1 *3*	y+1337.9	19 *4*
481 *1*	y+1818.9	6 *2*
711.8 *5*	y+889.8	23 *4*
929 *1*	y+1818.9	9 *3*

† From 2002Po11. Data collected with the requirement that at least 5 Ge detectors were in prompt coincidences.

Adopted Levels, Gammas

Q(β⁻)=–2585 4; S(n)=–9394.0 5; S(p)=–9648.5 14; Q(α)=–3476.4 12 2012Wa38.

^{112}Cd Levels

Cross Reference (XREF) Flags

A ^{112}Ag β⁻ Decay (3.130 h)	I ^{112}Cd(γ,pol γ')	^{110}Pd(^{3}He,n)
B ^{112}In ε Decay (14.88 min)	J ^{112}Cd(γ,γ')	^{110}Cd(t,p)
C Coulomb Excitation	K ^{111}Cd(d,pγ)	^{113}Cd(pol d,t)
D ^{110}Pd(α,2nγ)	L ^{112}Cd(pol d,d')	^{112}Cd(α,α')
E ^{112}Cd(n,n'γ)	M ^{112}Cd(d,d')	^{111}Cd(d,p)
F ^{112}Cd(p,p'γ)	N ^{112}Cd(π⁻,X)	^{112}Cd(pol p,p')
G ^{111}Cd(n,γ) E=th: Primary	O Others:	^{112}Cd(p,p')
H ^{111}Cd(n,γ) E=th: Secondary	^{112}Cd(e,e')	^{114}Cd(p,t)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
0.0§	0+	ABCDEFGHIJKLMNO	stable	XREF: O(618)O(616)O(619).
617.518§ 3	2+	ABCDEFGHIJKLMNO	6.46 ps 4	Jπ: L(p,p')=2; 617.52γ E2 to 0+. $T_{1/2}$: from B(E2)↑(617.52γ)=0.486 3; weighted average of 0.486 5 (1985Si01), 0.524 50 from ^{112}Cd(e,e') in (1977Gi13), 0.484 4 (1976Es02), 0.478 33 (1970St17), 0.524 21 (1969Mi07), 0.514 60 (1965Mc05) and 0.546 39 (1962Ec03). Q: –0.38 3; weighted average of –0.37 4 (1977Gi13), –0.39 8 (1976Es02), –0.42 8 (1976Es01), –0.38 11 (1977Ma41). Others: –0.40 +13–20 (1971Ha47), –0.15 7 (1970St17). μ: +0.71 3; weighted average of +0.71 5 (conventional kinematics in 2011Ch33), +0.73 4 (inverse kinematics in 2011Ch33), 0.60 12 (1970St17), 0.72 22 via IMPAC (1974Hu01), 0.74 22 (1978BrZX) and 0.64 16 (1980Br01) from γγ(θ,H,t). β_2=0.173 11 (1968Ma34), 0.20 1 (1968St18) and 0.19 (1967BaZV).
1224.341# 7	0+	ABCDEFGH JKLM O	4.2 ps 11	XREF: J(1223.2)O(1250)O(1223)O(1228). Jπ: L(p,p')=0; 606.84γ E2 to 2+; 1223.9ce E0 to 0+. $T_{1/2}$: from B(E2)(W.u.)=51 13 in 1980Ju05.
1312.390@ 8	2+	ABCDEFGH JKLM O	1.9 ps 3	XREF: O(1314)O(1310)O(1313). Jπ: 694.87γ E2+M1 to 2+; 1312.41γ E2 to 0+; L(p,p')=2. $T_{1/2}$: from B(E2)(↓)=0.0021 3 in Coulomb excitation (1969Mi07). Other: 1.5 ps +22–5 from DSAM in ^{112}Cd(n,n'γ) (2007Ga22).
1415.480§ 25	4+	A CDEF H KLM O	0.87 ps 10	XREF: M(1416)O(1414)O(1417)O(1414)O(1416). Jπ: 798.04γ E2 to 2+; L(p,p')=4; band assignment. $T_{1/2}$: from B(E2)↑=0.36 4, weighted average of 0.34 5 (1978Jo07), 0.356 42 (1965Mc05), and 0.41 8 (1962Ec03); Others: 0.7 ps +7–2 from DSAM in ^{112}Cd(n,n'γ) (2007Ga22). B(E4)↑=0.09 1 W.u. (1992Pi08).
1433.27 3	0+	AB DEFGH JKL O	1.9 ns 1	XREF: B(1431.5)J(1429)O(1431)O(1436). Jπ: 815.79γ E2 to 2+; 1433.27 E0 to 0+; L(d,p)=0. $T_{1/2}$: from RF–ce(t) in ^{111}Cd(d,pγ) (1979Lu10,1980Ju05). Others: 2.9 ps 9 using B(E2)(W.u.)(120.68γ)=66 20 and 1.4 ps 3 using B(E2)(W.u.)(815.79γ)=0.017 4. Ice(K)(1433.27):Ice(K)(815.79):Ice(K)(208.93):Ice(K)(120.68)= 0.79 8: 0.10 3: 2.5 4: 11 2 (1980Ju05) and Ice(K)(1433.27):Ice(K)(815.79)=19.0 17, Ice(K)(1433.27):Ice(K)(120.68)= 0.051 7, Ice(K)(208.93):Ice(K)(815.79)=45 5 and Ice(K)(208.93):Ice(K)(120.68)=0.13 2 in 1997Dr03.

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
1468.822# 14	2+	ABCDEFGH JKLM O	2.7 ps 5	XREF: M(1469)O(1467)O(1470)O(1470)O(1474)O(1469). Jπ: 1468.836γ E2 to 0+; L(p,p')=2; band member. $T_{1/2}$: from B(E2)↑=0.0055 10 in Coulomb excitation (1969Mi07); Other: 1.4 ps +30−6 ^{112}Cd(n,n'γ) (2007Ga22).
1870.68# 4	4+	A DEF		Jπ: 1253.31γ E2 to 2+; 455.14γ M1+E2 to 4+; band member.
1870.96 5	0+	AB DEFGH J LM O		XREF: J(1869.7)O(1873)O(1872)O(1876). Jπ: 1253.49γ E2 to 2+; L(pol d,t)=0.
2005.200& 21	3−	A CDEF H J LM O	0.26 ps 5	XREF: J(2000)O(2006)O(2003)O(2009). Jπ: 1387.68γ E1 to 2+; L(p,p')=3. B(E3)=0.0207 (1985De57) in ^{112}Cd(p,p') and 0.114 9 (1985Fe05), 0.158 27 (1978Jo07), 0.106 22 (1965Mc05) and 0.37 18 (1963Ha20) in Coulomb excitation. β_3=0.164 11 (1968Ma34), 0.15 2 (1968St18), 0.049 5 (1985De57) and 0.147 (1984Pi01) from ^{112}Cd(p,p'), 0.146 (1965Mc05) in Coulomb excitation, 0.15 (1967BaZV) from ^{112}Cd(α,α').
2064.53@ 3	3+	A DEFGH L O	0.47 ps 13	XREF: L(2064)O(2065). Jπ: 1447.00γ M1+E2 to 2+, 648.91γ M1+E2 to 4+; band member.
2081.64@ 4	4+	DEF H J L O	0.35 ps 10	XREF: J(2082)O(2085)O(2082). Jπ: 1464.04γ E2 to 2+, 666.15γ M1+E2 to 4+; L(p,p')=4; band member. B(E4)↑=8.2 10 W.u. (1992Pi08).
2121.62 4	2+	B DE GH J LM O	0.51 ps 14	XREF: B(2124.7)J(2120.2)L(2122)O(2123)O(2123). Jπ: 2121.49γ E2 to 0+; L(p,p')=2.
2156.18 5	2+	AB DE GH J LM O	0.2 ps 2	XREF: J(2155.2)O(2162)O(2155)O(2159). Jπ: 2156.20γ E2 to 0+; L(p,p')=2.
2167.76§ 5	6+	DE L		XREF: L(2167). Jπ: 752.14γ E2 to 4+; band member.
2231.12 5	2+	A DE GH J LM O	0.15 ps 14	XREF: J(2229.2)O(2230)O(2235). Jπ: 1006.81γ E2 to 0+; L(p,p')=2.
2300.68 7	0+	B E GH J LM O	>623 fs	XREF: J(2295)M(2299)O(2306)O(2299,2305)O(2302)O(2299). Jπ: 1683.22γ E2 to 2+; L(p,p')=0.
2373.19& 5	5−	DE LM O	0.4 ps +6−2	Jπ: 957.72γ E1 to 4+ and 367.9γ E2 to 3−; L(p,p')=5; band member. β_5=0.048 or 0.044 if two−step contributions through 2+ and 3− states are included (1984Pi01).
2402.98 5	3+	DE GH O	0.24 ps +10−6	XREF: O(2402). Jπ: 987.89γ M1+E2 to 4+, 1785.48γ to 2+; 6991.18γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
2416.00b 5	3−	A DE H LM O	0.15 ps 3	XREF: O(2414). Jπ: 946.92γ E1 to 2+; L(p,p')=3. B(E3)=0.0019 (1985De57). β_3=0.0148 17 (1985De57), and 0.035 or 0.038 if two−step contributions via the 2+ and 3− states are included (1984Pi01).
2418.0 10	(1,2+)	I O	1.29 ps 3	XREF: O(2420)O(2424). Jπ: 2418γ to 0+; L(d,p)=(0,1). $T_{1/2}$: from ^{112}Cd(γ,pol γ') and by assuming J=1.
2454.51 8	4+	DE LM O	0.35 ps +9−6	XREF: O(2457)O(2453). Jπ: 1142.21γ E2 to 2+, 1038.93γ M1+E2 to 4+; L(p,p')=4. B(E4)↑: 8.4 8 W.u. (1992Pi08).
2493.15 6	4+	DE H LM O	0.4 ps +4−1	XREF: M(2492)O(2491)O(2492). Jπ: 1875.70γ E2 to 2+, 1077.60γ M1+E2 to 4+; L(p,p')=4. B(E4)↑: 8.2 9 W.u. (1992Pi08).
2506.36 7	(2)+	A DE H J L O	0.21 ps 3	XREF: L(2507)O(2505)O(2505)O(2507). Jπ: 1888.79γ M1+E2 to 2+; L(pol d,t)=2.

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
2506.70 *6*	1−	A E GHIJ M O	36.6 fs *19*	XREF: O(2507). Jπ: 2506.70γ E1 to 0+, 1037.8γ E1 to 2+ and L(p,p')=(1). $T_{1/2}$: from ^{112}Cd(γ,pol γ'). Other: 44 fs *8* in ^{112}Cd(n,n'γ) (2007Ga22).
2532.20 *12*	2+	D GH L O		XREF: L(2533). Jπ: 1116.83γ to 4+, 1099.0γ to 0+; 6862.10γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
2561.27 *16*	(1,2+)	GH		Jπ: 2561.13γ to 0+, 1248.92γ to 2+.
2570.21[a] *6*	5−	DE O	>693 fs	XREF: O(2569). Jπ: 1154.75γ E1 to 4+ and 565.10γ E2 to 3−; band member. configuration: possible $\nu(s_{1/2},h_{11/2})$. The assignment is tentative.
2571.47[#] *6*	6+	DE LM O	>693 fs	XREF: L(2570)M(2569)O(2570)O(2570)O(2569). Jπ: 1156.21γ E2 to 4+ and 403.55γ M1+E2 to 6+; L(p,p')=6; band member.
2591.05[b] *5*	4−	DE H LM O	>693 fs	XREF: H(2590)L(2589)M(2590)O(2589)O(2590). Jπ: 526.52γ E1 to 3+, 585.78γ M1+E2 to 3−; band member.
2632 *5*	(5)−	M O		Jπ: from L(p,p')=5.
2634.99 *5*	3+	DE H L O		XREF: O(2637). Jπ: 629.80γ E1 to 3−, 1322.59γ M1+E2 to 2+, 1219.4γ M1+E2 to 4+.
2650.15 *8*	0+	E L O	0.23 ps *+12−6*	XREF: L(2649)O(2640)O(2649). Jπ: 2032.62γ E2 to 2+, no γ rays were observed to the 0+ levels; L(pol d,t)=0.
2657 *1*	1−	LM O		XREF: L(2653). Jπ: L(p,p')=1.
2665.64[@] *6*	5+	DE L	>208 fs	XREF: L(2667). Jπ: 601.01γ E2 to 3+ and 583.92γ M1+E2 to 4+; band member.
2668.92 *6*	(2)−	A DE GH M O	0.21 ps *3*	XREF: M(2667)O(2671)O(2667). Jπ: 1356.522γ E1 to 2+, 663.59γ M1+E2 to 3−; L(t,p)=(2,6); direct population in ^{111}Cd(n,γ) E=th:primary (Jπ=(1)+) makes Jπ=3− unlikely.
2674.00 *10*	2+	A DE GH L O	35 fs *3*	XREF: D(2673)G(2673.0)L(2673)O(2673)O(2678). Jπ: 2056.48γ M1+E2 to 2+ and L(pol d,t)=2. configuration: possible $\nu(s_{1/2},d_{3/2})$. The assignment is tentative.
2694.0 *10*	(1)	I	0.72 ps[d] *14*	Jπ: 2694γ to 0+; observation in ^{112}Cd(γ,pol γ').
2711.19 *8*	4+	DE LM O	0.26 ps *+15−7*	XREF: O(2710). Jπ: 705.95γ E1 to 3−,1295.74γ M1+E2 to 4+; L(p,p')=4. B(E4)↑: 3.6 *4* W.u. (1992Pi08).
2723.96 *7*	2+	A DE H J LM O	159 fs *24*	XREF: L(2722)M(2724)O(2718)O(2724)O(2725)O(2724). Jπ: 718.89γ E1 to 3−, 1501γ to 0+; L(p,p')=2.
2765.72 *5*	2+	A E GH LM O	34 fs *3*	XREF: L(2763)O(2763)O(2770). Jπ: 2765.7γ E2 to 0+,1296.9γ M1+E2 to 2+; L(p,p')=2.
2773.08 *8*	(0)+	E L	>693 fs	XREF: L(2775). Jπ: 1460.83γ E2 to 2+.
2791.79 *11*	(4)−	E LM O	>97 fs	XREF: L(2793). Jπ: 786.59γ M1(+E2) to 3−; L(p,p')=5.
2793.80[&] *6*	7−	DE		Jπ: 420.68γ E2 to 5−, 625.97γ E1 to 6+; band member.
2816.71 *7*	4+	E LM O	>416 fs	XREF: M(2815)O(2799)O(2815). Jπ: 811.3γ E1 to 3−, 1401.3γ M1+E2 to 4+; L(p,p')=4. B(E4)↑: 2.6 *3* W.u. (1992Pi08).
2817.74[b] *9*	6−	DE L O		XREF: L(2819)O(2818)O(2820)O(2822). Jπ: 444.54γ M1+E2 to 5−; band member.
2829.19 *6*	1−	A E GHI	27 fs *3*	Jπ: 2829.20γ E1 to 0+. $T_{1/2}$: Other: 21.0 fs *16* in ^{112}Cd(γ,pol γ').
2834.27 *7*	0+	E GH J L O	>347 fs	XREF: J(2832.2)L(2832)O(2829). Jπ: 2216.74γ E2 to 2+; L(pol d,t)=0.

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)[†]	Jπ	XREF	$T_{1/2}$[‡]	Comments
2840.22 *11*	(4)+	DE LM O	>485 fs	XREF: L(2835)M(2836)O(2840)O(2836). B(E4)↑: 1.8 *4* W.u. (1992Pi08). Jπ: 1424.73γ M1+E2 to 4+; L(p,p')=4.
2852.90 *5*	2+	E H J L O	0.44 ps *+21−10*	XREF: J(2850.1)L(2850). Jπ: 2852.87γ E2 to 0+; L(pol d,t)=0.
2866.75 *6*	3−	A DE H LM O	0.6 ps *+8−2*	XREF: L(2867)M(2866)O(2865)O(2866). Jπ: 1451.30γ E1 to 4+; L(p,p')=3. B(E3)=0.00123 and β_3=0.0122 *11* (1985De57).
2867.48 *6*	(3)+	A E L O	0.09 ps *+8−3*	XREF: A(2866.0)L(2877)O(2868)O(2875). Jπ: 2249.91γ M1+E2 to 2+; assignment in ^{113}Cd(pol d,t) (1990Bl10).
2881.02[§] *8*	8+	D		Jπ: 713.23γ E2 to 6+; band member.
2882.82 *8*	0+	E L O	>693 fs	Jπ: 1570.51γ E2 to 2+; L(pol d,t)=0.
2893.51 *6*	4+	E LM O	>416 fs	XREF: L(2892)M(2895)O(2894)O(2895). Jπ: 2276.07γ E2 to 2+, 811.9γ M1+E2 to 4+; L(p,p')=4. B(E4)↑: 4.7 *5* W.u. (1992Pi08).
2899.02 *5*	(3−,5−)	DE L	0.13 ps *3*	XREF: L(2897). Jπ: 1483.53γ (E1) to 4+.
2921.53[@] *9*	6+	DE L O		XREF: L(2916)O(2901). Jπ: 1505.5γ E2 to 4+; band member.
2924 *29*	0+	O		Jπ: L(pol d, t)=0.
2924.83 *5*	4−	E L	>139 fs	XREF: L(2926). Jπ: 551.63γ M1+E2 to 5− and 919.58γ M1+E2 to 3−.
2928 *5*	(5)−	LM O		XREF: L(2922). Jπ: L(p,p')=5.
2931.46 *6*	1+	E GHI O	17 fs *4*	XREF: G(2930.2)I(2931)O(2931). Jπ: 2931.42γ M1 to 0+, 2314.12γ M1+E2 to 2+. $T_{1/2}$: Other: 12.3 fs *7* in ^{112}Cd(γ,pol γ').
2931.97[a] *8*	6−	DE L		XREF: L(2932). Jπ: 558.7γ M1+E2 to 5−; band member.
2935.50[a] *6*	7−	D		Jπ: 767.65γ E1 to 6+, 365.38γ E2 to 5−; band member.
2944.94 *7*	2+	E GH LM O	0.4 ps *+3−1*	XREF: L(2942)M(2942)O(2936)O(2942). Jπ: 2944.78γ E2 to 0+; L(p,p')=2.
2947.76 *10*	(2,3)+	E L O	83 fs *24*	XREF: L(2946,2949)O(2946). Jπ: 2330.22γ M1+E2 to 2+.
2961.92 *6*	4−	E O		Jπ: 588.83γ M1+E2 to 5−; 956.7γ M1+E2 to 3−.
2962.0 *7*	2+	A LM O		XREF: L(2967)M(2969)O(2965)O(2969). Jπ: 2961.7γ to 0+, 957.1γ to 3−; L(p,p')=2.
2970.02 *10*	(4,5)+	DE		Jπ: 1554.49γ M1+E2 to 4+, 398.57γ to 6+.
2972.45 *7*	5+	DE	0.6 ps *+11−2*	Jπ: 1556.8γ M1+E2 to 4+, 804.89γ M1+E2 to 6+.
2980.85 *9*	2+	E L O	0.14 ps *3*	XREF: L(2976,2980)O(2974)O(2988). Jπ: 2363.274γ M1+E2 to 2+; L(pol d,t)=2.
3002.06 *6*	3+	E O	0.19 ps *+12−6*	Jπ: 2384.54γ M1+E2 to 2+ and 1586.57γ M1+E2 to 4+.
3011.08 *11*	(4,5,6)−	E L		XREF: L(3022). Jπ: 637.89γ M1+E2 to 5−.
3027.97 *10*	6+	DE O		XREF: O(3026). Jπ: 946.39γ E2 to 4+ and 859.83γ M1+E2 to 6+.
3046 *5*	1−	M O		Jπ: L(p,p')=1.
3049.08 *8*	(4+)	E L	0.08 ps *+12−3*	XREF: L(3046,3050). Jπ: 1633.39γ to 4+; Jπ=4+,1− in ^{112}Cd(pol d,d').
3051.19 *11*	(5)+	E L		XREF: L(3058). Jπ: 1635.70γ M1+E2 to 4+.
3066.23 *10*	(2,3)−	E G L	>207 fs	XREF: G(3065.4)L(3065). Jπ: 2448.76γ E1 to 2+; ^{112}Cd(pol d,d') (1994He22) and ^{112}Cd(n,n'γ) (2001Ga44) support 3− assignment.
3068.62 *6*	4+	A E o	>555 fs	XREF: O(3071)O(3069)o(3071)o(3072). Jπ: 1756.30γ E2 to 2+, 1653.09γ M1+E2 to 4+. B(E4)↑: 4.6 *8* W.u. (1992Pi08) (unresolved doublet).
3071.46 *8*	(4)+	E M o	>249 fs	XREF: M(3072)o(3071)o(3072). Jπ: 1006.9γ to 3+, 1066.28γ to 3−; L(p,p')=4. B(E4)↑: 4.6 *8* W.u. (1992Pi08) (unresolved doublet).
3071.74 *5*	(1,2+)	E		Jπ: 3071.2γ to 0+, 949.65γ to 2+.

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
3075.19 *11*	(4,5)+	DE L	0.3 ps +*5*−*1*	XREF: D(3075.65)L(3074,3080). Jπ: 1659.70γ M1+E2 to 4+.
3081.65 *19*	2+	E L O		XREF: L(3091)O(3085). Jπ: 3081.60γ E2 to 0+.
3093.02[a] *8*	8−	D		Jπ: 299.19γ M1+E2 to 7−; band member.
3102[c] *5*	4+	LM O		XREF: L(3100). Jπ: L(p,p')=4. B(E4)↑: 0.68 *13* W.u. (1992Pi08).
3102.15[c] *10*	(2)+	E O	21 fs *6*	XREF: O(3101). Jπ: 3102.10γ to 0+; L(pol d,t)=2.
3102.59 *8*	(4,5)	E L		XREF: L(3104). Jπ: 729.41γ to 5−, 1687.08γ to 4+.
3105.50 *5*	(2)+	E O	0.3 ps +*5*−*1*	XREF: O(3108)O(3109). Jπ: L(t,p)=2; 2488.14γ to 2+,1690.1γ to 4+.
3109.98 *7*	(2)+	E G J O	0.13 ps +*6*−*3*	XREF: G(3111.3)J(3110)O(3113). Jπ: 3110.01γ to 0+; L(d,p)=2.
3130.83 *7*	5−	A E LM O		XREF: L(3124,3131)M(3131)O(3128)O(3131). Jπ: 1125.78γ E2 to 3−; 1715.08γ E1 to 4+; Other: L(p,p')=3.
3133.42 *9*	1−	A E GHI O	27 fs *5*	Jπ: 3133.21γ E1 to 0+; Other: L(t,p)=(2). $T_{1/2}$: Other: 10.7 fs *5* in112CD(γ,pol γ') (2005Ko32).
3135.84 *6*	(2,3+)	E GH	0.3 ps +*3*−*1*	Jπ: 2518.43γ to 2+, 1071.26γ to 3+; 6258.35γ from (1+) in ^{111}Cd(n,γ) E=th:primary.
3145.28 *8*	3+,4+,5+	E O	0.13 ps +*5*−*3*	XREF: O(3146). Jπ: 1729.82γ M1+E2 to 4+.
3163.51 *9*	2+	E GH	0.26 ps +*12*−*7*	Jπ: 3163.4γ E2 to 0+, 656.74γ E1 to 1−.
3165.46 *11*	4−,5−,6−	E L		XREF: L(3168). Jπ: 792.27γ M1+E2 to 5−; Other: (4+) in ^{112}Cd(pol d,d') (1994He22).
3169.46 *6*	2+	A E GH	146 fs *14*	Jπ: 1945.14γ E2 to 0+, 1164.2γ E1 to 3−.
3175 *4*	(3)−	O		Jπ: L(t,p)=3.
3176.47 *8*	8+	D		Jπ: 604.98γ E2 to 6+, 295.19γ M1+E2 to 8+.
3176.83 *13*	(4)+	E		Jπ: 2559.28γ E2 to 2+.
3178.79 *7*	2+	E LM O	104 fs *24*	XREF: L(3177)M(3176)O(3177)O(3184)O(3176). Jπ: 3178.76γ E2 to 0+; L(p,p')=2.
3189.82 *9*	4+,5,6+	E	>354 fs	Jπ: 1022.09γ to 6+, 1774.30γ to 4+.
3190.06 *9*	0+,1,2,3+	E GH J L	22.2 fs *14*	XREF: G(3189.93)L(3188). Jπ: 2572.51γ to 2+; 6203.94γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3194.46 *6*	(2)+	E J O	0.10 ps *4*	XREF: J(3193). Jπ: 1189.41γ to 3−, 2576.72γ to 2+; L(pol d,t)=2.
3201.32 *10*	5−	E	0.5 ps +*5*−*2*	Jπ: 1196.21γ E2 to 3−; 1785.8γ E1 to 4+.
3203.25 *10*	(2,3)+	E O	0.12 ps +*9*−*4*	XREF: O(3204). Jπ: 2585.70γ (M1+E2) to 2+.
3205.74 *12*	2+,3,4	E	>111 fs	Jπ: 1736.90γ to 2+; 1790.2γ to 4+.
3206.48 *8*	(4)+	E LM O	76 fs *24*	XREF: M(3204)O(3204). Jπ: 1084.93γ to 2+; L(p,p')=4. B(E4)↑: 1.27 *24* W.u. (1992Pi08).
3206.71 *3*	2+,3,4	E	0.4 ps +*3*−*1*	Jπ: 1792.1γ to 4+; 1894.30γ to 2+.
3230.29 *9*	8+	D		Jπ: 658.83γ E2 to 6+; 349.26γ M1+E2 to 8+.
3231.59 *6*	1+	A E GHI O	35 fs *4*	XREF: I(3231)O(3230). Jπ: 3231.35γ M1 to the 0+, 2614.02γ M1+E2 to 2+. $T_{1/2}$: Other: 26.7 fs *16* in ^{112}Cd(γ,pol γ').
3239.04[@] *7*	7+	D		Jπ: 573.31γ E2 to 5+, 1071.24γ M1+E2 to 6+; band member.
3242.64 *6*	2+	E GH L O	0.2 ps +*3*−*1*	XREF: L(3246)O(3240). Jπ: 3242.49γ E2 to the g.s.; L(pol d,t)=2.
3246.86 *8*	(1,2)+	E J	0.16 ps *3*	Jπ: 2629.34γ to 2+; 4385γ E1 from 1− in ^{112}Cd(γ,γ') (1971Mo31).
3247.17 *11*	(6+)	E M O		XREF: M(3244)O(3244). Jπ: 1831.67γ to 4+; L(p,p')=(6).
3248.25[b] *8*	7−	D		Jπ: 155.21γ M1+E2 to 8−; 316.19γ M1+E2 to 6−; band member.

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
3251.86 *13*	(0)+	E O	<0.8 ps	XREF: O(3252). Jπ: 2634.31γ E2 to 2+.
3252.55 *12*	(6,7,8)−	D		Jπ: 458.75γ M1(+E2) to 7−.
3254.21 *7*	(0+,1,2)	E GH	0.2 ps *+8−1*	Jπ: 1942.01γ to 2+; 6140.26γ from (1+) in ^{111}Cd(n,γ) E=th:primary.
3254.30 *8*	(3,4)+	E	57 fs *17*	Jπ: 1249.01γ E1 to 3− and 1838.89γ M1+E2 to 4+.
3258.01 *11*	(3,4+)	E		Jπ: 1252.8γ to 3−; assignment in ^{113}Cd(pol d,t).
3266.54 *11*	4+	E LM O	0.19 ps *5*	XREF: L(3265)M(3265)O(3259)O(3265). Jπ: 1851.04γ to 4+; L(p,p')=4. B(E4)↑: 2.5 *5* W.u. (1992Pi08).
3269.50 *8*	2+,3,4,5−	E	0.17 ps *+21−7*	Jπ: 1264.25γ to 3−, 1854.04γ to 4+.
3290.40 *12*	(2+)	E		Jπ: 1419.43γ to 0+.
3291.13 *7*	2+,3,4,5−	E LM O	0.2 ps *+5−1*	XREF: L(3293)M(3292)O(3302)O(3292). Jπ: 1875.7γ to 4+, 1285.95γ to 3−.
3291.17 *9*	7−	D		Jπ: 917.73γ E2 to 5−, 1123.96γ E1 to 6+.
3297.01 *8*	(2,3)+	E O	0.38 ps *+24−11*	XREF: O(3296). Jπ: 2679.46γ to 2+, 1881.5γ to 4+; L(pol d,t)=2.
3300.99 *16*	(1)	E I	0.10 ps *+12−4*	Jπ: 3300.94γ to 0+; population in ^{112}Cd(γ,pol γ'). $T_{1/2}$: Other: 40.6 fs *22* in ^{112}Cd(γ,pol γ').
3303.24 *11*	(2,3)+	A E GH O	173 fs *24*	XREF: O(3304). Jπ: 2685.78γ to 2+; 886.99γ to 3−; L(d,p)=2.
3312.24 *6*	(1−,2)	E J L O	76 fs *17*	XREF: J(3309)L(3309). Jπ: 2694.56γ to 2+; 1306.97γ to 3−; 4323γ from 1− in ^{112}Cd(γ,γ').
3318.09& *8*	9−	D		Jπ: 524.28γ E2 to 7−; band member.
3319.83 *6*	1−,2,3,4+	E	0.17 ps *3*	Jπ: 2702.24γ to 2+ and 1314.6γ to 3−.
3322.40 *10*	10+	D		Jπ: 441.45γ E2 to 8+; band member.
3325.96 *11*	(3)−	E O		XREF: O(3326). B(E3)↑=0.00045 (1985De57). β_3=0.0073 *20* (1985De57). Jπ: 734.91γ to 4−; L(p,p')=3.
3329.17 *11*	(5−)	E LM O		XREF: M(3327)O(3327). Jπ: 1913.67γ to 4+; L(p,p')=(5).
3332.11 *8*	2+,3,4,5−	E O	0.12 ps *3*	XREF: O(3335)O(3330). Jπ: 1326.83γ to 3−, 1916.72γ to 4+.
3332.46 *10*	1,2,3,4+	E	97 fs *24*	Jπ: 2714.91γ to 2+.
3336.03 *10*	(2)+	E O	0.10 ps *3*	XREF: O(3340). Jπ: 2718.48γ to 2+; L(pol d,t)=2.
3341.86 *10*	(3)+	E O	37 fs *4*	XREF: O(3344)O(3344). Jπ: 2724.31γ E2+M1 to 2+. Note, that L(p,p')=3.
3353.36 *10*	0+	E L O	0.13 ps *4*	XREF: L(3350)O(3352). Jπ: 2735.81γ to 2+; L(pol d,t)=0.
3363.55 *7*	2+	E G LM O	0.24 ps *+10−6*	XREF: L(3366)M(3359)O(3365)O(3361)O(3359). Jπ: 3363.67γ E2 to 0+; L(p,p')=2.
3363.99 *13*	2+,3,4,5,6+	E	0.2 ps *+7−1*	Jπ: 909.48γ to 4+.
3369.62 *7*	2+,3,4+	A E L	35 fs *3*	XREF: L(3372). Jπ: 2752.08γ to 2+, 1952.9γ to 4+.
3375.45 *12*	(6,7,8)	D		Jπ: 439.95γ D to 7−.
3375.50 *9*	(1)	E I	52 fs *8*	Jπ: 3375.40γ to 0+, 2758.02 to 2+; population in ^{112}Cd(γ,pol γ'). $T_{1/2}$: Other: 87 fs *13* in ^{112}Cd(γ,pol γ').
3376.46 *11*	7−	D		Jπ: 283.40γ M1+E2 to 8−; 444.53γ M1+E2 to 6−.
3378.52 *8*	(2)+	E G L O	0.4 ps *+3−1*	XREF: L(3380)O(3381). Jπ: 1909.63γ to 2+; L(pol d,t)=2.
3383.71 *9*	0+ to 4+	E	97 fs *17*	Jπ: 2766.05γ to 2+.
3392.78 *12*	1,2+	E	>693 fs	Jπ: 3392.72γ to 0+.
3393.39 *4*	0+ to 4+	E	>970 fs	Jπ: 2775.83γ to 2+.
3393.45 *10*	(1,2+)	A E GH O		XREF: O(3393). Jπ: 3392.72γ to 0+, 2775.78 to 2+.
3393.60 *7*	1− to 5−	E	0.2 ps *+3−1*	Jπ: 3392.72γ to 3−.
3398.88# *8*	8+	D		Jπ: 827.54γ E2 to 6+; 517.99γ M1+E2 to 8+; band member.
3400.35 *10*	0+ to 4+	E		Jπ: 2087.94γ to 2+.

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)[†]	Jπ	XREF	$T_{1/2}$[‡]	Comments
3402.93 *10*	1+,2+,3+	E O	>527 fs	XREF: O(3402). Jπ: 2785.37γ M1+E2 to 2+.
3422.55 *9*	(4)+	E LM O		XREF: L(3417,3422)M(3417)O(3415)O(3417). Jπ: 1953.71γ to 2+; L(p,p')=4. B(E4)↑: 3.1 *4* W.u. (1992Pi08).
3425.60 *5*	0+ to 4+	E	0.09 ps *3*	Jπ: 2113.19γ to 2+.
3426.32 *14*	0+ to 4+	E	33 fs *+17−10*	Jπ: 2113.19γ to 2+.
3428.87 *7*	2+	E GH	0.08 ps *+5−3*	Jπ: 2811.2γ M1+E2 to 2+, 3428.71γ E2 to 0+.
3429.6 *3*		E		
3429.98 *16*	(5,6,7)	D		Jπ: 1262.21γ d(+Q) to 6+.
3433.73 *11*	(2+ to 6+)	E O	0.11 ps *+6−3*	XREF: O(3433). Jπ: 2018.23γ to 4+.
3451.97 *8*	(0+)	E		Jπ: 945.26γ to 1−.
3452 *5*	6(+)	M O		Jπ: L(p,p')=6.
3452.47 *7*	2+	E GH	0.2 ps *+4−1*	XREF: G(3451.9). Jπ: 3452.1γ to 0+, 2037.4γ to 4+.
3453.8 *3*	0+ to 4+	E		Jπ: 1985.0γ to 2+.
3455.48 *9*	0+,1,2	E GH L	0.3 ps *+3−1*	XREF: L(3457). Jπ: 2837.85γ to 2+; 5938.41γ from (1+) in ^{111}Cd(n,γ) E=th:primary 1997Dr03.
3470.3 *12*	0+ to 4+	A		Jπ: 2852.7γ to 2+.
3471.32 *22*	2+ to 6+	E		Jπ: 2055.8γ to 4+.
3478.58 *7*	0+,1,2+	E GH	0.2 ps *+7−1*	Jπ: 2166.06γ to 2+; 5914.9γ from (1+) in ^{111}Cd(n,γ) E=th:primary 1997Dr03.
3478.7 *9*	0+ to 4+	A		Jπ: 1322.0 to 2+.
3487 *5*	(6+)	O		Jπ: from L(p,p')=(6).
3487.55 *10*	(4)+	E O	83 fs *17*	XREF: O(3489). Jπ: 2869.99γ E2 to 2+; 4+ in ^{112}Cd(p,p').
3489.85 *6*	2+,3,4+	E L	68 fs *13*	XREF: L(3492). Jπ: 1368.12γ to 2+; 2074.36γ to 4+.
3493.92 *13*	(6,7)	D		Jπ: 1326.15γ D(+Q) to 6+.
3500.45 *8*	0+ to 3+	E GH	0.15 ps *3*	Jπ: 2882.85γ to 2+; 5893.51γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3511.6 *3*	3− to 7−	E	>485 fs	Jπ: 1138.4γ to 5−.
3512.97 *10*	(1,2,3)+	E G	0.10 ps *3*	Jπ: 2895.23γ M1+E2 to 2+.
3522.51 *10*	0+ to 4+	E	33 fs *3*	Jπ: 2904.95γ to 2+.
3528.92[b] *9*	7−	D		Jπ: 593.45γ M1+E2 to 7−; band member.
3530.90 *5*		E		
3531.32 *7*	4+	E LM O	76 fs *24*	XREF: L(3543). Jπ: 2913.77γ M1+E2 to 2+; L(p,p')=4. B(E4)↑: 0.00 *1* W.u. (1992Pi08).
3540.24 *9*	1,2+	E GH	15.3 fs *21*	Jπ: 3539.8γ to 0+, 2922.72γ to 2+.
3542.84[@] *10*	8+	D		Jπ: 1375.02γ E2 to 6+; band member.
3556.88 *10*	(1,2+)	E G I	48 fs *4*	Jπ: 3556.78γ to 0+. $T_{1/2}$: Other: 0.52 ps *13* in ^{112}Cd(γ,pol γ') (2005Ko32).
3557.33 *10*	(3)−	E H LM O	0.07 ps *3*	XREF: L(3560)M(3557)O(3557). Jπ: 2939.77γ to 2+; L(p,p')=3.
3568.05 *6*	2+	E GHI	62 fs *10*	Jπ: 3568.00γ E2 to 0+. $T_{1/2}$: Other: 60 fs *15* in ^{112}Cd(γ,pol γ').
3571.05[a] *10*	9−	D		Jπ: 777.36γ E2 to 7−; 252.88γ M1+E2 to 9−; band member.
3572.28 *20*	(1,2+)	GH		Jπ: 3572.37γ to 0+.
3574.49 *9*	0+ to 4+	E	≤2.5 ps	Jπ: 2956.96γ to 2+.
3577.2 *3*	0+ to 4+	E		Jπ: 2264.8γ to 2+.
3577.55 *11*	2+	GH		Jπ: 3577.53γ to 0+, 2352.94γ to 4+.
3579.44 *7*	0+ to 4+	E	0.13 ps *3*	Jπ: 2961.69γ to 2+.
3583.80 *24*	5,6,7	D		Jπ: 1416.03γ D(+Q) to 6+.
3586 *5*	3−	M O		Jπ: L(p,p')=L(d,d')=3.
3594.64 *9*	1,2+	E I L	76 fs *14*	XREF: L(3590). Jπ: 3594.49γ to 0+, 2977.24γ to 2+. $T_{1/2}$: Also: 0.153 ps *25* in ^{112}Cd(γ,pol γ') (2005Ko32).

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
3598.81 *10*	1+,2+,3+	E	31 fs *8*	Jπ: 2981.25γ M1+E2 to 2+.
3608.91 *10*	0+,1,2,3+	E G	0.12 ps *3*	Jπ: 2991.30γ to 2+; 5784.3γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3613.26 *10*	1+,2+,3+	E	0.10 ps *+6−3*	Jπ: 2995.85γ M1+E2 to 2+.
3618.48 *14*	3−	E LM O	0.06 ps *+6−2*	XREF: L(3616)M(3614)O(3614). Jπ: 2202.7γ to 4+, 3000.83γ to 2+; L(p,p')=3.
3622.18 *11*	0+ to 4+	E	0.033 ps *10*	Jπ: 3004.62γ to 2+.
3627.6 *3*	2+ to 6+	E L		XREF: L(3625). Jπ: 2212.1γ to 4+; (6+) in ^{112}Cd(pol d,d') (1994He22).
3646.54 *10*	0+,1,2,3+	E G	0.24 ps *+8−5*	Jπ: 3028.88γ to 2+; 5746.95γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3652.18 *9*	1,2+	E G	0.12 ps *4*	Jπ: 3652.07γ to 0+, 3034.60γ to 2+.
3658.74 *11*	8−	D		Jπ: 410.55γ M1+E2 to 7−; 340.50γ M1+E2 to 9−.
3665.78 *10*	3−	E LM O	132 fs *24*	XREF: M(3664)O(3664). Jπ: 3048.22γ to 2+; L(p,p')=3.
3676.73 *8*	0+ to 4+	E	0.09 ps *3*	Jπ: 3059.00γ to 2+.
3682.83 *12*	1,2+	E I	32 fs *8*	Jπ: 3682.76γ to 0+. $T_{1/2}$: Other: 88 fs *14* in ^{112}Cd(γ,pol γ').
3684.02§ *12*	10+	D		Jπ: 802.98γ E2 to 8+.
3685.55 *15*	6−,7−,8−	D		Jπ: 309.09γ M1+E2 to (7−).
3687.93 *10*	(1,2+)	E	0.13 ps *5*	Jπ: 3687.86γ to 0+.
3690.68 *13*	(4)+	E LM O	0.10 ps *+11−4*	XREF: L(3691)M(3691)O(3691). Jπ: 3073.12γ to 2+; L(p,p')=4. B(E4)↑: 2.2 *4* W.u. (1992Pi08).
3696.15 *11*	0+,1,2,3+	GH		Jπ: 2383.81γ to 2+; 5423.9γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3697.74 *12*	1−,2,3,4+	E L	0.3 ps *+10−1*	XREF: L(3700). Jπ: 3080.13γ to 2+; 1692.8γ to 3−; (5−) in ^{112}Cd(pol d,d') (1994He22).
3703.81 *10*	1,2+	E I	22 fs *4*	Jπ: 3703.74γ to 0+. $T_{1/2}$: Other: 65 fs *6* in ^{112}Cd(γ,pol γ') (2005Ko32).
3707.45 *9*	1−,2,3+	E GH	36 fs *8*	Jπ: 3090.04γ to 2+; 840.71γ to 3−; 5686.66γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3719.75 *20*	(2+,3+)	E G L		Jπ: 2305.1γ to 4+; 5674.88γ from (1+) in ^{111}Cd(n,γ) E=th:primary.
3723.25 *17*	0+,1,2,3+	E G	16 fs *+12−8*	Jπ: 3105.13γ to 2+; 5670.24γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3731.95 *10*	0+ to 4+	E	0.125 ps *+9−4*	Jπ: 3114.39γ to 2+.
3736.5 *3*	8+	D		Jπ: 1165.0γ E2 to 6+.
3739.55 *10*	(1,2,3)+	E L	66 fs *20*	XREF: L(3740). Jπ: 3121.99γ M1+E2 to 2+.
3743.76 *10*	(1,2,3)+	E G	54 fs *8*	Jπ: 3126.22γ M1+E2 to 2+; 5650.8γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3746.8 *3*	(4)+	E M O		XREF: M(3748)O(3748). Jπ: 2331.3γ to 4+; L(p,p')=4. B(E4)↑: 1.0 *3* W.u. (1992Pi08).
3754.09 *11*	2+ to 6+	E	>416 fs	Jπ: 2338.58γ to 4+.
3755.46 *13*	(2+)	E L	28 fs *9*	Jπ: 3755.39γ to 0+.
3763.95 *10*	(4)+	E M O	104 fs *14*	XREF: M(3764)O(3764). Jπ: 3146.38γ to 2+; L(p,p')=4 (1992Pi08). B(E4)↑: 0.68 *16* W.u. (1992Pi08).
3770.47 *10*	0+ to 4+	E	26 fs *6*	Jπ: 3152.90γ to 2+.
3783.197 *11*	(1,2,3)+	E	0.2 ps *+4−1*	Jπ: 3165.631γ M1+E2 to 2+.
3785.69b *13*	9−	D		Jπ: 692.67γ to 8−; band member.
3787.3 *3*	2+	E G		XREF: G(3795). Jπ: 3787.2γ E2 to 0+.
3801.2 *3*	(4)+	E M O		XREF: M(3800)O(3800). Jπ: 2385.7γ to 4+; L(p,p')=4. B(E4)↑: 1.3 *3* W.u. (1992Pi08).
3804.87 *14*	0+ to 4+	E	0.2 ps *+5−1*	Jπ: 3187.30γ to 2+.
3809.39a *9*	10−	D		Jπ: 716.376γ E2 to 8−; 491.30γ M1+E2 to 9−; band member.

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)[†]	Jπ	XREF	$T_{1/2}$[‡]	Comments
3810.04 10	1,2+	E I	9.7 fs 21	Jπ: 3809.97γ to 0+. $T_{1/2}$: Other: 17 fs 3 from ^{112}Cd(γ,pol γ').
3810.88 10	(3−)	E MO	0.07 ps +3−2	XREF: M(3815)O(3815). Jπ: 3193.317γ to 2+; L(p,p')=3 (1992Pi08).
3832.66 11	(4+)	E MO	22 fs 7	XREF: M(3835)O(3835). Jπ: 3215.09γ to 2+; L(p,p')=4 (1992Pi08). B(E4)↑: 1.0 3 W.u. (1992Pi08).
3838.85 23	(1,2+)	GH		Jπ: 3838.84γ to 0+.
3844.25 10	0+ to 4+	E	263 fs	Jπ: 3226.68γ to 2+.
3846.48 10	(1,2+)	E GHI	40 fs 9	Jπ: 3846.41γ to 0+. $T_{1/2}$: Other: 0.20 ps 3 in ^{112}Cd(γ,pol γ').
3854.4 3	2+	E		Jπ: 3854.3γ E2 to 0+.
3864.51 11	(4)+	E MO		XREF: M(3863)O(3863). Jπ: 2449.0γ to 4+; L(p,p')=4 (1992Pi08). B(E4)↑: 1.37 23 W.u. (1992Pi08).
3869.00 10	(1,2+)	E I	13 fs 3	Jπ: 3868.93γ to 2+. $T_{1/2}$: Other: 20 fs 5 in ^{112}Cd(γ,pol γ').
3878.62 13	0+ to 4+	E	53 fs 24	Jπ: 3261.05γ to 2+.
3892.48 14	0+,1,2,3+	GH MO		Jπ: 2579.77γ to 2+; 5501.62γ from (1+) in ^{111}Cd(n,γ) E=th:primary (1997Dr03).
3913.69[@] 9	9+	D		Jπ: 674.713γ E2 to 7+; 514.75γ M1+E2 to 8+; band member.
3929.21 21	(0)+	E O	≤0.9 ps	XREF: O(3920). Jπ: 3311.64γ to 2+; L(^{3}He,n)=0.
3930.78 17	12+	D		Jπ: 608.5γ E2 to 10+; band member.
3932.18 12	0+ to 4+	E	0.09 ps +6−3	Jπ: 3314.61γ to 2+.
3933.07 13	(1,2+)	E I	12 fs 4	Jπ: 3933.00γ to 0+. $T_{1/2}$: Other: 76 fs 10 in ^{112}Cd(γ,pol γ').
3939.27 14	(4)+	E MO	0.05 fs +3−2	XREF: M(3945)O(3945). Jπ: 3321.70γ to 2+; L(p,p')=4 (1992Pi08). B(E4)↑: 0.43 14 W.u. (1992Pi08).
3951.57 13	1,2+	E GH	43 fs 6	XREF: E(3952.25)G(3951.43)H(3951.50). Jπ: 3951.4γ to 0+, 3333.9γ to 2+.
3963.8 4	(1,2+)	E	0.03 ps +4−2	Jπ: 3963.7γ to 0+.
3966.44 14	(9,10,11)+	D		Jπ: 644.04γ M1+E2 to 10+.
3970.08 19	(1,2+)	E GH	0.05 ps +7−2	XREF: E(3969.28). Jπ: 3970.0γ to 0+.
3990.40 11	10+	D		Jπ: 591.57γ E2 to 8+; 306.23γ M1+E2 to 10+.
3997.75 14	1,2+	GHI	2.4 fs[d] 6	XREF: G(3996.1). Jπ: 3997.6γ to 0+, 2685.83γ to 2+.
4003.9 3	(3−)	GH MO		XREF: M(4010)O(4010). Jπ: 3386.50γ to 2+; L(p,p')=3 (1992Pi08).
4033.88 20	(3−)	E MO	0.06 ps +5−2	XREF: M(4034)O(4034). Jπ: 3416.31γ to 2+; L(p,p')=3 (1992Pi08).
4060 5	(4+)	MO		Jπ: L(p,p')=4. B(E4)↑: 0.84 16 W.u. (1992Pi08).
4090 5	(3−)	MO		Jπ: L(p,p')=3.
4118 5	(4+)	MO		Jπ: L(p,p')=4. B(E4)↑: 0.01 3 W.u. (1992Pi08).
4125.91 13	10+	D		Jπ: 949.44γ E2 to 8+; assumed yrast state.
4172 5	(3−)	MO		Jπ: L(p,p')=3 (1992Pi08).
4174.50 13	10+	D		Jπ: 856.41γ E1 to 9−; assumed yrast state.
4221 5	(7−)	MO		Jπ: L(p,p')=7 (1992Pi08).
4248 5	(3−)	MO		Jπ: L(p,p')=3 (1992Pi08).
4279 5	(3−)	MO		Jπ: L(p,p')=3 (1992Pi08).
4283.47[@] 14	10+	D		Jπ: 740.63γ E2 to 8+; band member.
4284.76 15	(9)−	D		Jπ: 908.29γ E2 to (7)−; assumed yrast state.
4285.20[&] 13	11−	D		Jπ: 967.10γ E2 to 9−; band member.
4320 5	(4+)	MO		Jπ: L(p,p')=4 (1992Pi08). B(E4)↑: 0.71 22 W.u. (1992Pi08).
4338 5	(7−)	MO		Jπ: L(p,p')=7 (1992Pi08).
4364 5	(4+)	MO		Jπ: L(p,p')=4 (1992Pi08). B(E4)↑: 0.62 17 W.u. (1992Pi08).

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Adopted Levels, Gammas (continued)

^{112}Cd Levels (continued)

E(level)[†]	Jπ	XREF	$T_{1/2}$[‡]	Comments
4383.05 *14*	11+	D		Jπ: 1060.63γ M1+E2 to 10+; 452.27γ M1(+E2) to 12+.
4385 *5*	(3−)	M O		Jπ: L(p,p')=3 (1992Pi08).
4385.16[b] *13*	10−	D		Jπ: 1067.06γ M1+E2 to 9−; band member.
4419 *5*	(4+)	M O		Jπ: L(p,p')=(4) (1992Pi08). B(E4)↑: 0.83 *17* W.u. (1992Pi08).
4467.74[a] *14*	11−	D		Jπ: 896.683γ E2 to 9−; band member.
4468 *5*	3	M O		Jπ: From ^{112}Cd(d,d') and ^{112}Cd(p,p').
4499 *5*	(3−)	M O		Jπ: From ^{112}Cd(d,d') and ^{112}Cd(p,p').
4546 *5*	(2+)	O		Jπ: From ^{112}Cd(p,p').
4587.15[§] *16*	12+	D		Jπ: 903.121γ E2 to 10+; band member.
4687.17[@] *13*	11+	D		Jπ: 773.48γ E2 9+; band member.
4720	0+,2+	O		Jπ: L(^{3}He,n)=0,2.
4871.47 *20*	14+	D		Jπ: 940.680γ E2 to 12+; band member.
5106.22 *20*	(13)−	D		Jπ: 1175.431γ E1 to 12+; assumed yrast state.
7633.0 *5*	1−	J	5.3 fs *9*	Jπ: 7632γ E1 to 0+. $T_{1/2}$: from Γ_{γ}=0.086 eV *15* (1970Mo26). Other: 0.6 eV *+2−1* (1966Mi13).
(9394.20 *3*)	(1)+	G		Jπ: s-wave capture on Jπ=1/2+ in ^{111}Cd suggests 0+,1+; 9393.63γ to the g.s. and other decay branches to 0+ states support 1+ assignments.

† From a least-squares fit to Eγ.
‡ From DSAM in ^{112}Cd(n,n'γ) (2007Ga22), unless otherwise stated.
§ Member of the gsb.
# Member of the band based on the 0+ state at 1224 keV.
@ Member of the band based on the 2+ state at 1312 keV.
& Member of the band based on the 3− state at 2005 keV.
a Member of the band based on the 5− state at 2570 keV.
b Member of the band based on the 3− state at 2415 keV.
c Unresolved multiplet in (p,p') and (pol d, t).
d From ^{112}Cd(γ,pol γ').

γ(^{112}Cd)

E(level)	Eγ[†]	Iγ[†]	Mult.[†]	α	Comments
617.518	617.517[e] *3*	100	E2	0.00371	Mult.: α(K)exp=0.00317 *16*, α(L)exp=0.00039 *4*, and α(M)exp=0.000138 *15* in ^{111}Cd(n,γ) E=th:secondary (1997Dr03); α(K)exp=0.0038 *7* in ^{112}In ε decay (14.88 min) (1962Ru05); A_2=+0.44 *2*, A_4=−0.05 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=30.31 *19*.
1224.341	606.821 *6*	100	E2	0.00388	Mult.: α(K)exp=0.0034 *3* in ^{111}Cd(n,γ) E=th:secondary (1997Dr03); A_2=−0.02 *7*; A_4=−0.08 *10* in ^{110}Pd(α,2nγ) (1992Ku01). B(E2)(W.u.)=51 *14*.

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
1224.341	1224.341 *7*		E0			I(γ+ce): 0.090 *7*. Eγ: transition energy from level energy differences. Mult.: from ce measurements 1979Gi05, 1980Ju05 and 1997Dr03; Ice(K)(1224.341γ)/Ice(K)(606.821γ)= 0.300 *22*, weighted average of 0.30 *4* (1979Gi05), 0.33 *5* (1980Ju05) and 0.29 *3* (1997Dr03). I(γ+ce): from Ice(K)(1224.341γ)/Ice(K) (606.821γ)=0.300 *22* α(K)(606.84γ)=0.00336 *5* and Ω_K/Ω_T=0.8961 (2008Ki07).
1312.390	694.872[e] *7*	100[§] *3*	E2+M1	−4.0 *7*	0.00274	Mult.: α(K)exp=0.00242 *18* in ^{111}Cd(n,γ) E=th:secondary (1997Dr03); A_2=−0.224 *7*; A_4=0.008 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: From γγ(θ) in ^{112}Ag β^- decay (1972Wa03); Others (γ(θ)): −1.6 *+5−8* (1997Dr03), −2.6 *+4−3* in (2001Ga44), −0.77 *6* in ^{111}Cd(d,pγ) and −0.87 *10* or −3.5 *9* (1969Mi07) B(M1)(W.u.)=0.0015 *6*; B(E2)(W.u.)=39 *7*.
	1312.36 *4*	37.7[§] *4*	E2		6.64×10^{-4}	Mult.: α(K)exp=0.00052 *6* in ^{111}Cd(n,γ) E=th:secondary (1997Dr03); A_2=+0.46 *2*, A_4=−0.04 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=0.65 *11*.
1415.480	798.04 *10*	100	E2		0.00193	Mult.: α(K)exp=0.00155 *15* in ^{111}Cd(n,γ) E=th:secondary (1997Dr03); A_2=+0.58 *4*, A_4=−0.15 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=63 *8*.
1433.27	120.68[§] *10*	58[#] *7*	E2		0.766	Iγ: Others: 61 *10* in ^{112}Cd(p,p'γ), but 27 *4* in ^{110}Pd(α,2nγ). B(E2)(W.u.)=99 *16*.
	208.93 *3*		E0			I(γ+ce): 6.4 *10*. Eγ: transition energy from level energy differences. Mult.: from α measurements in 1980Ju05 and 1997Dr03. I(γ+ce): from Ice(K)(208.93γ):Ice(K) (815.79γ)=45 *5* (1997Dr03), α(K)(815.79γ)=0.001589 *23*, Iγ(815.79γ)=100 *11* and Ω_K/Ω_T=0.8941 (2008Ki07); Other: Ice(K)(208.93γ):Ice(K)(815.79γ)=25 *9* (1980Ju05), is probably affected by the uncertainties in the ce spectrum around the 183−keV line.
	815.79[e] *3*	100[#] *10*	E2		0.00183	Eγ: B(E2)(↓)=0.017 *4* (1980Ju05). B(E2)(W.u.)=0.0121 *17*.

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
1433.27	1433.27 *3*		E0			I(γ+ce): 2.7 *4*. Eγ: transition energy from level energy differences. Mult.: from α measurements in 1980Ju05 and 1997Dr03. I(γ+ce): from Ice(K)(1433.27γ):Ice(K)(815.79γ)=19.0 *17* (1997Dr03), α(K)(815.57γ)=0.001589 *23*, Iγ(815.57γ)=100 *11* and Ω_K/Ω_T=0.8962 (2008Ki07) Other: Ice(K)(1433.27γ):Ice(K)(815.79γ)= 7.9 *25* (1980Ju05), but the value is probably affected by the weak population of this level.
1468.822	244.86§ *23*	1.0 *3*	(E2)		0.0641	Mult.: from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=120 *50*.
	851.285e *15*	100.0 *10*	M1+E2+E0	+0.050 *18*	0.00195	I(γ+ce): 4. Mult.: from α(K)exp=0.00235 *18* in ^{111}Cd(n,γ) E=th (1997Dr03) and α(K)exp=0.00234 *12* in ^{112}In ε decay (14.88 min) (1991Gi05); A_2=0.50 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03); Others: A_2=0.07 *7* and A_4=0.03 *16* in ^{112}Ag β^- decay (3.130 h) (1972Wa03). δ: Weighted average of 0.053 *30* in 1997De03 and 0.048 *22* in 1991Gi05. Others: +0.14 *5* from γ(θ) in ^{112}Cd(n,n'γ) (2001Ga44), +0.23 *13* or +1.4 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03), +0.10 *7* (1973Gr16); 0.05 or +2.0 *+7–5* (1969Mi07) in Coulomb excitation; +0.22 *5* in ^{112}Ag β^- decay (3.130 h) (1972Wa03). α: 0.00195 *4*, using q^2=9.7 *35*, weighted average of 9.4 *54* (1997Dr03) and 9.9 *46*(1991Gi05), and α from 2008Ki07. B(M1)(W.u.)=2.1×10^{-6} *16*.
	1468.84 *10*	58.3 *8*	E2		5.79×10^{-4}	Mult.: α(K)exp=0.00050 *7* in ^{111}Cd(n,γ) E=th (1997Dr03). Mult.: a_0=15.6 *2*; A_2=0.210 *13*; A_4=−0.036 *19* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(E2)(W.u.)=0.88 *17*.
1870.68	401.88 *13*	58 *3*	E2		0.01277	Mult.: A_2=+0.60 *2*, A_4=−0.10 *2* in ^{110}Pd(α,2nγ) (1997Dr03).
	455.26 *13*	32.0 *17*	M1+E2	+2.7 *+4–3*	0.00871	Mult.: A_2=0.06 *23*, A_4=−0.41 *24* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). δ: Other: 2.43 *15* or −0.45 *14* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
	558.39 *11*	100.0 *25*	E2		0.00487	Mult.: A_2=+0.64 *3*, A_4=−0.12 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
	1253.16 *12*	89 *3*	E2		7.17×10^{-4}	Mult.: A_2=+0.52 *4*, A_4=−0.15 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[†]	δ[†h]	α	Comments
1870.96	402.50 *16*	11.2 *12*	E2		0.01271	Mult.: A_2=+0.60 *2*, A_4=−0.10 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
	558.7	3.5[#] *9*	E2		0.00487	
	1253.56 *12*	100.0 *12*	E2		7.16×10^{-4}	Mult.: A_2=0.218 *42* and A_4=0.990 *51* in ^{112}In ε decay (14.88 min) (1972Ka34).
2005.200	536.31 *10*	1.11 *12*	E1		0.00181	Mult.: A_2=−0.17 *15* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E1)(W.u.)=6.5×10^{-5} *15*.
	692.82[e] *3*	22.2 *6*	E1		1.02×10^{-3}	Mult.: A_2/A_0=−0.046 17 in 110PD(A,2NG) (1993De09). B(E1)(W.u.)=0.00061 *12*.
	1387.68 *10*	100.0 *6*	E1		4.19×10^{-4}	Mult.: A_2=−0.07 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03); Also, A_2=−0.11 *3* and A_4=−0.02 *5* in ^{112}Ag β^- decay (3.130 h) (1972Wa03). Possible M2 admixture; δ=−0.06 *2* from ^{112}Ag β^- decay (3.130 h) B(E1)(W.u.)=0.00034 *7*.
2064.53	648.91 *10*	28.3 *7*	M1+E2	−1.20 *+20−15*	0.00338 *6*	Mult.: A_2=+0.45 *7* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). δ: Also: −1.6 *3* or −0.50 *15* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.009 *4*; B(E2)(W.u.)=25 *8*.
	752.14[e] *3*	100.0 *13*	M1+E2	−2.75 *+23−17*	0.00227	Mult.: A_2=0.303 *6*; A_4=−0.092 *8* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: −1.5 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.0059 *19*; B(E2)(W.u.)=64 *18*.
	1447.00 *10*	87.7 *13*	M1+E2	−1.70 *+10−12*	6.04×10^{-4}	Mult.: A_2=−0.47 *6*, A_4=+0.10 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). δ: Also: −1.24 *15* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.0016 *5*; B(E2)(W.u.)=1.8 *5*.
2081.64	211.0[§] *3*	4.9[§] *7*	[M1]		0.0597	B(M1)(W.u.)=0.14 *5*.
	612.88 *25*	23 *4*	E2		0.00378	Mult.: A_2=+0.51 *18*, A_4=−0.12 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=59 *20*.
	666.17[e] *6*	100.0 *22*	M1+E2	−0.41 *3*	0.00331	Mult.: A_2=+0.36 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). δ: Also: −0.47 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.080 *24*; B(E2)(W.u.)=24 *8*.
	769.36 *10*	70.4 *18*	E2		0.00211	Mult.: A_2=+0.34 *16* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=58 *17*.
	1464.04 *10*	27.7 *9*	E2		5.81×10^{-4}	Mult.: A_2=0.11 *6*; A_4=0.05 *8* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(E2)(W.u.)=0.9 *3*.
2121.62	688.23 *10*	14.9 *9*	E2		0.00279	Mult.: A_2=+0.52 *19* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=25 *7*.

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
2121.62	808.82 *19*	3.73 *12*	M1+E2		0.00215	
	897.07 *10*	11.9 *3*	E2		1.46×10^{-3}	B(E2)(W.u.)=5.3 *15*.
	1504.04 *10*	100.0 *9*	M1+E2	+1.36 *7*	5.88×10^{-4}	Eγ: seen as 1507.3 keV *3* in ^{112}In ε decay (14.97 min). Mult.: α(K)exp=0.00030 *10* in ^{111}Cd(n,γ) E=th (1997Dr03); A_2=0.16 *4* from γγ(θ) in (1993De09). δ: Also: +0.15 *5* or +1.6 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.0033 *10*; B(E2)(W.u.)=2.2 *6*.
	2121.49 *13*	2.80 *13*	E2		6.14×10^{-4}	B(E2)(W.u.)=0.017 *5*.
2156.18	687.41 *10*	5.6 *8*	M1+E2	−2.3 *19*	0.00285 *24*	B(M1)(W.u.)=0.003 *+5−3*; B(E2)(W.u.)=23 *+25−23*.
	842.8# *15*	2.5# *7*	[M1]		0.00195	B(M1)(W.u.)=0.004 *4*.
	1538.68e *10*	100	M1+E2	+0.085 *+25−22*	6.11×10^{-4}	Mult.: A_2=−0.02 *7* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: −0.33 *15* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.03 *3*; B(E2)(W.u.)=0.06 *+8−6*.
	2156.20 *10*	8.8 *3*	E2		6.23×10^{-4}	B(E2)(W.u.)=0.14 *+15−14*.
2167.76	297.29§ *12*	0.58§ *9*	E2		0.0334	Mult.: A_2=0.37 *7*; A_4=0.02 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	752.14§ *10*	100§ *3*	E2		0.00223	Mult.: A_2=+0.41 *5*, A_4=−0.11 *7* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
2231.12	226.0# *3*	0.61# *15*	[E1]		0.01665	B(E1)(W.u.)=0.0009 *9*.
	762.41 *10*	2.07 *11*	M1+E2	−1.4 *+8−34*	0.00226 *13*	B(M1)(W.u.)=0.0021 *+26−21*; B(E2)(W.u.)=6 *6*.
	918.72 *10*	2.72 *11*	M1+E2	+0.21 *+20−13*	0.00160 *4*	B(M1)(W.u.)=0.005 *5*; B(E2)(W.u.)=0.19 *+39−19*.
	1006.81 *10*	4.03 *11*	E2		1.12×10^{-3}	Mult.: A_2=0.14 *14* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)=4 *4*.
	1613.66 *10*	100.0 *2*	M1+E2	−0.020 *+20−27*	5.90×10^{-4}	Mult.: A_2=−0.05 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: −0.6 *+2−4* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.03 *3*; B(E2)(W.u.)=0.004 *+9−4*.
2300.68	831.79 *10*	48.4 *12*	E2		1.75×10^{-3}	B(E2)(W.u.)<23.
	1683.22 *10*	100.0 *12*	E2		5.45×10^{-4}	B(E2)(W.u.)<1.4.
2373.19	291.5 *1*	1.08 *11*	E1		0.00834	Mult.: A_2=−0.16 *13* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E1)(W.u.)=0.00031 *+16−31*.
	367.9 *1*	0.98 *20*	E2		0.01681	Mult.: A_2=0.38 *4*; A_4=−0.09 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(E2)(W.u.)=60 *+40−60*.
	957.72 *10*	100	E1		5.28×10^{-4}	Mult.: A_2=−0.233 *7* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(E1)(W.u.)=0.0008 *+4−8*.
2402.98	531.89 *10*	10.4 *12*	M1+E2	−0.6 *+4−25*	0.00569 *13*	B(M1)(W.u.)=0.016 *+7−9*; B(E2)(W.u.)=16 *+17−16*.

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
2402.98	934.19 *10*	61.2 *12*	M1+E2	−4.0 *6*	1.34×10^{-3} *2*	Mult.: A_2=0.09 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: 0.33 *10* from γγ(θ) in 1997Dr03. B(M1)(W.u.)=0.0014 *+6−7*; B(E2)(W.u.)=20 *+5−9*.
	987.89 *10*	100	M1(+E2)	−0.025 *+27−36*	1.37×10^{-3}	δ: Also: −6.2 *+10−17* from 2001Ga44. B(M1)(W.u.)=(0.032 *+8−14*); B(E2)(W.u.)=(0.02 *+4−2*).
	1090.56 *10*	57.7 *12*	M1+E2	+0.099 *+27−36*	1.10×10^{-3}	B(M1)(W.u.)=0.014 *+4−6*; B(E2)(W.u.)=0.09 *+6−7*.
	1785.48 *10*	66.6 *15*	M1+E2	−0.107 *+36−43*	5.71×10^{-4}	Mult.: A_2=−0.26 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: −0.25 *20* from γ(θ) in 1997Dr03. B(M1)(W.u.)=0.0036 *+9−15*; B(E2)(W.u.)=0.010 *8*.
2416.00	411.39 *23*	12.9 *14*	M1+E2	−0.35 *+18−23*	0.01087 *23*	Iγ: From ^{112}Ag β^- decay (3.130 h). Mult.: A_2=0.46 *9*; A_4=0.19 *13* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: +4.2 +∞−20 from γγ(θ) in ^{112}Cd(n,n'γ) (2001Ga44); 0.50 *25* or 2.7 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(M1)(W.u.)=0.14 *4*; B(E2)(W.u.)=80 *80*.
	946.92 *10*	9.5 *12*	E1		5.39×10^{-4}	B(E1)(W.u.)=0.00012 *3*.
	983.8# *3*	5.7# *3*				
	1103.58 *10*	47.0 *14*	E1		4.08×10^{-4}	Mult.: A_2=+0.31 *14* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(E1)(W.u.)=0.00039 *8*.
	1798.50 *10*	100.0 *17*	E1		6.36×10^{-4}	Mult.: A_2=−0.20 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(E1)(W.u.)=0.00019 *4*.
2418.0	2418a *1*	100				
2454.51	1038.93 *10*	100.0 *3*	M1+E2	−0.27 *18*	1.21×10^{-3} *3*	Mult.: A_2=+0.40 *9* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.048 *+10−14*; B(E2)(W.u.)=3 *+4−3*.
	1142.21 *10*	8.7 *3*	E2		8.55×10^{-4}	B(E2)(W.u.)=2.1 *+4−6*.
2493.15	1024.29 *10*	13.7 *5*	E2		1.08×10^{-3}	B(E2)(W.u.)=4.5 *+12−45*.
	1077.60 *10*	100.0 *6*	M1+E2	+0.13 *+6−5*	1.12×10^{-3}	Mult.: A_2=+0.47 *23* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). δ: Also: −0.03 *25* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.036 *+9−36*; B(E2)(W.u.)=0.4 *4*.
	1875.70 *10*	5.6 *5*	E2		5.60×10^{-4}	B(E2)(W.u.)=0.089 *+24−89*.
2506.36	1194.00 *10*	17.9 *5*	M1+E2	+0.20 *+16−12*	9.01×10^{-4} *16*	Mult.: A_2=−0.18 *17* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.0090 *15*; B(E2)(W.u.)=0.20 *+32−20*.
	1888.79 *10*	100.0 *5*	M1+E2	−0.18 *6*	5.76×10^{-4}	δ: Also: +4.2 *+15−8* from γ(θ) in 2001Ga44. B(M1)(W.u.)=0.0128 *19*; B(E2)(W.u.)=0.09 *7*.
2506.70	1037.9# *3*	6.8# *7*	E1		4.53×10^{-4}	B(E1)(W.u.)=0.00041 *5*.
	1073.32# *17*	4.8# *5*	E1		4.25×10^{-4}	B(E1)(W.u.)=0.00026 *3*.
	1282.29 *10*	5.5 *5*	E1		3.90×10^{-4}	B(E1)(W.u.)=0.000177 *19*.
	2506.70 *10*	100.0 *6*	E1		1.04×10^{-3}	Mult.: ε=−0.10 *8* from polarization measurements in ^{112}Cd(γ,pol γ') (2005Ko32). B(E1)(W.u.)=0.000431 *23*.

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[†]	δ[†h]	α	Comments
2532.20	1063.56[b] 22	76[b] 12				
	1099.0[b] 3	45[b] 12				
	1116.83[b] 20	100[b] 15				
2561.27	1248.92[b] 24	61[b] 11				
	2561.13[b] 22	100[b] 11				
2570.21	197.03 10	95 9	M1		0.0717	Iγ: 100 in ^{110}Pd(α,2nγ) (1997Dr03). Mult.: A_2=+0.61 13 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09); possible E2 admixture with δ=0.00 15 in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)<1.3.
	565.10 20	31 3	E2		0.00472	Mult.: A_2=0.26 7 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09). B(E2)(W.u.)<45.
	699.59 10	71 4	E1		1.00×10^{-3}	Mult.: A_2=−0.21 5 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09); possible M2 admixture with δ=0.02 5 in ^{110}Pd(α,2nγ) (1993De09). B(E1)(W.u.)<0.00029.
	1154.75 10	100	E1		3.88×10^{-4}	Mult.: A_2=−0.35 10 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09); Possible M2 admixture with δ=−0.13 13 in ^{110}Pd(α,2nγ) (1993De09). B(E1)(W.u.)<9.0×10^{-5}.
2571.47	403.55[§] 10	5.9[§] 7	M1+E2[‡]	−0.57[‡] 6	0.01159	Mult.,δ: A_2=0.048 22; A_4=−0.3 3 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09). δ: Others: +1.8 8 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)<0.012; B(E2)(W.u.)<20.
	700.89[§] 10	100[§] 3	E2		0.00266	Mult.: A_2=+0.13 54 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)<77.
	1156.21[§] 10	89[§] 5	E2		8.34×10^{-4}	Mult.: A_2=+0.68 22 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1997Dr03). B(E2)(W.u.)<5.6.
2591.05	526.52 10	48.0 11	E1		0.00189	Mult.: A_2=−0.13 3 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09); possible M2 admixture with δ=0.03 5 (1993De09). B(E1)(W.u.)<0.00076.
	585.78 10	23.0 7	M1+E2	+0.47 +8−7	0.00450	Mult.: A_2=0.09 6 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09). δ: Other: +0.27 15 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09). B(M1)(W.u.)<0.017; B(E2)(W.u.)<11.
	720.44 10	11.7 7	E1		9.39×10^{-4}	B(E1)(W.u.)<7.2×10^{-5}.
	1175.50 10	100.0 11	E1		3.84×10^{-4}	Mult.: A_2=0.334 18; A_4=0.111 25 from $\gamma\gamma(\theta)$ in ^{110}Pd(α,2nγ) (1993De09). B(E1)(W.u.)<0.00014.
2634.99	570.5 1	10.15 16	M1+E2		0.00485	
	629.80 10	38.1 8	E1		1.26×10^{-3}	
	1219.4 1		M1+E2		8.69×10^{-4}	
	1322.59 10	100.0 5	M1+E2	−1.37 +16−15	6.88×10^{-4} 11	
	2017.5 1	8.67 16	M1+E2		5.94×10^{-4}	
2650.15	1337.75 11	14.2 17	E2		6.46×10^{-4}	B(E2)(W.u.)=2.2 +7−12.
	2032.62 10	100	E2		5.92×10^{-4}	B(E2)(W.u.)=1.9 +5−11.
2665.64	583.92 10	100	M1+E2	+0.30 4	0.00456	B(M1)(W.u.)<0.19; B(E2)(W.u.)<48.

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
2665.64	601.01 *10*	60 *4*	E2		0.00399	Mult.: A_2=0.32 *6*; A_4=−0.11 *9* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(E2)(W.u.)<240.
	795.08 *13*	40 *3*	M1(+E2)	+0.14 *+18−17*	0.00223	B(M1)(W.u.)<0.033?; B(E2)(W.u.)<2.7?
	1250.17 *10*	65.6 *24*	M1+E2	−0.12 *+6−5*	8.26×10^{-4}	Mult.: A_2=−0.58 *5*; A_4=0.19 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: −2.0 *5* or −0.30 *12* in 1997Dr03. B(M1)(W.u.)<0.013; B(E2)(W.u.)<0.19.
2668.92	663.59 *15*	6.47 *25*	M1+E2	+1.3 *+23−8*	0.00319 *15*	B(M1)(W.u.)=0.007 *+16−7*; B(E2)(W.u.)=21 *+29−21*.
	1356.52 *10*	100	E1		4.08×10^{-4}	Mult.: A_2=0.05 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(E1)(W.u.)=0.00045 *7*.
	2051.50 *10*	17.9 *8*	E1		7.86×10^{-4}	B(E1)(W.u.)=2.3×10^{-5} *4*.
2674.00	2056.48 *10*	100	M1(+E2)	+0.05 *+7−8*	6.01×10^{-4}	B(M1)(W.u.)=(0.072 *7*); B(E2)(W.u.)=(0.03 *+10−3*).
2694.0	2694[a] *1*	100	M1		7.88×10^{-4}	B(M1)(W.u.)=0.0016 *3*.
2711.19	705.95 *10*	6.3 *9*	E1		9.80×10^{-4}	B(E1)(W.u.)=0.00019 *+6−12*.
	1295.74 *10*	100	M1+E2	−0.08 *6*	7.74×10^{-4}	Mult.: A_2=0.09 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: −0.33 *9* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.036 *+10−21*; B(E2)(W.u.)=0.11 *+17−11*.
2723.96	718.89 *10*	7.0[#] *7*	E1		9.43×10^{-4}	Iγ: 11.5 *6* in ^{112}Cd(n,n'γ). B(E1)(W.u.)=0.00031 *6*.
	1411.8[#] *8*	1.4[#] *4*	[M1+E2]		6.75×10^{-4}	
	2106.31 *10*	100.0 *6*	M1(+E2)	+0.05 *+6−5*	6.12×10^{-4}	δ: Other: 2.0 *+3−2* from γ(θ) in 2001Ga44. B(M1)(W.u.)=(0.0131 *20*); B(E2)(W.u.)=(0.006 *+15−6*).
	2723.6[#] *3*	4.1[#] *4*	[E2]		8.09×10^{-4}	B(E2)(W.u.)=0.027 *5*.
2765.72	894.5 *1*	7.2 *10*	E2		1.47×10^{-3}	B(E2)(W.u.)=47 *8*.
	1296.9 *1*	16 *4*	M1+E2		7.74×10^{-4}	Iγ: from ^{110}Cd(n,γ) E=th.
	1453.4 *1*	8.9 *5*	M1+E2		6.50×10^{-4}	
	2148.21 *10*	100 *4*	M1(+E2)	+0.06 *+7−6*	6.22×10^{-4}	δ: Other: +1.9 *+3−2* from γ(θ) in 2001Ga44. B(M1)(W.u.)=(0.047 *5*); B(E2)(W.u.)=(0.03 *+7−3*).
	2765.7 *3*	5.85 *24*	E2		8.23×10^{-4}	B(E2)(W.u.)=0.136 *15*.
2773.08	541.80 *10*	19.2 *10*	E2		0.00530	B(E2)(W.u.)<88.
	1460.83 *10*	100.0 *10*	E2		5.82×10^{-4}	B(E2)(W.u.)<3.2.
2791.79	786.59 *10*	100	M1+E2	+0.038 *+49−14*	0.00229	B(M1)(W.u.)<0.47; B(E2)(W.u.)<3.1.
2793.80	222.17[§] *10*	3.2[§] *4*	(E1)		0.01746	Mult.: A_2=−0.32 *22* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
	420.68 *19*	63 *4*	E2		0.01110	Mult.: A_2=0.323 *7*; A_4=−0.112 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	625.97 *10*	100 *4*	E1		1.27×10^{-3}	Mult.: A_2=−0.250 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
2816.71	735.20 *10*		M1+E2	+4.0 *+39−13*	0.00238	δ: Also: −0.65 *+16−20* from γ(θ) in 2001Ga44.
	811.3 *1*		E1		7.33×10^{-4}	
	1401.3 *1*		M1+E2		6.82×10^{-4}	
2817.74	247.54[§] *10*	10.6[§] *9*	M1(+E2)	+0.03 *3*	0.0392	Mult.: A_2=−0.18 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
2817.74	444.54 *10*	100.0 *28*	M1+E2	−0.29 *+5−7*	0.00891	Mult.: A_2=−0.73 *2*; A_4=0.05 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: −0.45 *18* from γ(θ) in 1997Dr03.
2829.19	957.80 *19*	8.0# *10*	E1		5.28×10^{-4}	B(E1)(W.u.)=0.00051 *9*.
	1604.6 *4*	5.0# *14*	[E1]		5.24×10^{-4}	B(E1)(W.u.)=6.8×10^{-5} *21*.
	2211.65 *10*	100.0 *21*	E1		8.80×10^{-4}	B(E1)(W.u.)=0.00052 *6*.
	2829.20 *10*	78.6 *21*	E1		1.22×10^{-3}	B(E1)(W.u.)=0.000195 *23*.
2834.27	712.68 *10*	19 *4*	E2		0.00255	B(E2)(W.u.)<36.
	1521.82 *12*	26.2 *19*	E2		5.64×10^{-4}	B(E2)(W.u.)<1.1.
	2216.74 *10*	100	E2		6.40×10^{-4}	B(E2)(W.u.)<0.65.
2840.22	1424.73 *10*	100	M1+E2	−1.28 *+18−24*	6.23×10^{-4} *11*	Mult.: A_2=−0.33 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: −0.11 *8* γγ(θ) in ^{110}Pd(α,2nγ) in 1997Dr03. B(M1)(W.u.)<0.0070; B(E2)(W.u.)<4.3.
2852.90	850& *2*					
	1419.6 *1*	12.2 *4*	E2		5.99×10^{-4}	B(E2)(W.u.)=0.42 *+10−21*.
	1540.4 *1*	52.8 *22*	M1+E2		6.11×10^{-4}	
	2235.46 *10*	34.8 *8*	M1+E2	−0.39 *+20−25*	6.44×10^{-4}	B(M1)(W.u.)=0.00068 *+18−34*; B(E2)(W.u.)=0.017 *+16−17*.
	2852.87 *10*	100 *3*	E2		8.54×10^{-4}	B(E2)(W.u.)=0.106 *+25−51*.
2866.75	450.75 *10*	16.5 *7*	M1+E2	+0.73 *+69−71*	0.00873 *20*	B(M1)(W.u.)=0.020 *+15−20*; B(E2)(W.u.)=40 *+60−40*.
	784.91 *10*	18.3 *15*	E1		7.85×10^{-4}	B(E1)(W.u.)=$9.\times10^{-5}$ *+3−9*.
	802.3# *4*	14# *4*	[E1]		7.50×10^{-4}	B(E1)(W.u.)=$6.\times10^{-5}$ *+3−6*.
	861.68 *10*	100.0 *11*	M1(+E2)	+0.069 *+89−69*	0.00186	B(M1)(W.u.)=(0.027 *+9−27*); B(E2)(W.u.)=(0.1 *+4−1*).
	1451.30 *10*	64.7 *13*	E1		4.45×10^{-4}	B(E1)(W.u.)=4.8×10^{-5} *+16−48*.
2867.48	1398.64 *10*		M1+E2		6.84×10^{-4}	
	1555.1 *1*		M1+E2		6.06×10^{-4}	
	2249.91 *10*	100	M1+E2		6.48×10^{-4}	
2881.02	713.23§ *10*	100§	E2		0.00255	Mult.: A_2=0.341 *9*; A_4=−0.121 *13* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
2882.82	726.79 *14*	36 *5*	E2		0.00243	B(E2)(W.u.)<27.
	1413.86 *10*	100 *5*	E2		6.02×10^{-4}	B(E2)(W.u.)<2.7.
	1570.51 *14*	28.5 *25*	E2		5.54×10^{-4}	B(E2)(W.u.)<0.46.
2893.51	771.76 *10*	37 *4*	E2		0.00209	B(E2)(W.u.)<42.
	811.9 *1*		M1+E2		0.00213	
	2276.07 *10*	100 *4*	E2		6.58×10^{-4}	B(E2)(W.u.)<0.51.
2899.02	1483.53 *4*	100	(E1)		4.60×10^{-4}	Mult.: A_2=−0.29 *3*; A_4=0.07 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). Mult.: stretched transition; δ=+0.014 *+33−30* from γ(θ) in 2001Ga44. B(E1)(W.u.)=0.00069 *16*.
2921.53	840.00 *10*	100§ *8*	E2		1.70×10^{-3}	Mult.: A_2=0.28 *3*; A_4=−0.12 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	1505.5§ *3*	40§ *5*	E2		5.68×10^{-4}	Mult.: A_2=0.13 *12* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
2924.83	333.72 *10*	60 *3*	M1+E2	−0.21 *+18−17*	0.0184 *5*	δ: Other: +1.4 *+7−5* from γγ(θ) in 2001Ga44. B(M1)(W.u.)<0.80; B(E2)(W.u.)<630.
	551.63 *10*	28 *3*	M1+E2		0.00525	
	919.58 *10*	100 *3*	M1+E2	−0.22 *10*	1.59×10^{-3} *3*	B(M1)(W.u.)<0.062; B(E2)(W.u.)<5.1.
	1054.24 *10*	62 *3*	E1		4.40×10^{-4}	B(E1)(W.u.)<0.00034.
	1509.36 *10*	75.9 *23*	E1		4.73×10^{-4}	B(E1)(W.u.)<0.00014.
2931.46	1618.84 *11*	47.5 *20*	M1+E2		5.89×10^{-4}	
	2314.12 *10*	53 *3*	M1+E2		6.66×10^{-4}	

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
2931.46	2931.42 *10*	100 *3*	M1		8.72×10^{-4}	Mult.: ε=+0.08 *10* from polarization measurements in ^{112}Cd(γ,pol γ') (2005Ko32). B(M1)(W.u.)=0.026 *7*.
2931.97	361.80§ *20*		M1+E2		0.01480	Mult.: A_2=−0.20 *17* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	558.7 *1*	100	M1+E2		0.00510	Mult.: A_2=+0.64 *3*, A_4=−0.12 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
2935.50	141.69§ *11*	5.6§ *14*	M1+E2‡	−0.52‡ *9*	0.230 *16*	
	365.38§ *10*	3.9§ *16*	E2		0.01718	Mult.: A_2=0.63 *10*; A_4=−0.15 *12* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	562.39§ *10*	100§ *3*	(E2)		0.00478	Mult.: A_2=+0.24 *8* (1997Dr03).
	767.65§ *10*	61§ *3*	E1		8.22×10^{-4}	Mult.: A_2=−0.249 *14* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
2944.94	2327.44 *10*	100 *4*	M1+E2	+1.4 *+11−14*	6.73×10^{-4}	B(M1)(W.u.)=0.0009 *+10−9*; B(E2)(W.u.)=0.25 *+15−23*.
	2944.78 *10*	73 *4*	E2		8.87×10^{-4}	B(E2)(W.u.)=0.084 *+22−64*.
2947.76	2330.22 *10*	100	M1+E2	−3.6 *+10−16*	6.75×10^{-4}	B(M1)(W.u.)=0.0015 *9*; B(E2)(W.u.)=2.9 *9*.
2961.92	370.86 *10*	37.1 *22*	M1(+E2)	+0.06 *+15−10*	0.01392 *22*	
	588.83 *10*	60.2 *24*	M1+E2		0.00450	
	956.7 *1*		M1+E2		1.47×10^{-3}	
	1546.35 *10*	100 *3*	E1		4.92×10^{-4}	
2962.0	957.1# *10*	50# *25*				
	2961.7# *10*	100# *25*				
2970.02	398.57§ *10*	75§ *5*				
	1554.49§ *16*	100§ *11*	M1+E2‡	+0.42‡ *12*	5.99×10^{-4} *10*	Mult.: A_2=0.27 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
2972.45	804.89 *10*	32.3 *17*	M1+E2	−2.5 *+7−12*	0.00193 *4*	B(M1)(W.u.)=0.0020 *+12−20*; B(E2)(W.u.)=15 *+6−15*.
	890.77 *10*	25 *3*	M1+E2	+0.17 *+7−6*	1.72×10^{-3} *3*	Mult.: A_2=−0.55 *8* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: −0.33 *15* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). B(M1)(W.u.)=0.008 *+3−8*; B(E2)(W.u.)=0.23 *+21−23*.
	1556.8 *1*	100 *3*	M1+E2‡	+0.42‡ *12*	5.98×10^{-4} *10*	Mult.: A_2=0.02 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(M1)(W.u.)=0.0053 *+19−53*; B(E2)(W.u.)=0.31 *+18−31*.
2980.85	1512.13 *17*	15 *3*	M1+E2		6.22×10^{-4}	
	1668.4	9.6 *23*	M1+E2		5.80×10^{-4}	
	2363.27 *10*	100 *4*	M1(+E2)	−0.01 *6*	6.81×10^{-4}	δ: Other: +2.3 *+5−4* from γ(θ) in 2001Ga44. B(M1)(W.u.)=(0.0096 *22*); B(E2)(W.u.)=(0.00014 *+165−14*).
3002.06	996.75 *14*	37 *6*	E1		4.89×10^{-4}	B(E1)(W.u.)=0.00026 *+10−18*.
	1586.57 *10*	79 *3*	M1+E2	+0.12 *6*	5.96×10^{-4}	B(M1)(W.u.)=0.010 *+4−7*; B(E2)(W.u.)=0.05 *5*.
	1689.7 *1*		M1+E2		5.77×10^{-4}	
	2384.54 *11*	100 *4*	M1+E2	+8.3 *+44−20*	6.93×10^{-4}	δ: Other: +0.33 *+5−6* from γ(θ) in 2001Ga44. B(M1)(W.u.)=6.×10^{-5} *+7−6*; B(E2)(W.u.)=0.55 *+18−35*.
3011.08	637.89 *10*	100	M1+E2	+3.5 *+27−14*	0.00342 *6*	δ: Other: +0.36 *+25−17* from γ(θ) in 2001Ga44.
3027.97	859.83§ *25*	45§ *9*	M1+E2‡	−0.39‡ *9*	0.00183	Mult.: A_2=0.15 *5*; A_4=0.10 *8* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: +1.3 *2* from γ(θ) in 1997Dr03.

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[†]	δ[†h]	α	Comments
3027.97	946.39[§] 10	100[§] 7	E2		1.29×10^{-3}	Mult.: A_2=0.16 2; A_4=−0.08 3 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3049.08	967.63 10	28.4 22	[M1]		1.43×10^{-3}	B(M1)(W.u.)=0.07 +3−7.
	1633.39 10	100.0 22	[M1]		5.86×10^{-4}	B(M1)(W.u.)=0.049 +19−49.
3051.19	1635.70 10	100	M1+E2	+0.35 +14−9	5.81×10^{-4}	
3066.23	1753.8	56.3 23	E1		6.09×10^{-4}	B(E1)(W.u.)<9.4×10^{-5}.
	2448.76 10	100.0 23	E1		1.01×10^{-3}	B(E1)(W.u.)<6.1×10^{-5}.
3068.62	1063.49 10	100.0 19	E1		4.32×10^{-4}	B(E1)(W.u.)<0.00016.
	1599.70 10	93.4 22	E2		5.50×10^{-4}	B(E2)(W.u.)<1.0.
	1653.09 10	44.8 17	M1+E2	−0.54 21	5.74×10^{-4} 10	B(M1)(W.u.)<0.0013; B(E2)(W.u.)<0.15.
	1756.30 14	36.5 22	E2		5.47×10^{-4}	B(E2)(W.u.)<0.25.
3071.46	1006.9 1	100 4				
	1066.28 10	39 4				
3071.74	840.613 10					
	949.65 11					
	1638.4 10					
	3071.2 10					
3075.19	1659.70 10	100	M1+E2	+0.13 5	5.81×10^{-4}	Mult.: A_2=−0.20 6 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). B(M1)(W.u.)=0.016 +6−16; B(E2)(W.u.)=0.08 +7−8.
3081.65	3081.60 19	100	E2		9.35×10^{-4}	
3093.02	157.50[§] 10	16.0[§] 9	M1+E2[‡]	−0.59[‡] 18	0.174 20	Mult.: A_2=−1.01 2; A_4=0.13 3 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	299.19[§] 10	100[§] 11	M1+E2[‡]	+0.55[‡] 6	0.0260 5	
3102.15	3102.10 10	100	[E2]		9.42×10^{-4}	B(E2)(W.u.)=2.9 9.
3102.59	729.41 10	26.7 25				
	1687.08 10	100.0 25				
3105.50	1636.7 1		[M1]		5.85×10^{-4}	
	1690.1 1		[E2]		5.45×10^{-4}	
	1792.77 10	50 3	[M1]		5.72×10^{-4}	B(M1)(W.u.)=0.0042 +15−42.
	2488.14 10	100 3	[M1]		7.19×10^{-4}	B(M1)(W.u.)=0.0032 +11−32.
3109.98	1641.14 10	84.0 20	[M1]		5.84×10^{-4}	B(M1)(W.u.)=0.015 +4−7.
	2492.24 10	100.0 22	[M1]		7.20×10^{-4}	B(M1)(W.u.)=0.0049 +12−23.
	3110.01 16	37.7 18	[E2]		9.45×10^{-4}	B(E2)(W.u.)=0.079 +19−37.
3130.83	714.84 10	30.0 21	E2		0.00253	
	1125.78 10	100	E2		8.81×10^{-4}	
	1715.08 12	23.0 12	E1		5.86×10^{-4}	
3133.42	1909.53[b] 17	38.7[b] 16	[E1]		7.02×10^{-4}	B(E1)(W.u.)=0.00043 9.
	3133.21[b] 10	100[b] 5	E1		1.35×10^{-3}	Mult.: ε=−0.13 6 from polarization measurements in ^{112}Cd(γ,pol γ') 2005Ko32. B(E1)(W.u.)=0.00025 5.
3135.84	1071.26 10	28 3				Iγ: 96 6 in ^{111}Cd(n,γ) E=th:secondary (1997Dr03).
	1667.01[b] 25	27[b] 5				
	1823.39 10	100 5				
	2518.43 10	68 6				
3145.28	1063.6 1		M1+E2		1.16×10^{-3}	
	1729.82 10	100	M1+E2	−0.43 +11−12	5.69×10^{-4} 9	δ: Also: +3.0 +15−7 from γ(θ) in 2001Ga44. B(M1)(W.u.)=0.028 +7−11; B(E2)(W.u.)=1.4 +7−8.
3163.51	656.74[b] 10	100[b]	E1		1.15×10^{-3}	B(E1)(W.u.)=0.0025 +7−12.
	3163.4[b] 3	58[b] 9	E2		9.64×10^{-4}	Iγ: 100 in ^{112}Cd(n,n'γ) (2001Ga44). B(E2)(W.u.)=0.079 +25−39.
3165.46	792.27 10	100	M1+E2		0.00225	
3169.46	1164.2 1		E1		3.86×10^{-4}	
	1945.14 17	74 3	E2		5.72×10^{-4}	B(E2)(W.u.)=1.80 20.

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
3169.46	2552.01 *10*	100 *3*	M1+E2	−0.68 *+13−20*	7.43×10^{-4}	δ: Other: −4.8 *+19−58* from γ(θ) in ^{112}Cd(n,n'γ) (2001Ga44). B(M1)(W.u.)=0.0035 *6*; B(E2)(W.u.)=0.20 *6*.
	3170.0# *15*	4#	[E2]		9.66×10^{-4}	B(E2)(W.u.)=0.0085 *9*.
3176.47	295.19§ *14*	8.2§ *20*	M1+E2‡	−0.14‡ *10*	0.0250 *5*	Mult.: A_2=0.36 *3*; A_4=−0.02 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	382.37§ *13*	10.6§ *23*				Mult.: A_2=+0.07 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	604.98§ *10*	100§ *5*	E2		0.00392	Mult.: A_2=0.334 *12*; A_4=−0.12 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3176.83	2559.28 *13*	100	E2		7.52×10^{-4}	
3178.79	2561.23 *10*	100.0 *15*	M1+E2		7.43×10^{-4}	
	3178.76 *10*	35.7 *15*	E2		9.70×10^{-4}	B(E2)(W.u.)=0.14 *4*.
3189.82	1022.09 *13*	83 *4*				
	1774.30 *10*	100 *4*				
3190.06	2572.51 *10*	100				
3194.46	1189.41 *10*	59.0 *18*	[E1]		3.83×10^{-4}	B(E1)(W.u.)=0.0006 *3*.
	1882.1 *1*		[M1]		5.76×10^{-4}	
	2576.72 *10*	100.0 *18*	[M1]		7.48×10^{-4}	B(M1)(W.u.)=0.008 *4*.
3201.32	1196.21 *19*	100	E2		7.80×10^{-4}	B(E2)(W.u.)=14 *+6−14*.
	1785.8 *1*		E1		6.28×10^{-4}	
3203.25	2585.70 *10*	100	(M1+E2)	−0.10 *+5−6*	7.51×10^{-4}	B(M1)(W.u.)=(0.011 *+4−8*); B(E2)(W.u.)=(0.013 *+14−13*).
3205.74	1736.90 *12*	100				
	1790.2					
3206.48	1084.93 *10*	76 *4*	[E2]		9.53×10^{-4}	B(E2)(W.u.)=67 *22*.
	2588.85 *10*	100	[E2]		7.62×10^{-4}	B(E2)(W.u.)=1.1 *4*.
3206.71	1792.1					
	1894.30 *3*	100				
3230.29	349.26§ *10*	27§ *4*	M1+E2‡	+0.42‡ *20*	0.0167 *6*	Mult.: A_2=0.42 *3*; A_4=−0.03 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: −0.09 *12* from γγ(θ) in ^{110}Pd(α,2nγ) in 1997Dr03.
	436.92§i *6*	§	E1		0.00295	Mult.: A_0=3.3 1; A_2/A_0=0.02 10 (1993De09).
	658.83§ *10*	100§ *14*	E2		0.00312	Mult.: A_2=+0.43 *6* (1997Dr03).
3231.59	1919.4 *1*		M1+E2		5.80×10^{-4}	Iγ: 100 in ^{112}Ag β⁻ decay (3.130 h) (1970Ma45).
	2614.02 *14*	38.9 *22*	M1+E2		7.61×10^{-4}	
	3231.35 *10*	100.0 *22*	M1		9.79×10^{-4}	Mult.: ε=+0.27 *12* from polarization measurements in ^{112}Cd(γ,pol γ') (2005Ko32). B(M1)(W.u.)=0.0134 *16*.
3239.04	573.31§ *10*	100§ *4*	E2		0.00453	Mult.: A_2=0.34 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	668.18§ *18*	35§ *4*	M1+E2‡	+2.6‡ *10*	0.00305 *7*	Mult.: A_2=+0.68 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: +0.54 *+30−15* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	1071.24§ *10*	54§ *6*	E2(+M1)‡	−7.2‡ *25*	9.83×10^{-4} *15*	Mult.: A_2=−0.26 *2*; A_4=0.28 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3242.64	1161.08 *12*	100 *8*	E2		8.27×10^{-4}	B(E2)(W.u.)=16 *+9−16*.
	2625.07 *10*	92 *6*	M1+E2	+1.9 *+15−9*	7.72×10^{-4} *12*	δ: Also: +0.10 *+35−22* (2001Ga44). B(M1)(W.u.)=0.0005 *+7−5*; B(E2)(W.u.)=0.20 *+13−20*.
	3242.49 *10*	64 *5*	E2		9.92×10^{-4}	B(E2)(W.u.)=0.06 *+4−6*.
3246.86	1778.0 *1*					
	2629.34 *10*	100				

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
3247.17	1831.67 *10*	100				
3248.25	155.21§ *10*	1.02§ *23*	M1+E2‡	+0.18‡ *12*	0.142 *10*	Mult.: a_0=0.96 *6*; A_2=−0.40 *10*; A_4=0.15 *16* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: +7 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	312.94§ *10*	9.9§ *5*	M1(+E2)‡	−0.1‡ *1*	0.0214 *4*	Mult.: A_2=0.34 *1*; A_4=−0.01 *1* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	316.19§ *10*	100§	M1+E2‡	+0.28‡ *4*	0.0213 *4*	Mult.: A_2=0.19 *2*; A_4=−0.02 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3251.86	2634.31 *13*	100	E2		7.77×10^{-4}	B(E2)(W.u.)>0.17.
3252.55	458.75§ *10*	100§	M1(+E2)‡	−0.02‡ *5*	0.00821	Mult.: A_2=+0.39 *22* (1997Dr03).
3254.21	1785.2					
	1942.01 *10*	100 *3*				
	2636.62 *11*	70 *3*				Iγ: 100 in ^{111}Cd(n,γ) E=th:secondary (1997Dr03).
3254.30	1249.01 *10*	100 *3*	E1		3.86×10^{-4}	B(E1)(W.u.)=0.0017 *5*.
	1838.89 *10*	57 *3*	M1+E2	+3.1 *+30−11*	5.57×10^{-4}	δ: Also: −0.45 *+30−25* from γ(θ) in 2001Ga44. B(M1)(W.u.)=0.0021 *+38−21*; B(E2)(W.u.)=4.8 *18*.
3258.01	1252.8 *1*	100				
3266.54	1851.04 *10*	100	[M1]		5.74×10^{-4}	B(M1)(W.u.)=0.018 *5*.
3269.50	1264.25 *10*	100.0 *25*				
	1854.04 *10*	44.3 *25*				
3290.40	1419.43 *10*	100				
3291.13	1209.4 *1*					
	1285.95 *10*	100				
	1875.7 *1*					
3291.17	917.73§ *10*	100§ *8*	E2		1.39×10^{-3}	Mult.: A_2=+0.07 *2* (1997Dr03).
	1123.96§ *15*	95§ *10*	E1		3.98×10^{-4}	Mult.: A_2=−0.23 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3297.01	1881.5 *1*	100.0 *20*				
	2679.46 *10*	31.2 *20*				
3300.99	3300.94 *16*	100.0 *4*				
3303.24	629.2# *4*	6.8# *17*				
	886.99b *23*	17b *3*				
	2685.83b *17*	100b *5*				
3312.24	1306.97 *10*	46.9 *13*				
	2000.01 *10*	43.8 *19*				
	2694.56 *10*	100.0 *21*				
3318.09	382.37§ *13*	14§ *3*	E2		0.01489	
	524.28§ *10*	100§	E2		0.00581	from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3319.83	1314.6 *1*					
	1851.04 *10*	100 *3*				
	2702.24 *10*	62 *3*				
3322.40	145.87§ *10*	11.8§ *10*	E2		0.390	
	441.45§ *10*	100§ *5*	E2		0.00960	Mult.: A_2=+0.72 *23* (1997Dr03).
3325.96	734.91 *10*	100				
3329.17	1913.67 *10*	100				
3332.11	1326.83 *10*	100 *8*				
	1916.72 *12*	54 *8*				
3332.46	2714.91 *10*	100				
3336.03	2718.48 *10*	100	[M1+E2]		7.97×10^{-4}	
3341.86	2724.31 *10*	100	E2+M1	+7.4 *+17−16*	8.09×10^{-4}	B(M1)(W.u.)=0.00053 *25*; B(E2)(W.u.)=3.1 *4*.
3353.36	2735.81 *10*	100	[E2]		8.13×10^{-4}	B(E2)(W.u.)=0.9 *3*.
3363.55	2745.86 *10*	100 *3*	M1+E2	−0.49 *+15−17*	8.08×10^{-4}	B(M1)(W.u.)=0.0023 *+7−10*; B(E2)(W.u.)=0.06 *4*.

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
3363.55	3363.67 *10*	58 *3*	E2		1.03×10^{-3}	B(E2)(W.u.)=0.063 *+16–27*.
3363.99	909.48 *10*	100				
3369.62	1900.77 *10*	26.9 *14*				
	1952.9# *10*	50#				
	2752.08 *10*	100.0 *14*				
3375.45	439.95§ *10*	100§	D‡	‡		Mult.: A_2=−0.281 *12* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3375.50	2758.02 *14*	95 *3*				
	3375.40 *10*	100 *3*				
3376.46	283.40§ *12*	4.7§ *10*	M1+E2‡	−2.2‡ *7*	0.0372 *17*	Mult.: A_2=0.32 *6*; A_4=0.17 *8* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Also: −0.42 *+15–40* from γ(θ) in 1997Dr03.
	444.53§ *10*	100§ *3*	M1+E2‡	−0.37‡ *13*	0.00894 *14*	Mult.: A_2=−0.73 *2*; A_4=0.05 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3378.52	1909.63 *10*	100.0 *21*	[M1]		5.79×10^{-4}	B(M1)(W.u.)=0.0059 *+15–45*.
	2761.18 *14*	33.9 *21*	[M1]		8.12×10^{-4}	B(M1)(W.u.)=0.00066 *+18–50*.
3383.71	1227.70 *13*	30 *3*				
	2766.05 *10*	100				
3392.78	3392.72 *12*	100				
3393.39	2775.83 *4*	100				
3393.45	2775.78b *18*	100b				
	3393.35b *20*	31b *4*				
3393.60	977.59 *5*	100				
3398.88	222.17§ *10*	28§ *4*	(M1)		0.0521	Mult.: A_2=−0.32 *22* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
	517.99§ *12*	51§ *9*	M1+E2‡	−0.16‡ *14*	0.00611	Mult.: A_2=+0.23 5from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03). δ: Other: +0.62 *12* in ^{110}Pd(α,2nγ) (1997dr3).
	827.54§ *10*	100§ *9*	E2		1.77×10^{-3}	Mult.: A_2=0.316 *9*; A_4=−0.111 *12* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3400.35	2087.94 *10*	100				
3402.93	2785.37 *10*	100	M1+E2	−1.8 *+3−4*	8.28×10^{-4}	δ: Also: −0.34 +10–13 from G(THETA) in 2001GA44. B(M1)(W.u.)<0.00057; B(E2)(W.u.)<0.16.
3422.55	1953.71 *16*	100.0 *24*				
	2805.0 *1*	35.7 *24*				
3425.60	2113.19 *5*	100				
3426.32	2808.76 *14*	100				
3428.87	2811.2 *1*	100.0 *16*	M1+E2		8.30×10^{-4}	
	3428.71 *14*	14.2 *16*	E2		1.06×10^{-3}	B(E2)(W.u.)=0.058 *+23–37*.
3429.6	2014.1 *3*	100				
3429.98	1262.21§ *15*	100§	D(+Q)‡	−0.04‡ *5*		Mult.: A_2=−0.30 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3433.73	2018.23 *10*	100				
3451.97	945.26 *5*	100	E1		5.41×10^{-4}	
3452.47	2037.4 *3*	59 *8*	[E2]		5.93×10^{-4}	B(E2)(W.u.)=0.9 *+5–9*.
	2835.33 *10*	100 *8*	[M1]		8.38×10^{-4}	B(M1)(W.u.)=0.0030 *+16–30*.
	3452.1 *4*		[E2]		1.06×10^{-3}	Eγ: from ce in ^{111}Cd(n,γ) E=th:secondary (1997Dr03).
3453.8	1985.0 *3*	100				
3455.48	2837.85 *10*	100				
3470.3	2852.7# *12*	100#				
3471.32	1389.7 *3*	100				
	2055.8 *3*	100				
3478.58	2166.06 *10*	100				
	2861.0 *1*	37 *5*				
	3479.2b *3*	100b				

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Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[†]	δ[†h]	α	Comments
3478.7	1322.0[#] 10	100[#] 17				
	2863.0[#] 20	33[#] 17				
3487.55	2869.99 10	100	E2		8.60×10^{-4}	B(E2)(W.u.)=1.09 23.
3489.85	1368.12 10	39 4				
	2074.36 10	100 4				
	2872.4 1	55.8 10				
3493.92	1326.15[§] 12	100[§]	D(+Q)[‡]	+0.02[‡] 3		Mult.: A_2=−0.21 3 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3500.45	2882.85 10	100				
3511.6	1138.4 3	100				
3512.97	2895.23 10	100	M1+E2	−0.18 6	8.60×10^{-4}	B(M1)(W.u.)=0.009 3; B(E2)(W.u.)=0.027 20.
3522.51	2904.95 10	100				
3528.92	593.45[§] 10	82[§] 11	M1+E2[‡]	+1.0[‡] 5	0.00427 11	Mult.: A_2=+0.51 13 from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
	735.08[§] 10	100[§]	M1+E2[‡]	−0.11[‡] 6	0.00267	Mult.: A_2=+0.12 7 from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
3530.90	1525.69 4	100				
3531.32	2218.9 1					
	2913.77 10	100	M1+E2	−0.18 +10−9	8.66×10^{-4}	B(M1)(W.u.)=0.011 4; B(E2)(W.u.)=0.03 +4−3.
3540.24	2922.72 10	100 7				
	3539.8[b] 4	24[b] 6				
3542.84	621.41[§] 15	78[§] 8	E2		0.00364	Mult.: A_2=0.26 10; A_4=−0.26 13 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	1375.02[§] 10	100[§] 6	E2		6.22×10^{-4}	Mult.: A_2=0.31 3; A_4=−0.07 4 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3556.88	3556.78 12	100				
3557.33	2939.77 10	100	[E1]		1.27×10^{-3}	B(E1)(W.u.)=0.00016 7.
3568.05	2099.17 10	100 5	M1+E2	≤+0.29	6.10×10^{-4}	δ: Other: +2.3 +29−9 from γ(θ) in ^{112}Cd(n,n'γ) (2001Ga44). B(M1)(W.u.)>0.011; B(E2)(W.u.)<0.24.
	2950.52 12	94 4	M1+E2	+1.6 +12−8	8.86×10^{-4}	δ: Other: +0.15 +40−20 from γ(θ) in ^{112}Cd(n,n'γ) 2001Ga44. B(M1)(W.u.)=0.0014 +15−14; B(E2)(W.u.)=0.32 15.
	3568.00 10	75 5	E2		1.10×10^{-3}	B(E2)(W.u.)=0.137 25.
3571.05	252.88[§] 10	100[§] 6	M1+E2[‡]	+0.82[‡] 13	0.0453 18	Mult.: A_2=0.28 4; A_4=−0.11 5 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: −0.33 14 in ^{110}Pd(α,2nγ) (1997Dr03).
	478.22[§i] 4	[§]	M1+E2	−0.10 6	0.00742	Eγ: transition seen only in 1993De09. Mult.: A_0=3.74 15; A_2/A_0=−0.43 8 (1993De09).
	635.7[§] 3	51[§] 17	E2		0.00343	Mult.: A_2=0.34 3; A_4=−0.12 5 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	777.36[§] 15	76[§] 13	E2		0.00206	Mult.: A_2=0.352 10; A_4=−0.120 14 from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3572.28	3572.37[b] 23	100[b]				
3574.49	2262.06 10	57 4				
	2956.96 18	100 4				
3577.2	2264.8 3	100				
3577.55	2352.94[b] 19	21.9[b] 19				
	2960.13[b] 16	100[b] 4				
	3577.53[b] 18	18.1[b] 19				
3579.44	2267.21 10	40 3				
	2961.69 10	100				

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
3583.80	1416.03§ *23*	100§	D(+Q)‡	−0.06‡ *4*		Mult.: A_2=−0.13 *26* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
3594.64	2977.24 *14*	43 *4*				
	3594.49 *10*	100				
3598.81	2981.25 *10*	100	M1+E2	−0.16 *+8−10*	8.90×10^{-4}	δ: Other: −2.8 +6−11 from G(THETA) in 2001GA44. B(M1)(W.u.)=0.026 *7*; B(E2)(W.u.)=0.06 *6*.
3608.91	2991.30 *10*	100				
3613.26	2143.97 *19*	96 *6*				
	2995.85 *11*	100	M1+E2	+2.0 *+21−15*	9.03×10^{-4} *14*	B(M1)(W.u.)=0.0008 *+15−8*; B(E2)(W.u.)=0.30 *+16−22*.
3618.48	1613.8 *3*					
	2202.7 *3*					
	3000.83 *18*	100	[E1]		1.29×10^{-3}	B(E1)(W.u.)=0.00018 *+6−18*.
3622.18	3004.62 *11*	100				
3627.6	2212.1 *3*	100				
3646.54	3028.88 *10*	100				
3652.18	3034.60 *10*	100 *4*				
	3652.07 *23*	19 *4*				
3658.74	340.50§ *15*	100§	M1+E2‡	−0.18‡ *4*	0.0174 *3*	Mult.: A_2=0.09 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	410.55§ *10*		M1+E2‡	0.50‡ *25*	0.01103 *25*	Mult.: A_2=0.46 *9*; A_4=0.19 *13* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: from ^{110}Pd(α,2nγ) (1993De09); Other: 2.7 *10* in ^{110}Pd(α,2nγ) (1993De09).
3665.78	3048.22 *10*	100	[E1]		1.32×10^{-3}	B(E1)(W.u.)=7.8×10^{-5} *15*.
3676.73	2208.09 *11*	100 *4*				
	3059.00 *10*	75 *4*				
3682.83	3682.76 *12*	100				
3684.02	802.98§ *10*	100§	E2		0.00190	Mult.: A_2=+0.53 *16*, A_4=−0.48 *20* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
3685.55	309.09§ *10*	100§	M1+E2‡	−0.29‡ *9*	0.0226 *5*	Mult.: A_2=0.24 *2*; A_4=−0.04 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3687.93	3687.86 *10*	100				
3690.68	3073.12 *13*	100	[E2]		9.32×10^{-4}	B(E2)(W.u.)=0.6 *+3−6*.
3696.15	2383.81b *17*	100b				
3697.74	1692.8 *3*					
	3080.13 *12*	100				
3703.81	3703.74 *10*	100				
3707.45	840.71b *18*	40b *4*				
	2395.00b *18*	57b *4*				
	3090.04b *18*	100b *6*				
3719.75	2305.1 *3*	100				
3723.25	3105.13 *24*	100				
3731.95	3114.39 *10*	100				
3736.5	1165.0§ *3*	100§	E2		8.21×10^{-4}	Mult.: A_2=0.36 *7*; A_4=−0.04 *9* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3739.55	3121.99 *10*	100	M1+E2	−0.32 *+14−20*	9.41×10^{-4}	B(M1)(W.u.)=0.010 *4*; B(E2)(W.u.)=0.08 *8*.
3743.76	3126.22 *10*	100	M1+E2	−12 *+4−20*	9.51×10^{-4}	B(M1)(W.u.)=$9.\times10^{-5}$ *7*; B(E2)(W.u.)=1.09 *16*.
3746.8	2331.3 *3*	100				
3754.09	2338.58 *10*	100				
3755.46	3755.39 *13*	100	[E2]		1.17×10^{-3}	B(E2)(W.u.)=0.8 *3*.
3763.95	3146.38 *10*	100	[E2]		9.58×10^{-4}	B(E2)(W.u.)=0.55 *8*.
3770.47	3152.90 *10*	100				

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
3783.197	3165.631 *10*	100	M1+E2	−2.7 *+10−14*	9.64×10^{-4}	δ: Other: −0.23 *+14−20* from γ(θ) in 2001Ga44. B(M1)(W.u.)=0.0004 *4*; B(E2)(W.u.)=0.24 *+13−24*.
3785.69	692.67§ *10*	100§				
3787.3	3787.2 *3*	100	E2		1.18×10^{-3}	
3801.2	2385.7 *3*	100				
3804.87	3187.30 *14*	100				
3809.39	238.32§ *10*		M1+E2		0.0433	
	491.30§ *10*		M1+E2	−0.78 *35*	0.00697	Mult.,δ: A_2=−1.23 *5*; A_4=0.06 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	716.38§ *10*		E2		0.00252	Mult.: A_2=0.445 *24*; A_4=−0.139 *33* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3810.04	3809.97 *10*					
3810.88	3193.31 *10*	100	[E1]		1.38×10^{-3}	B(E1)(W.u.)=0.00013 *+4−6*.
3832.66	3215.09 *11*	100	[E2]		9.83×10^{-4}	B(E2)(W.u.)=2.3 *8*.
3838.85	3838.84b *24*	100b				
3844.25	3226.68 *10*	100				
3846.48	3846.41 *10*	100				
3854.4	3854.3 *3*	100	E2		1.20×10^{-3}	
3864.51	2449.0 *1*	100				
3869.00	3868.93 *10*	100 *11*				
3878.62	3261.05 *13*	100				
3892.48	2579.77b *23*	100b				
3913.69	514.75§ *10*		M1+E2	0.31 *7*	0.00620	Mult.,δ: A_2=0.26 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	674.71§ *10*		E2		0.00294	Mult.: A_2=0.322 *14*; A_4=−0.15 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	1032.66§ *10*		M1(+E2)	0.09 *7*	1.24×10^{-3}	Mult.,δ: A_2=−0.09 *4*; A_4=0.17 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3929.21	3311.64 *21*	100	[E2]		1.02×10^{-3}	B(E2)(W.u.)>0.049.
3930.78	608.5§ *4*	100§	E2		0.00385	Mult.: A_2=0.340 *16*; A_4=−0.139 *22* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3932.18	3314.61 *12*	100				
3933.07	3933.00 *13*	100				
3939.27	3321.70 *14*	100				
3951.57	3333.9b *10*	100b *5*				Eγ: a rounded off value and ΔEγ=1.0 keV set by the evaluators.
	3951.4b *10*	12.5b *18*				Eγ: a rounded off value and ΔEγ=1.0 keV set by the evaluators.
3963.8	3963.7 *4*	100				
3966.44	644.04§ *10*		M1+E2	−0.16 *2*	0.00363	Mult.,δ: A_2=0.07 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
3970.08	3352.4b *4*	44b *11*				Eγ: 3351.72 *20* in ^{112}Cd(n,n'γ).
	3970.0b *3*	100b *9*				
3990.40	306.23§ *25*	21 *5*	M1+E2‡	−0.50‡ *10*	0.0241 *6*	Mult.: A_2=0.17 *2* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	591.57§ *10*	§	E2		0.00416	Mult.: A_2=0.397 *24*; A_4=−0.22 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	813.86§ *15*	100§ *12*	(E2)		0.00184	Mult.: A_2=+0.25 *22* from γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
3997.75	2685.83b *17*	100b *5*				
	3997.6b *3*	27b *3*				
4003.9	3386.50b *31*	100b				
4033.88	3416.31 *20*	100	[E1]		1.49×10^{-3}	B(E1)(W.u.)=0.00012 *+4−11*.

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
4125.91	949.44§ *10*	100§	E2		1.28×10^{-3}	Mult.: A_2=0.33 *5*; A_4=−0.17 *7* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4174.50	856.41§ *10*	100§	E1		6.57×10^{-4}	Mult.: A_2=−0.39 *5* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: possible M2 admixture of δ=−0.08 *5* ^{110}Pd(α,2nγ) (1993De09).
4283.47	740.63§ *10*	100§	E2		0.00232	Mult.: A_2=0.43 *4*; A_4=−0.08 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4284.76	908.29§ *10*	100§	E2		1.42×10^{-3}	Mult.: A_2=0.27 *7*; A_4=−0.13 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4285.20	967.10§ *10*	100§	E2		1.23×10^{-3}	Mult.: A_2=0.285 *39*; A_4=−0.13 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4383.05	452.27§ *10*		M1(+E2)	0.05 *3*	0.00850	Mult.: a_0/A_2=−0.28 *10* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
	1060.63§ *10*		M1+E2	0.75 *30*	0.00111 *4*	Mult.,δ: A_2=0.67 *5*; A_4=0.16 *6* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4385.16	1067.06§ *10*	100§	M1+E2	0.38 *10*	1.13×10^{-3} *2*	Mult.,δ: A_2=0.35 *10*; A_4=0.17 *12* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09). δ: Other: 3.6 *+20−10* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4467.74	896.68§ *10*	100§	E2		1.46×10^{-3}	Mult.: A_2=0.364 *23*; A_4=−0.06 *3* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4587.15	903.12§ *10*	100§	E2		1.44×10^{-3}	Mult.: A_2=0.367 *19*; A_4=−0.124 *28* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4687.17	773.48§ *10*	100§	E2		0.00208	Mult.: A_2=0.31 *6*; A_4=−0.09 *8* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
4871.47	940.68§ *10*	100§	E2		1.31×10^{-3}	Mult.: A_2=0.35 *3*; A_4=−0.14 *4* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
5106.22	1175.43§ *10*	100§	E1		3.84×10^{-4}	Mult.: A_2=0.334 *18*; A_4=0.111 *25* from γγ(θ) in ^{110}Pd(α,2nγ) (1993De09).
7633.0	4323& *6*	0.36 *18*				
	4385& *6*	0.91 *18*	E1		0.00186	Mult.: A_2=0.4 *1* (1971Mo31). B(E1)(W.u.)=3.3×10^{-6} *9*.
	4439& *6*	0.36 *18*	E1(+M2)	≤0.6	0.00177 *11*	Mult.: A_2=0.16 *17* (1971Mo31). B(E1)(W.u.)>4.4×10^{-7}?; B(M2)(W.u.)<0.12?
	4522&	0.91 *18*	E1(+M2)	>−0.28	0.0015 *4*	Mult.: A_2=0.04 *18* (1971Mo31). B(E1)(W.u.)<3.5×10^{-6}?; B(M2)(W.u.)>0.036?
	4782& *3*	3.5 *4*	E1(+M2)	≤+0.21	0.00197 *4*	Mult.: A_2=0.11 *8* (1971Mo31). B(E1)(W.u.)>7.4×10^{-6}?; B(M2)(W.u.)<0.10?
	4800& *3*	3.09 *18*	E1		0.00199	Mult.: A_2=0.5 *1* (1971Mo31). B(E1)(W.u.)=8.6×10^{-6} *16*.
	4909& *2*	0.36 *18*	[E1]		0.00203	B(E1)(W.u.)=$9.\times10^{-7}$ *5*.
	5126& *2*	0.73 *18*	[E1]		0.00209	B(E1)(W.u.)=1.7×10^{-6} *5*.
	5337& *4*	0.91 *18*	[E1]		0.00215	B(E1)(W.u.)=1.8×10^{-6} *5*.
	5403& *2*	0.36 *18*	[E1]		0.00217	B(E1)(W.u.)=$7.\times10^{-7}$ *4*.
	5477& *2*	0.73 *18*	[E1]		0.00219	B(E1)(W.u.)=1.4×10^{-6} *5*.
	5512& *2*	1.27 *18*	[E1]		0.00220	B(E1)(W.u.)=2.3×10^{-6} *6*.
	5551& *4*	0.91 *18*	[E3]		1.40×10^{-3}	B(E3)(W.u.)=10 *3*.

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ†h	α	Comments
7633.0	5763& *2*	21.1 *16*	E1		0.00226	Mult.: A_2=0.51 *2* (1971Mo31). B(E1)(W.u.)=3.4×10^{-5} *7*.
	6164& *2*	3.5 *4*	E1(+M2)	≤0.15		Mult.: A_2=0.08 *7* (1971Mo31). B(E1)(W.u.)>3.5×10^{-6}?; B(M2)(W.u.)<0.015?
	6203& *3*	4.0 *4*	E1			Mult.: A_2=0.57 *7* (1971Mo31). B(E1)(W.u.)=5.1×10^{-6} *11*.
	6409& *2*	14.6 *11*	E1			Mult.: A_2=0.52 *4* (1971Mo31). B(E1)(W.u.)=1.7×10^{-5} *4*.
	7015 *2*	21.3 *16*	E1+M2	0.06 *2*		Mult.: A_2=0.09 *2* (1971Mo31). B(E1)(W.u.)=1.9×10^{-5} *4*; B(M2)(W.u.)=0.006 *5*.
	7632& *1*	100 *7*	E1			Mult.: from γ(θ) and γ(pol) (1970Mo26). Mult.: A_2=0.51 *1* (1971Mo31). B(E1)(W.u.)=6.9×10^{-5} *13*.
(9394.20)	5390.5c *5*	2.9c *6*				
	5397.8c *3*	5.5c *9*				
	5423.9c *3*	4.4c *6*				
	5442.48c *13*	62.3c *16*				
	5498.9c *6*	4.3c *12*				
	5501.62c *17*	24.5c *19*				
	5547.5c *4*	5.3c *8*				
	5555.6c *6*	2.6c *6*				
	5650.8c *5*	3.4c *8*				
	5670.24c *24*	6.2c *7*				
	5674.88c *25*	5.9c *7*				
	5686.66c *14*	62.6c *19*				
	5697.93c *13*	58.7c *19*				
	5741.76c *18*	14.3c *8*				
	5746.95c *24*	7.5c *7*				
	5784.3c *4*	4.5c *8*				
	5822.2c *4*	4.7c *7*				
	5825.99c *20*	11.3c *9*				
	5837.08c *18*	11.0c *7*				
	5853.86c *21*	13.6c *13*				
	5879.4c *3*	4.4c *6*				
	5893.51c *13*	30.5c *10*				
	5914.9c *3*	5.7c *7*				
	5938.41c *14*	35.6c *13*				
	5942.00c *10*	8.7c *11*				
	5965.00c *10*	3.9c *5*				
	6000.49c *13*	28.8c *10*				
	6015.63c *15*	25.7c *10*				
	6030.58c *16*	12.1c *7*				
	6090.77c *16*	22.3c *13*				
	6140.26c *16*	14.5c *8*				
	6150.4c *4*	2.9c *5*				
	6162.45c *16*	13.0c *7*				
	6203.94c *15*	18.8c *9*				
	6224.68c *15*	20.1c *9*				
	6230.36c *14*	27.7c *11*				
	6258.35c *19*	41c *5*				
	6260.63c *25*	29c *5*				
	6282.6c *3*	8.7c *8*				
	6328.5c *3*	6.4c *8*				
	6448.4c *3*	2.7c *4*				
	6463.7c *6*	1.4c *3*				
	6559.8c *6*	2.7c *6*				
	6564.67c *13*	85c *3*				
	6627.97c *15*	3.0c *7*				
	6720.8c *6*	3.0c *7*				
	6725.22c *15*	38.1c *19*				

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Cd)$ (continued)

E(level)	Eγ†	Iγ†	E(level)	Eγ†	Iγ†
(9394.20)	6832.3[c] *5*	3.4[c] *5*	(9394.20)	7328.6[c] *7*	1.5[c] *5*
	6862.10[c] *21*	9.5[c] *7*		7522.80[c] *25*	5.9[c] *6*
	6887.26[c] *13*	100[c] *4*		7924.8[c] *4*	1.9[c] *3*
	6991.18[c] *23*	6.1[c] *6*		7961.03[c] *11*	0.45[c] *19*
	7093.29[c] *17*	10.3[c] *7*		8081.34[c] *14*	16.8[c] *12*
	7162.1[c] *5*	2.3[c] *5*		8169.41[c] *23*	8.8[c] *8*
	7237.56[c] *23*	6.1[c] *6*		8776.11[c] *14*	25.8[c] *3*
	7272.28[c] *17*	12.7[c] *8*		9393.63[c] *18*	4.1[c] *5*

† From ^{112}Cd(n,n'γ), unless otherwise stated. Eγ's were rounded off by the evaluators and ΔEγ=0.10 was set by the evaluators in cases where the authors quoted ΔEγ<0.10 keV.
‡ From γγ(θ) in ^{110}Pd(α,2nγ) (1997Dr03).
§ From ^{110}Pd(α,2nγ). ΔEγ=0.10 was set by the evaluators in cases where the authors quoted ΔEγ<0.10 keV.
# From ^{112}Ag β^- decay (3.130 h).
& From ^{112}Cd(γ,γ'); Mult and δ based on γ(θ) in 1971Mo31, where applicable.
a From ^{112}Cd(γ, pol γ').
b From ^{111}Cd(n,γ) E=th:secondary. ΔEγ=0.10 was set by the evaluators in cases where the authors quoted ΔEγ<0.10 keV, unless value measured with a curved crustal spectrometer.
c From ^{111}Cd(n,γ) E=th:primary.
e From curved crustal spectrometer measurements in ^{111}Cd(n,γ) E=th:secondary (1997Dr03).
h If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
i Placement of transition in the level scheme is uncertain.

^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13

Parent ^{112}Ag: E=0.0; Jπ=2(−); $T_{1/2}$=3.130 h *8*; Q(g.s.)=3992.1 *25*; %β^- decay=100.

1972Wa03: Facility: INS (New Zealand) Van de Graaff accelerator; Sources: produced in ^{112}Cd(n,p) and ^{115}In(n,α) reactions. Neutrons generated in ^{3}H(d,n) reaction. Natural Cd and In targets. Chemically separated activity; Detectors: one Ge(Li), two NaI(Tl); Measured: Eγ, Iγ, γ−γ, γ−γ(θ) coinc.; Deduced: ^{112}Cd levels, Jπ, δ, Branching, log *ft*.

1970Ma45: Facility: McMaster University reactor; Source: chemically separated ^{112}Pd from 300 mg U_3O_8 irradiated with 2.5×10^{13} N.cm^{-2}.sec^{-1}; Detectors: two Ge(Li) and one NaI(Tl); Measured: γ, γ−γ coinc., Eγ, Iγ; Deduced: ^{112}Cd level scheme, Jπ.

1968Li13: Facility: IKO (Amsterdam) synchrotron; Source: chemically separated ^{112}Ag from Th+d reaction with E(d)=25 MeV. ^{112}Ag in equilibrium with ^{112}Pd; Detectors: one Ge(Li); Measured: γ, Iγ, Eγ; Deduced: ^{112}Cd level scheme, Jπ.

1962In01: Facility: Osaka University cyclotron; Source: chemically separated ^{112}Ag produced in ^{114}Cd(d,α) reaction with E(d)=11 MeV; Detectors: β−spectrometer, Geiger−Muller counter, two NaI(Tl); Measured: β, γ, β−γ, γ−γ, γ−γ(θ) coinc., Eβ, Iβ, Iγ, Eγ; Deduced: ^{112}Cd level scheme, Jπ, log *ft*.

Others: 2011Ga10, 2009Gr10, 1970Ma45, 1969Sa09, 1957Je07.

^{112}Cd Levels

E(level)†	Jπ‡	Comments
0.0	0+	
617.519 *3*	2+	
1224.344 *5*	0+	
1312.391 *8*	2+	
1415.57 *5*	4+	
1433.280 *17*	0+	
1468.819 *15*	2+	
1870.75 *6*	4+	E(level): Level observed only in 2009Gr10.
1871.23 *7*	0+	
2005.18 *3*	3−	
2064.53 *3*	3+	Eγ=2066.0 *16* with Iγ=0.030 *8* is tentatively reported in 1972Wa03, but it was not adopted.
2081.74 *5*	4+	
2156.22 *6*	2+	
2231.17 *5*	2+	
2416.01 *5*	3−	

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^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
2506.36§ *7*	(2)+	2866.79§ *6*	3−	3231.60 *7*	1+
2506.68§ *7*	1−	2867.47§ *6*	(3)+	3303.25 *14*	(2,3)+
2668.94 *7*	(2)−	2962.0 *7*	2+	3369.62 *7*	(0+ to 4+)
2674.04 *18*	2+	3068.64 *6*	4+	3393.3 *10*	(1,2+)
2723.95 *7*	2+	3130.85§ *7*	5−	3470.3 *12*	2+,3,4+
2765.75 *6*	2+	3133.42§ *9*	1−	3478.7 *9*	0+ to 4+
2829.19 *7*	1−	3169.48 *7*	2+		

† From a least–squares fit to Eγ.
‡ From the adopted levels.
§ Unresolved doublet in 1972Wa03 and 1970Ma45.

β^- radiations

Eβ⁻	E(level)	Iβ⁻†	Log *ft*	Comments
(513 *3*)	3478.7	0.034 *7*	7.91 *9*	
(522 *3*)	3470.3	0.0170 *19*	8.23 *5*	
(599 *3*)	3393.3	0.0170 *23*	8.44 *6*	
(622 *3*)	3369.62	0.161 *20*	7.52 *6*	
(689 *3*)	3303.25	0.31 *5*	7.39 *7*	
(761 *3*)	3231.60	0.0059 *7*	9.27 *6*	
(823 *3*)	3169.48	0.19 *3*	7.88 *7*	
(859 *3*)	3133.42	0.0059 *7*	9.46 *6*	
(861 *3*)	3130.85	0.27 *4*	7.80 *7*	
(923 *3*)	3068.64	0.23 *3*	8.47[1u] *6*	
(1030 *3*)	2962.0	0.026 *7*	9.10 *12*	
(1125 *3*)	2867.47	0.043 *10*	9.03 *11*	
(1125 *3*)	2866.79	0.46 *6*	8.00 *6*	
(1163 *3*)	2829.19	0.82 *11*	7.80 *6*	
(1226 *3*)	2765.75	0.135 *18*	8.67 *6*	
(1268 *3*)	2723.95	2.8 *4*	7.41 *7*	
(1318 *3*)	2674.04	0.58 *9*	8.16 *7*	
(1323 *3*)	2668.94	0.58 *8*	8.17 *6*	
(1485 *3*)	2506.68	1.25 *19*	8.03 *7*	
(1486 *3*)	2506.36	0.37 *5*	8.56 *6*	
(1576 *3*)	2416.01	1.43 *19*	8.07 *6*	
(1761 *3*)	2231.17	3.1 *5*	7.92 *7*	
(1836 *3*)	2156.22	0.57 *8*	8.73 *7*	
(1928 *3*)	2064.53	0.053 *16*	9.85 *14*	
(1987 *3*)	2005.18	5.6 *9*	7.88 *7*	
(2121 *3*)	1871.23	0.38 *6*	10.27[1u] *7*	
(2523 *3*)	1468.819	2.3 *3*	8.69 *6*	
(2559 *3*)	1433.280	0.18 *3*	11.08[1u] *8*	
(2577 *3*)	1415.57	0.23 *6*	10.99[1u] *12*	
(2680 *3*)	1312.391	1.6 *4*	8.96 *11*	
(2768 *3*)	1224.344	2.4 *5*	10.16[1u] *9*	
(3375 *3*)	617.519	20.0 *23*	8.28 *5*	
3940 *40*	0.0	54 *5*	9.78[1u] *4*	Iβ⁻: from 1962In01, but the uncertainty was assigned by the evaluators.

† Absolute intensity per 100 decays.

γ(^{112}Cd)

Iγ normalization: from ΣIγ (to g.s.)+Iβ⁻(to g.s.)=100 with Iβ⁻(g.s.)=54 *5* (1962In01), but the 10% uncertainty was assumed by the evaluators.

Eγ†	E(level)	Iγ†a	Mult.†	α
120.68 *10*	1433.280	0.18§ *2*	E2	0.766
x147.9 *2*		0.030 *8*		
x159.5 *3*		0.030 *8*		

Continued on next page (footnotes at end of table)

^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13 (continued)

$\gamma(^{112}Cd)$ (continued)

Eγ†	E(level)	Iγ†a	Mult.†	δ†&	α	I(γ+ce)a	Comments
208.93 3	1433.280	@	E0			0.020 4	
211.0 3	2081.74		[M1]		0.0597		
226.0 3	2231.17	0.040§ 11	[E1]		0.01665		
244.86 23	1468.819	1.0§ 3	(E2)		0.0641		
x278.3‡ 10		0.08‡					
x342.3 3		0.04 1					
401.88 13	1870.75		E2		0.01277		
402.50 16	1871.23	0.097@ 15	E2		0.01271		Iγ: 0.10 2 in 1972Wa03.
411.39 23	2416.01	0.27§ 3	M1+E2	−0.35 +18−23	0.01087 23		
450.75 10	2866.79	0.084@ 9	M1+E2	+0.73 +69−71	0.00873 20		Iγ: 0.08 2 in 1972Wa03.
455.26 13	1870.75		M1+E2	+2.7 +4−3	0.00871		
x528.9‡ 10		0.04‡					
536.31 10	2005.18	0.139@ 21	E1		0.00181		Iγ: 0.120 12 in 1972Wa03.
558.39 11	1870.75		E2		0.00487		
558.7 5	1871.23	0.030§ 8	E2		0.00487		
x569.8 3		0.100 25					
x585.4 3		0.090 20					
606.821‡ 6	1224.344	7.2‡ 7	E2		0.00388		
612.88 25	2081.74		E2		0.00378		
617.517 3	617.519	100§	E2		0.00371		
629.2 4	3303.25	0.04§ 1					
648.91‡ 10	2064.53	0.026‡@ 6	M1+E2	−1.20 +20−15	0.00338 6		Iγ: 0.05 1 in 1972Wa03.
x662.9‡ 10		0.1‡					
663.59 15	2668.94	0.071@ 7	M1+E2	+1.3 +23−8	0.00319 15		Iγ: 0.07 2 in 1972Wa03.
666.17 6	2081.74		M1+E2	−0.41 3	0.00331		
687.41 10	2156.22	0.067@ 11	M1+E2	−2.3 19	0.00285 24		Iγ: 0.10 2 in 1972Wa03.
692.82 3	2005.18	2.8@ 3	E1		1.02×10^{-3}		Iγ: 2.5 3 in 1972Wa03.
694.872 7	1312.391	6.9 7	E2+M1	−4.0 7	0.00274		Mult.,δ: A_2=0.13 4, A_4=0.31 8 (1972Wa03).
714.84 10	3130.85	0.126@ 15	E2		0.00253		Iγ: 0.12 2 in 1972Wa03.
718.89 10	2723.95	0.64§ 8	E1		9.43×10^{-4}		
752.14 3	2064.53	0.09§ 2	M1+E2	−2.75 +23−17	0.00227		
762.41 10	2231.17	0.137@ 16	M1+E2	−1.4 +8−34	0.00226 13		Iγ: 0.12 2 in 1972Wa03.
769.36 10	2081.74		E2		0.00211		
784.91 10	2866.79	0.093@ 12	E1		7.85×10^{-4}		Eγ: Not observed in 1972Wa03 and 1970Ma45. Iγ: 0.04 in 1968Li13.
798.04 10	1415.57	1.20§ 12	E2		0.00193		
802.3 4	2866.79	0.07§ 2	[E1]		7.50×10^{-4}		
815.79 3	1433.280	0.31§ 3	E2		0.00183		
842.8‡ 15	2156.22	0.030‡§ 8	[M1]		0.00195		
851.285 15	1468.819	2.4§ 3	M1+E2+E0	+0.050 18	0.00195	4	Mult.,δ: A_2=0.07 7, A_4=0.03 16 and δ=+0.22 5 (1972Wa03). α: 0.00195 4 from adopted gammas.
861.68 10	2866.79	0.51§ 5	M1(+E2)	+0.069 +89−69	0.00186		
886.99 23	3303.25	0.100@ 20					
894.5 1	2765.75	0.017@ 3	E2		1.47×10^{-3}		Iγ: 0.17 3 in 1972Wa03.

Continued on next page (footnotes at end of table)

^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13 (continued)

$\gamma(^{112}Cd)$ (continued)

Eγ†	E(level)	Iγ†a	Mult.†	δ†&	α	I(γ+ce)a	Comments
918.72 *10*	2231.17	0.180@ *20*	M1+E2	+0.21 *+20−13*	0.00160 *4*		Iγ: 0.16 *2* in 1972Wa03.
946.92 *10*	2416.01	0.20@ *3*	E1		5.39×10^{-4}		Iγ: 0.19 *2* in 1972Wa03.
957.1 *10*	2962.0	0.02§ *1*	[E1]		5.28×10^{-4}		
957.80‡ *19*	2829.19	0.080‡§ *10*	E1		5.28×10^{-4}		
983.8 *3*	2416.01	0.12§ *2*	[E3]		0.00249		
1006.81 *10*	2231.17	0.27@ *3*	E2		1.12×10^{-3}		Iγ: 0.24 *3* in 1972Wa03.
1037.9 *3*	2506.68	0.17§ *2*	E1		4.53×10^{-4}		
1063.49 *10*	3068.64	0.2§	E1		4.32×10^{-4}		
x1063.7 *3*		0.18 *18*					
x1070.7‡ *10*		0.08‡					
1073.32 *17*	2506.68	0.120§ *19*	E1		4.25×10^{-4}		
1103.58 *10*	2416.01	0.99@ *10*	E1		4.08×10^{-4}		Iγ: 0.98 *10* in 1972Wa03.
1125.78 *10*	3130.85	0.42§ *4*	E2		8.81×10^{-4}		
1164.2 *1*	3169.48		E1		3.86×10^{-4}		
1194.00 *10*	2506.36	0.131@ *13*	M1+E2	+0.20 *+16−12*	9.01×10^{-4} *16*		Iγ: 0.07 *2* in 1972Wa03.
1224.341 *7*	1224.344		E0			0.065 *8*	I(γ+ce): From adopted gammas branching ratios and Iγ(606.821γ)= 7.2 *7*.
1253.16 *12*	1870.75		E2		7.17×10^{-4}		
1253.56 *12*	1871.23	0.87§ *9*	E2		7.16×10^{-4}		
1282.29 *10*	2506.68	0.138@ *21*	E1		3.90×10^{-4}		Iγ: 0.09 *2* in 1972Wa03.
1296.9 *1*	2765.75	0.037@ *10*	M1+E2		7.74×10^{-4}		Iγ: 0.037 *10* in 1970Ma45.
1312.36 *4*	1312.391	2.6@ *3*	E2		6.64×10^{-4}		Iγ: 2.8 *3* in 1972Wa03.
1322.0 *10*	3478.7	0.06# *1*					
1356.52 *10*	2668.94	1.1§ *1*	E1		4.08×10^{-4}		
1387.68 *10*	2005.18	12.5§ *13*	E1		4.19×10^{-4}		Mult.: A_2=−0.11 *3*, A_4=−0.02 *5* (1972Wa03).
1398.64 *10*	2867.47	0.07§ *2*	M1+E2		6.84×10^{-4}		
1411.8 *8*	2723.95	0.08§ *2*	[M1+E2]		6.75×10^{-4}		
1433.27 *3*	1433.280	@	E0			0.0084 *15*	
1447.00‡ *10*	2064.53	0.079‡@ *18*	M1+E2	−1.70 *+10−12*	6.04×10^{-4}		Iγ: 0.10 *2* in 1972Wa03.
1451.30 *10*	2866.79	0.33@ *3*	E1		4.45×10^{-4}		Iγ: 0.35 *4* in 1972Wa03.
1453.4 *1*	2765.75	0.0205@ *21*	M1+E2		6.50×10^{-4}		Iγ: 0.020 *3* in 1972Wa03.
x1462.0 *15*		0.02#					
1464.04 *10*	2081.74		E2		5.81×10^{-4}		
1468.84 *10*	1468.819	1.40@ *18*	E2		5.79×10^{-4}		Iγ: 1.5 *2* in 1972Wa03.
x1503.9 *3*		0.38 *4*					
1538.68 *10*	2156.22	1.2 *1*	M1+E2	+0.085 *+25−22*	6.11×10^{-4}		
1555.1 *1*	2867.47		M1+E2		6.06×10^{-4}		Eγ: weak transition in 1970Ma45.
1599.70 *10*	3068.64	0.187@ *6*	E2		5.50×10^{-4}		Iγ: 0.15 in 1968Li13.
1604.6 *4*	2829.19	0.050§ *14*	[E1]		5.24×10^{-4}		
1613.66 *10*	2231.17	6.6§ *7*	M1+E2	−0.020 *+20−27*	5.90×10^{-4}		Mult.: Other: δ=0.00 *6* in 1972Wa03.
1653.09 *10*	3068.64	0.090@ *4*	M1+E2	−0.54 *21*	5.74×10^{-4} *10*		Iγ: 0.07 *2* in 1972Wa03.
x1683.7 *7*		0.10 *1*					

Continued on next page (footnotes at end of table)

^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13 (continued)

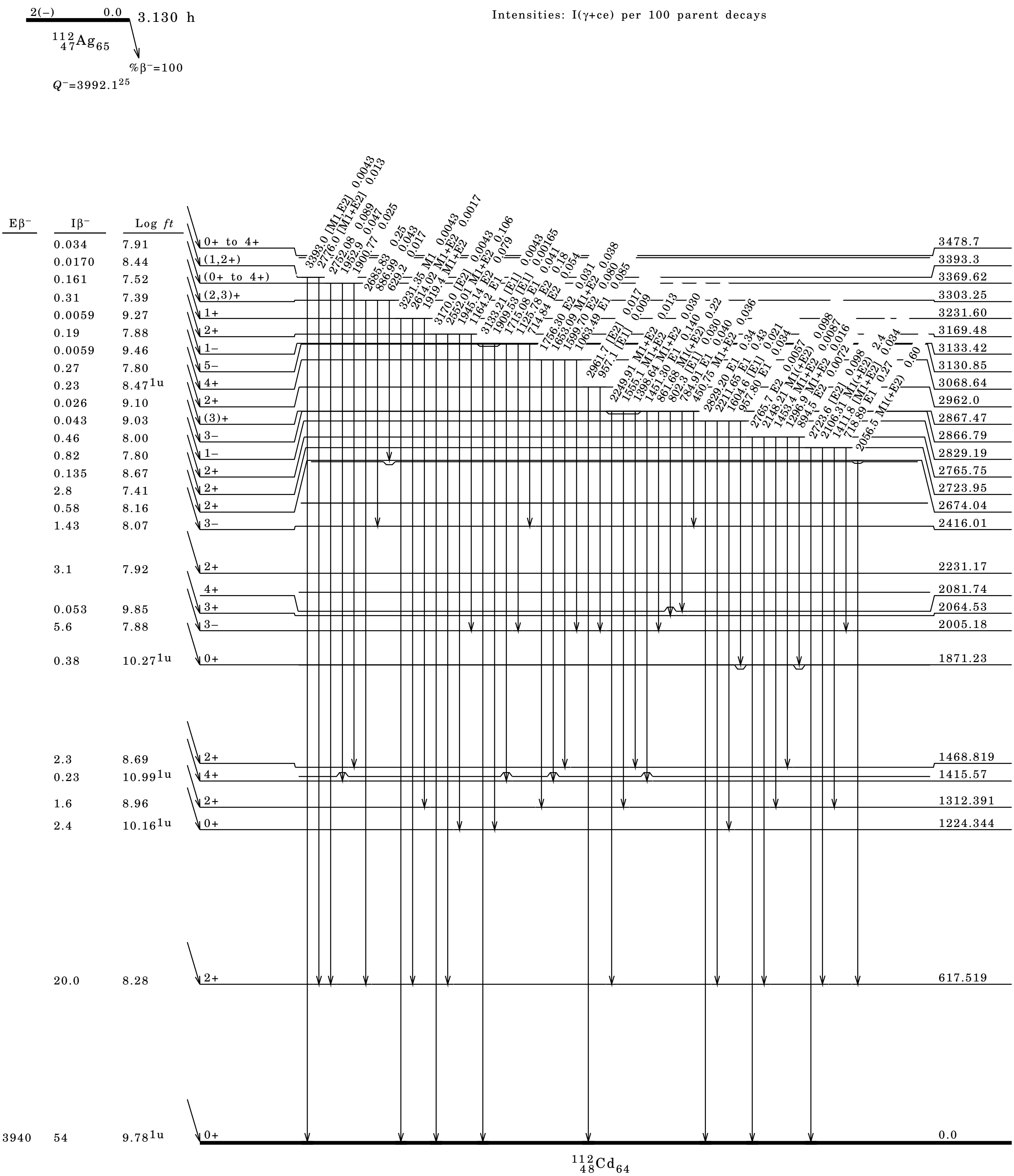
γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†a	Mult.†	δ†&	α	Comments
1715.08 *12*	3130.85	0.097@ *11*	E1		5.86×10⁻⁴	Iγ: 0.10 *1* in 1972Wa03.
1756.30 *14*	3068.64	0.073@ *5*	E2		5.47×10⁻⁴	Iγ: 0.07 in 1968Li13.
1798.50 *10*	2416.01	2.1§ *2*	E1		6.36×10⁻⁴	
1888.79 *10*	2506.36	0.73§ *7*	M1+E2	−0.18 *6*	5.76×10⁻⁴	
1900.77 *10*	3369.62	0.059§ *6*				
x1909.2 *6*		0.100 *25*				
1909.53 *17*	3133.42	0.00387@ *16*	[E1]		7.02×10⁻⁴	Iγ: 0.10 *1* in 1972Wa03.
1919.4 *1*	3231.60	@	M1+E2		5.80×10⁻⁴	Iγ: 0.04 in 1970Ma45.
1945.14 *17*	3169.48	0.185@ *23*	E2		5.72×10⁻⁴	Iγ: 0.20 *2* in 1972Wa03.
1952.9 *10*	3369.62	0.11#				
2051.50 *10*	2668.94	0.197@ *20*	E1		7.86×10⁻⁴	Iγ: 0.28 *3* in 1972Wa03.
2056.5 *2*	2674.04	1.40§ *14*	M1(+E2)	+0.05 *+7−8*	6.01×10⁻⁴	
2106.31 *10*	2723.95	5.6§ *6*	M1(+E2)	+0.05 *+6−5*	6.12×10⁻⁴	Mult.,δ: Also: δ=−18.5 *+95*–Infinity (1972Wa03).
2148.21 *10*	2765.75	0.23§ *2*	M1(+E2)	+0.06 *+7−6*	6.22×10⁻⁴	
2156.20 *10*	2156.22	0.110@ *10*	E2		6.23×10⁻⁴	Iγ: 0.16 *2* in 1972Wa03.
2211.65 *10*	2829.19	1.00§ *10*	E1		8.80×10⁻⁴	
2249.91 *10*	2867.47	0.03#	M1+E2		6.48×10⁻⁴	
x2330‡ *10*		0.01‡				
x2362.4 *6*		0.090 *20*				
2506.70 *10*	2506.68	2.5§ *3*	E1		1.04×10⁻³	
2552.01 *10*	3169.48	0.25§ *3*	M1+E2	−0.68 *+13−20*	7.43×10⁻⁴	
x2576.7‡ *8*		0.08‡				
2614.02 *14*	3231.60	0.0039@	M1+E2		7.61×10⁻⁴	Iγ: 0.01 in 1970Ma45.
2685.83 *17*	3303.25	0.59§ *6*				
2723.6 *3*	2723.95	0.23§ *2*	[E2]		8.09×10⁻⁴	
2752.08 *10*	3369.62	0.21§ *2*				
2765.7 *3*	2765.75	0.0135@ *13*	E2		8.23×10⁻⁴	Iγ: 0.013 *2* in 1972Wa03.
2776.0 *15*	3393.3	0.03#	[M1+E2]		8.17×10⁻⁴	
x2803.5‡ *15*		0.02‡				
2829.20 *10*	2829.19	0.79@ *8*	E1		1.22×10⁻³	Iγ: 1.0 *1* in 1972Wa03.
x2839.0‡ *15*		0.03‡				
2852.7 *12*	3470.3	0.04#				
2863.0 *20*	3478.7	0.02# *1*				
x2884.0‡ *10*		0.04‡				
x2921.2‡ *10*		0.03‡				
2961.7 *10*	2962.0	0.04§ *1*	[E2]		8.93×10⁻⁴	
x3091.0‡ *15*		0.01‡				
x3113 *3*		0.01#				
3133.21 *10*	3133.42	0.01#	[E1]		1.35×10⁻³	
3170.0 *15*	3169.48	0.01#	[E2]		9.66×10⁻⁴	
x3178.0‡ *15*		0.01‡				
3231.35 *10*	3231.60	0.01#	M1		9.79×10⁻⁴	
x3244.0‡ *20*		0.01‡				
x3375.0‡ *15*		0.03‡				
3393.0 *12*	3393.3	0.010§ *3*	[M1,E2]		1.04×10⁻³	

† From adopted gammas, unless otherwise stated.
‡ From 1968Li13. It is not reported in 1972Wa03, but the placement is consistent with the adopted levels, gammas.
§ From 1972Wa03.
\# From 1970Ma45.
@ From adopted gammas branching ratios and Iγ for the strongest transition that depopulates the level.
& If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
a For absolute intensity per 100 decays, multiply by 0.425 *46*.
x γ ray not placed in level scheme.

^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13 (continued)

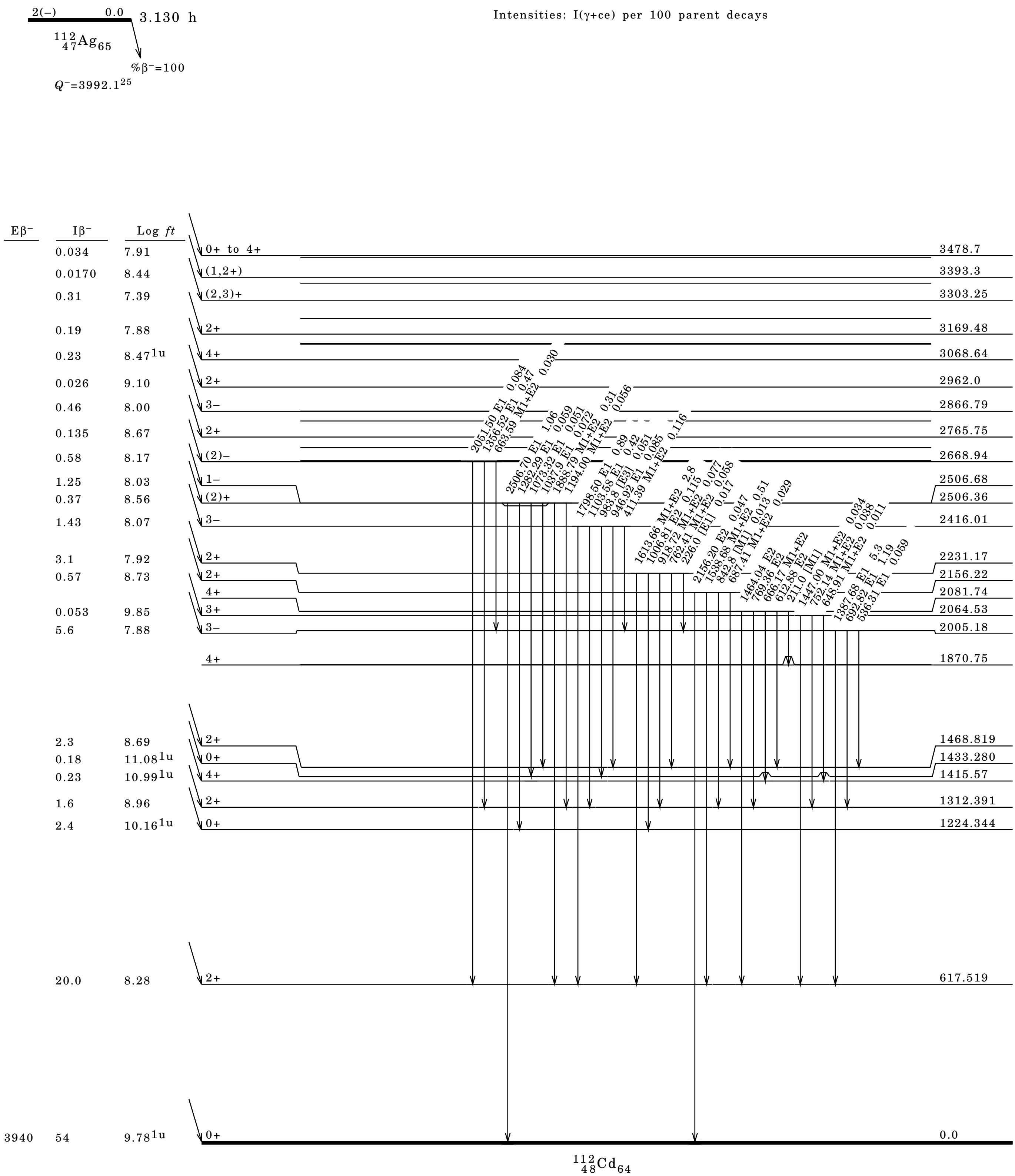
Decay Scheme



^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13 (continued)

Decay Scheme (continued)

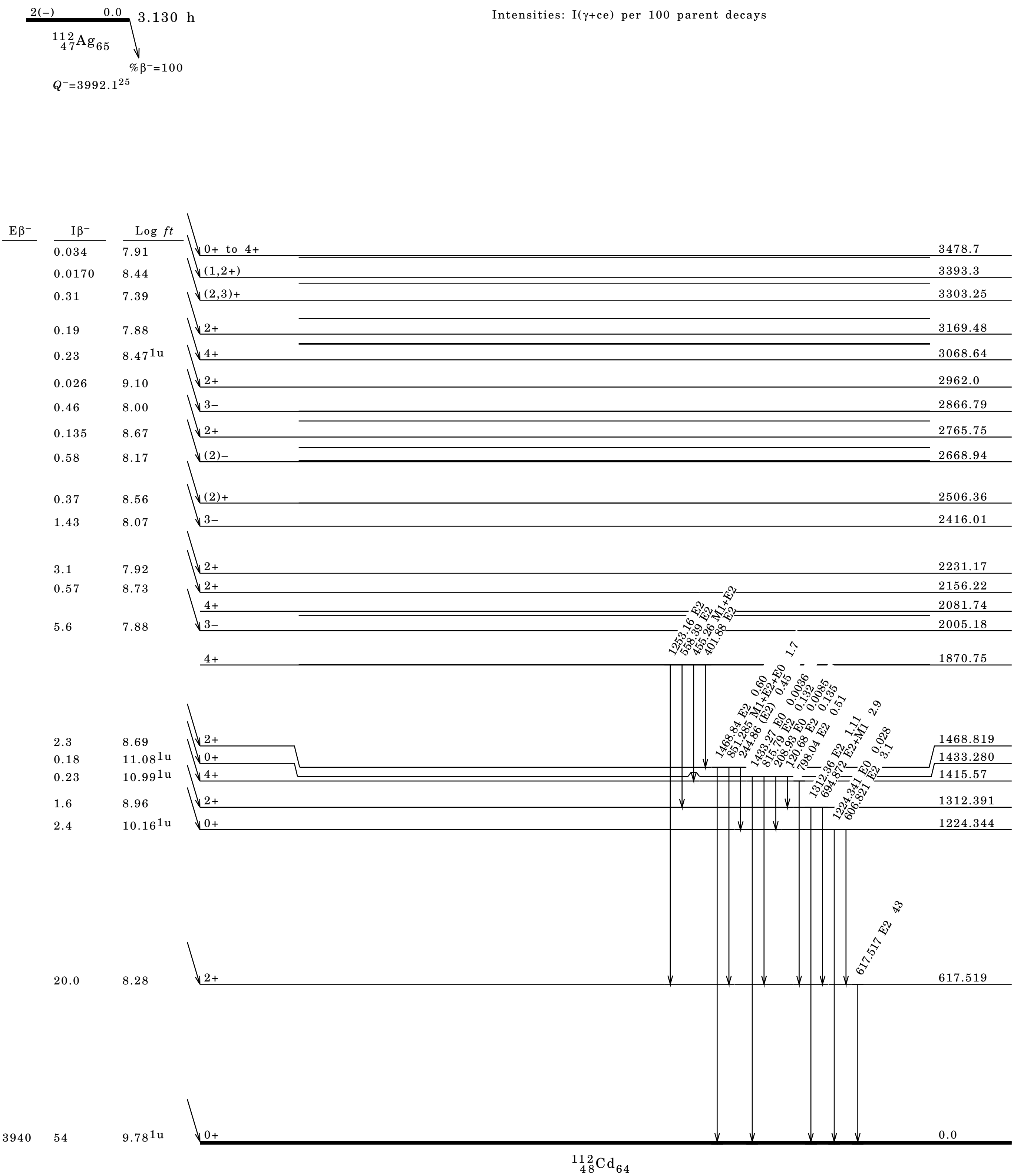
Intensities: I(γ+ce) per 100 parent decays



^{112}Ag β^- Decay (3.130 h) 1972Wa03,1970Ma45,1968Li13 (continued)

Decay Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays



^{112}In ε Decay (14.88 min) 1983Ry03,1962Ru05,1972Ka34

Parent ^{112}In: E=0.0; Jπ=1+; $T_{1/2}$=14.88 min *17*; Q(g.s.)=2585 *4*; %ε+%β$^+$ decay=57.4 *48*.

1962Ru05: Facility: Osaka University cyclotron; Source: ^{112}In from ^{112}Cd(d,2n) and ^{109}Ag(a,n) reactions at E(d)=11 MeV and E(α)=15–16 MeV, respectively; Targets: 2.7 mg/cm^2 enriched in ^{112}Cd and 5 mg/cm^2 enriched to 99.2% in ^{109}Ag; Detectors: two mushroom β–spectrometers, one NaI(Tl) scintillator; Measured: Iβ$^-$, Iβ$^+$, Eβ$^+$; Deduced: ^{112}Cd level scheme, $I_{\beta^+\varepsilon}$(g.s.).

1972Ka34: Source: ^{112}In produced in ^{113}In(γ,n) reaction. ^{113}In irradiated with γ–rays for 15 min. γ–flux=1.0x10^6 R.min^{-1}; Detectors: one Ge(Li), one NaI(Tl); Measured: Eγ, Iγ, γ–γ, γ–γ(θ) coinc.; Deduced: γ–mult., δ, ^{112}Cd levels, Jπ, log *ft*.

1983Ry06: Facility: SAMES at National Physics Laboratory, Teddington, UK; Source: from (n,2n) reaction with E(n)=14.3 MeV on 37 or 187 mg/cm^2 thick natural In targets; Detectors: one HPGe detector, one 4π proportional counter; Measured: γ, Eγ, γ(t), σ(^{112m}In), σ(^{112}In), Isomeric Ratio; Deduced: ^{112}Cd level scheme, I_{β^+}(g.s.).

1991Gi05: Facility: Van de Graaff accelerator at LNL (Italy); Source: ^{112}In activated in (p,n) reaction. E(p)=6.8 MeV; Target enriched to 94% in ^{112}Cd. Carbon backing; Detectors: one HPGe, one Si(Li), magnetic transport system; Measured: α(K)exp(851γ). Deduced B(E0)/B(E2) and B(E0)/B(M1); Also, from the same collaboration: 1979Gi05.

2009Gr10: Facility: TRIUMF cyclotron; Detectors: ISAC, TRILIS, 8π γ–array comprising 20 Compton–suppressed HPGe detectors; Measured: γ, γ–γ coinc., Eγ, Iγ.

Others: 1986Ho12, 1979OhZV, 1975GaZB, 1972Yo06, 1971It01, 1965Fu07, 1959Gi51, 1953Bl44.

^{112}Cd Levels

E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0+	1468.811 *15*	2+
617.519 *3*	2+	1871.17 *10*	0+
1224.345 *5*	0+	2121.48 *6*	2+
1312.394 *8*	2+	2156.22 *6*	2+
1433.282 *17*	0+	2300.66 *7*	0+

† From a least–squares fit to Eγ.
‡ From the adopted levels.

β$^+$,ε Data

Eε	E(level)	Iβ$^+$	Iε	Log *ft*	I(ε+β$^+$)	Comments
(284 *4*)	2300.66		0.005 *3*	6.5 *3*	0.005 *3*	
(429 *4*)	2156.22		0.0030 *17*	7.07 *25*	0.0030 *17*	
(464 *4*)	2121.48		0.012 *5*	6.54 *19*	0.012 *5*	
(714 *4*)	1871.17		0.051 *21*	6.30 *19*	0.051 *21*	
(1116 *4*)	1468.811		0.039 *16*	6.82 *19*	0.039 *16*	
(1152 *4*)	1433.282		0.008 *5*	7.5 *3*	0.008 *5*	
(1361 *4*)	1224.345	0.0007 *3*	0.23 *9*	6.22 *18*	0.23 *9*	
(1967 *4*)	617.519	0.07 *4*	0.5 *3*	6.19 *22*	0.6 *3*	
2582 *20*	0.0	23.3 *19*	32 *3*	4.64 *6*	55.7 *46*	Eε: From 1962Ru05. Iβ$^+$: from Iβ$^+$(tot)=24% *2* in 1983Ry06, deduced from Iγ(511γ), and Iβ$^+$(g.s.)/Iβ$^+$(617.37)=0.6/21=0.029 (1962Ru05), and by assuming that the Iβ$^+$ feedings to the higher–lying levels were negligible. Others: Iβ$^+$(tot)=21 (1962Ru05) and 24 (1953Bl44) Iε: from Iβ$^+$ and Iε/Iβ$^+$=1.392 *18*.

γ(^{112}Cd)

Iγ normalization: from ((Iβ$^+$(tot)+Iε(tot))–(Iβ$^+$(g.s.)+Iε(g.s.)))/Σ I(γ+ce)(g.s.), where Iβ$^+$(g.s.)+Iε(g.s.)=55.7 *46*.

Eγ†	E(level)	Iγ‡&	Mult.†	α	Comments
120.68 *10*	1433.282	<0.5	E2	0.766	Iγ: from 1972Yo06.
208.93 *3*	1433.282		E0		I(γ+ce)†&: ≤0.074.
244.86§ *23*	1468.811	0.031 *10*	(E2)	0.0641	Iγ: From Iγ(233.86γ)/Iγ(851.285γ)=0.010 *3* and Iγ(851.285γ) from from ^{112}In ε decay (14.88 min).
402.50 *16*	1871.17	0.53 *7*	E2	0.01271	Eγ: From 2009Gr10. Iγ: from the adopted Iγ branching ratio and Iγ(1253.56γ)=4.7 *3*.

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^{112}In ε Decay (14.88 min) 1983Ry03,1962Ru05,1972Ka34 (continued)

γ(^{112}Cd) (continued)

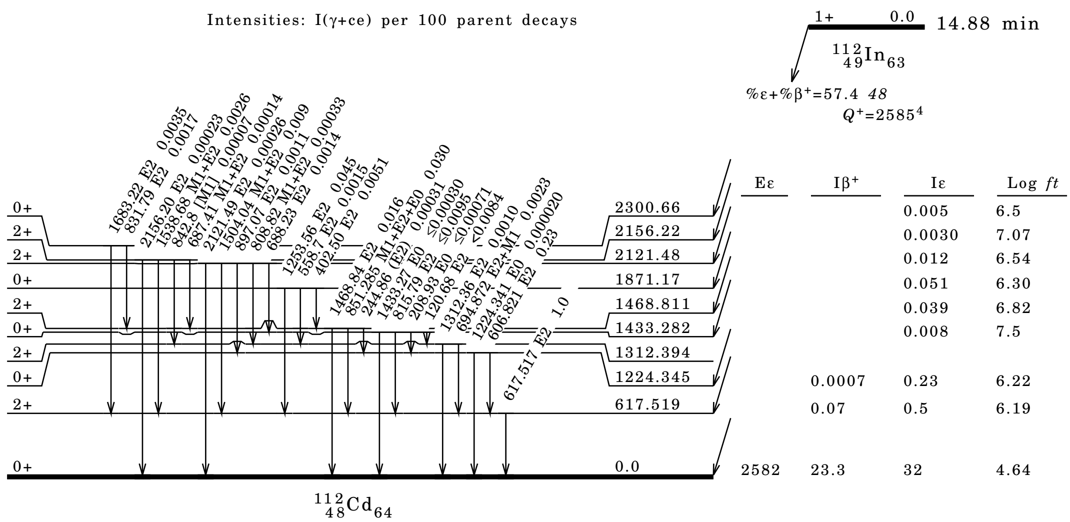
Eγ†	E(level)	Iγ‡&	Mult.†	δ†@	α	Comments
558.7 *5*	1871.17	0.16 *4*	E2		0.00487	Eγ: From 2009Gr10; ΔE estimated by the evaluators. Iγ: from the adopted Iγ branching ratio and Iγ(1253.56γ)=4.7 *3*.
606.821 *6*	1224.345	23.9 *4*	E2		0.00388	
617.517 *3*	617.519	100	E2		0.00371	Mult.: A_2=0.208 *22*; A_4=0.904 *30* (1972Ka34); α(K)exp=0.0038 *7* (1962Ru05).
687.41 *10*	2156.22	0.015 *7*	M1+E2	−2.3 *19*	0.00285 *24*	Iγ: from the adopted Iγ branching ratio and Iγ(1538.68γ)=0.27 *12*.
688.23 *10*	2121.48	0.142 *16*	E2		0.00279	Iγ: from the adopted Iγ branching ratio and Iγ(1504.04γ)=0.95 *9*.
694.872 *7*	1312.394	0.24 *15*	E2+M1	−4.0 *7*	0.00274	
808.82 *19*	2121.48	0.035 *4*	M1+E2		0.00215	Iγ: from the adopted Iγ branching ratio and Iγ(1504.04γ)=0.95 *9*.
815.79 *3*	1433.282	≤1	E2		0.00183	Eγ: Transition observed only in 1975GaZB.
831.79 *8*	2300.66	0.18 *7*	E2		1.75×10^{-3}	Iγ: from the adopted Iγ branching ratio and Iγ(1683.22γ)=0.37 *14*.
842.8 *15*	2156.22	0.007 *4*	[M1]		0.00195	Iγ: from the adopted Iγ branching ratio and Iγ(1538.68γ)=0.27 *12*.
851.285 *15*	1468.811	3.1 *3*	M1+E2+E0	+0.050 *18*	0.00195 *4*	Mult.: α(K)exp=2.34×10^{-3} *12* (1991Gi05); A_2=0.086 *45*; A_4=−0.081 *100* (1972Ka34). δ: Other: 0.048 *22* from γ(ω) in 1991Gi05, −0.21 *+5−6* in γγ(ω) in 1972Ka34. Ice(K)(E0,2+ to 2+)/Ice(K)(M1,2+ to 2+)=0.41 *7*, B(E0)/B(E2)=2.7 *13*, B(E0)/B(M1)=2555 *472* and ρ^2(E0)=0.031 *20* (1991Gi05). α: From adopted gammas.
897.07 *10*	2121.48	0.113 *11*	E2		1.46×10^{-3}	Iγ: from the adopted Iγ branching ratio and Iγ(1504.04γ)=0.95 *9*.
1224.341 *7*	1224.345		E0			I(γ+ce)†&: 0.00215 *17*. I(γ+ce): From adopted levels I(γ+ce)(1224γ)/I(γ+ce)(607γ) and Iγ(606γ)=23.9 *4*.
1253.56 *12*	1871.17	4.7 *3*	E2		7.16×10^{-4}	Mult.: A_2=0.218 *42*; A_4=0.990 *51* (1972Ka34).
1312.36 *4*	1312.394	0.10 *9*	E2		6.64×10^{-4}	
1433.27 *3*	1433.282		E0			I(γ+ce)†&: ≤0.031.
1468.84 *10*	1468.811	1.7 *2*	E2		5.79×10^{-4}	
1504.04 *10*	2121.48	0.95 *9*	M1+E2	+1.36 *7*	5.88×10^{-4}	Eγ: 1507.3 keV *3* in 1972Ka34.
1538.68 *10*	2156.22	0.27 *12*	M1+E2	+0.085 *+25−22*	6.11×10^{-4}	
1683.22 *10*	2300.66	0.37 *14*	E2		5.45×10^{-4}	
2121.49 *13*	2121.48	0.027 *3*	E2		6.14×10^{-4}	Iγ: from the adopted Iγ branching ratio and Iγ(1504.04γ)=0.95 *9*.
2156.20 *10*	2156.22	0.024 *11*	E2		6.23×10^{-4}	Iγ: from the adopted Iγ branching ratio and Iγ(1538.68γ)=0.27 *12*.

† From the adopted gammas, unless otherwise noted.
‡ From 1972Ka34, unless otherwise noted.
§ Only observed by 1975GaZB.
@ If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
& For absolute intensity per 100 decays, multiply by 0.010 *4*.

^{112}In ε Decay (14.88 min) 1983Ry03,1962Ru05,1972Ka34 (continued)

Decay Scheme

Intensities: I(γ+ce) per 100 parent decays



^{110}Pd(^{3}He,n) 1977Fi04

1977Fi04: Facility: Univ.Colorado; Beam: E(^{3}He)=25.4 MeV; Target: self–supporting, 0.5 – 2 mg/cm thick, enriched in ^{110}Pd; Measured: dσ/dΩ, DWBA analysis; Deduced: E_{level}, Jπ. FWHM≈400 keV.
Others: 1986Ve02.

^{112}Cd Levels

E(level)†	Jπ‡	L§	Comments
0.0	0+	0	
1250	0+	0	
2640	0+	0	
3920	0+	0	
4720	0+,2+	0,2	L: Unresolved multiplet.

† From 1977Fi04.
‡ From 1977Fi04, based on the deduced L values.
§ From 1977Fi04, based on DWBA analysis.

^{110}Pd(α,2nγ) 1997Dr03,1993De09

1997Dr03,1993De09: Facility: Paul Scherrer Institut cyclotron, Switzerland; Beam: Eα=12–30 MeV; Target: 10 mg/cm^2 self–supporting enriched to 98.9% in ^{110}Pd; Detectors: three anti–Compton shielded intrinsic Ge detectors; Measured: excitation function, Eγ, Iγ, γ–γ coinc. and γ(θ); Deduced: γ–ray Mult., Jπ, ^{112}Cd level scheme; Also: From the same collaboration: 1993De01.
Others: 1992Ku01, 1990KuZD, 1982Fi02, 1981FiZZ, 1974Ge13, 1969HaZU.

^{112}Cd Levels

E(level)†	Jπ‡
0.0#	0+
617.518#d *23*	2+
1224.32@ *7*	0+
1312.37&e *3*	2+
1415.59#e *3*	4+

Continued on next page (footnotes at end of table)

^{110}Pd(α,2nγ) 1997Dr03,1993De09 (continued)

^{112}Cd Levels (continued)

E(level)[†]	Jπ[‡]
1433.10[e] *4*	0+
1468.85[@] *3*	2+
1870.75[f] *3*	0+
1870.78[@] *3*	4+
2005.27[a] *5*	3−
2064.63[&f] *4*	3+
2081.74[&f] *4*	4+
2121.40[f] *5*	2+
2156.18 *8*	2+
2168.00[#f] *4*	6+
2231.61 *9*	2+
2373.35[ag] *4*	5−
2403.28 *5*	3+
2416.01[cg] *7*	3−
2454.59[h] *6*	4
2493.44 *8*	4
2506.81 *7*	3,4,5+[j]
2532.9[h] *3*	2+
2570.29[b] *4*	5−
2571.68[@] *4*	6+
2591.17[cg] *5*	4(−)
2634.86 *11*	3,4
2665.87[&h] *5*	5+
2669.15[g] *14*	2−
2673.5 *4*	1,2,3+
2711.42[h] *10*	4+
2723.69 *24*	1,2(+),3
2793.96[a] *4*	7−
2817.87[c] *5*	6−
2840.24 *6*	5
2866.71 *19*	(3,4)
2881.23[#h] *5*	8+
2899.04 *9*	5
2921.65[&h] *9*	6+
2931.94[b] *5*	6−
2935.62[b] *4*	7−
2970.24 *6*	5+
2972.35 *11*	5+
3028.11 *8*	6+
3075.65 *21*	5
3093.13[b] *5*	8−
3176.71 *5*	8+
3230.50 *7*	8+
3239.19[&i] *5*	7+
3248.29[c] *5*	7−
3252.71 *10*	6,7−
3291.32 *9*	7−
3318.23[a] *5*	9−
3322.64 *6*	10+
3375.58 *5*	(6−),8
3376.47 *6*	(7−)
3399.12[@] *5*	8+
3430.22 *16*	5+,(7)
3494.16 *13*	7
3529.06[c] *7*	7−
3543.04[&i] *8*	8+
3571.14[b] *6*	9−
3584.04 *24*	7(+)
3658.83 *6*	8−
3684.23[#i] *8*	10+
3685.57 *10*	7−
3736.7 *3*	8+
3785.81[c] *7*	9(−)[§]
3809.51[b] *5*	10−[§]
3913.90[&] *5*	9+
3931.01 *8*	12+
3966.68 *6*	9+[§]
3990.65 *9*	10+
4126.16 *6*	10+[§]
4174.64 *6*	10+[§]
4283.67[&] *9*	10+[§]
4284.77 *6*	9−[§]
4285.33[a] *6*	11−[§]
4383.28 *6*	11+[§]
4385.29[c] *6*	10−[§]
4467.82[b] *6*	11−[§]
4587.35[#] *9*	12+[§]
4687.38[&] *6*	11+[§]
4871.69 *8*	14+[§]
5106.45 *8*	

† From a least-squares fit to Eγ.
‡ From 1997Dr03, based on γ(θ), excitation function measurements and side feeding evaluations in 1993De09, unless otherwise noted. The authors also consider the ^{111}Cd(Nth,γ) data.
§ From 1993De09, based on γ(θ), excitation function measurements and side feeding evaluation.
\# (A): Probable member of the g.s. band (1993De09).
@ (B): Probable member of the intruder band based on 0+ state (1993De09).
& (C): Probable member of the quasi−γ band based on 2+ state (1993De09).
a (D): Probable member of the octupole band based on 3− state (1993De09).
b (E): Probable member of a 2−qp band based on 5− state (1993De09).
c (F): Probable member of a quadrupole−octupole band based on 3− state (1993De09).
d Quadrupole one−phonon excitation (1997Dr03).
e Probable member of the quadrupole two−phonon multiplet (1997Dr03).
f Probable member of the quadrupole three−phonon multiplet (1997Dr03).
g Probable member of the 2+⊗3− quadrupole−octupole multiplet (1997Dr03).
h Probable member of the four−phonon multiplet (1997Dr03).
i Probable member of the five−phonon multiplet (1997Dr03).
j 3 is supported by the sidefeeding intensity balance, while 4 and 5+ by the excitation function analysis (1993De09).

γ(^{112}Cd)

Eγ[†]	E(level)	Iγ[†]	Mult.[†]	δ[†]	Comments
120.68[‡] *3*	1433.10	0.96 *14*			placed in the level scheme in 1992Ku01. Iγ: from 1992Ku01 and normalized using RI(815,57γ)=3.5. Mult.: A_0=1.2 1; A_2/A_0=0.02 2 (1993De09).
[x]139.72[‡] *3*					Mult.: A_0=3.1 1; A_2/A_0=0.30 2 (1993De09).
141.69 *11*	2935.62	1.02 *25*	M1+E2	−0.52 *9*	
145.87 *5*	3322.64	0.91 *8*	E2		
155.21 *10*	3248.29	0.39 *9*	M1+E2	+0.18 *12*	Mult.: A_0=0.96 6; A_2/A_0=−0.40 10; A_4/A_0=0.15 16 (1993De09). δ: Also: +7 *4* (1997Dr03).
157.50 *4*	3093.13	1.54 *9*	M1+E2	−0.59 *18*	Mult.: A_0=9.3 2; A_2/A_0=−1.01 2; A_4/A_0=0.13 3 (1993De09).

Continued on next page (footnotes at end of table)

^{110}Pd(α,2nγ) 1997Dr03,1993De09 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
161.156‡& *17*	3093.13		E2		Eγ: observed only in 1993De09. Mult.: A_0=6.8 1; A_2/A_0=0.350 14;A_4/A_0=−0.11 2 (1993De09).
196.92 *3*	2570.29	18.5 *3*	M1		Mult.: A_2=+0.61 *13* (1997Dr03). possible E2 admixture; δ=0.00 *15* (1997Dr03).
x198.26 *3*		6.57 *16*			Mult.: A_2=+0.34 3 (1997Dr03).
x204.95‡ *4*					
211.0& *3*	2081.74	1.60 *24*			Eγ: observed only in 1992Ku01. Iγ: from 1992Ku01; normalized by using RI(612.82γ)=5.4.
222.17# *9*	2793.96	0.98# *13*	(E1)		Mult.: A_2=−0.32 *22* (1997Dr03).
	3399.12	0.98# *13*	(E1)		Mult.: A_2=−0.32 *22* (1997Dr03).
224.90‡& *7*	3318.23		M1+E2	0.30 *9*	Eγ,Mult.,δ: reported only in 1993De09.
238.32‡ *9*	3809.51		M1+E2		Mult.: A_0=0.4 1 (1993DE09).
244.86 *23*	1468.85	1.0 *5*	(E2)		
247.54 *5*	2817.87	1.50§ *12*	D		Mult.: A_0=2.95 6; A_2/A_0=−0.18 4 (1993De09). possible quadrupole admixture; δ=+0.03 *3* (1997Dr03).
252.88 *4*	3571.14	2.36 *14*	M1+E2	+0.82 *13*	Mult.: A_0=2.32 5; A_2/A_0=0.28 4; A_4/A_0=−0.11 5 (1993De09). δ: Also: −0.33 *14* (1997Dr03).
x270.05‡ *4*					
275.52‡& *3*	3093.13		E2		Transition reported only in 1993De09. Mult.: A_2=2.75 5; A_2/A_0=0.33 2; A_4/A_0=−0.06 4 (1993De09).
283.40 *12*	3376.47	0.67 *14*	M1+E2	−2.2 *7*	Mult.: A_0=1.12 5; A_2/A_0=0.32 6; A_4/A_0=0.17 8 (1993De09). δ: Also: −0.42 *+15−40* (1997Dr03).
291.54 *6*	2373.35	1.54 *16*	E1		Mult.: A_2=−0.16 *13* (1997Dr03). possible M2 admixture; δ=−0.06 4 (1993De09).
295.19 *14*	3176.71	0.77§ *19*	M1+E2	−0.14 *10*	Mult.: A_0=4.1 1; A_2/A_0=0.36 3; A_4/A_0=−0.02 2 (1993De09).
297.21 *11*	2168.00	1.06 *17*	E2		Mult.: A_0=3.9 1; A_2/A_0=0.37 7; A_4/A_0=0.02 10 (1993De09).
299.19 *5*	3093.13	9.6 *11*	M1+E2	+0.55 *6*	Mult.: A_0=43.3 3; A_2/A_0=0.556 6; A_4/A_0=0.056 9 (1993De09).
306.23 *25*	3990.65	0.68 *18*	M1+E2	−0.50 *10*	Mult.: A_0=2.8 1; A_2/A_0=0.17 2 (1993De09).
309.09 *8*	3685.57	1.64§ *21*	M1+E2	−0.29 *9*	Mult.: A_0=2.6 1; A_2/A_0=0.24 2; A_4/A=−0.04 3 (1993De09).
312.94 *4*	3248.29	3.80§ *18*	M1(+E2)	−0.1 *1*	Mult.: A_0=6.9 1; A_2/A_0=0.34 1; A_4/A=−0.01 1 (1993De09).
316.19 *3*	3248.29	38.3§ *4*	M1+E2	+0.28 *4*	Mult.: A_0=5.3 1; A_2/A=0.19 2;A_4/A_0=−0.02 2 (1993De09).
340.50 *15*	3658.83	0.85§ *20*	M1+E2	−0.18 *4*	Mult.: A_0=2.81 5; A_2/A_0=0.09 4 (1993De09).
349.26 *9*	3230.50	1.56 *21*	M1+E2	+0.42 *20*	Mult.: A_0=6.8 1; A_2/A_0=0.42 3; A_4/A_0=−0.03 4 (1993De09). δ: Also: −0.09 *12* (1997Dr03).
361.80‡ *20*	2931.94		M1+E2		transition reported only in 1993De09. Mult.: A_0=0.4 1; A_2/A_0=−0.20 17 (1993De09).
365.38 *5*	2935.62	0.71 *30*	E2		Mult.: A_0=1.3 1; A_2/A_0=0.63 10; A_4/A_0=−0.15 12 (1993De09).
367.88 *10*	2373.35	1.4 *3*	E2		Mult.: A_0=3.22 6; A_2/A_0=0.38 4; A_4/A_0=−0.09 5 (1993De09).
382.37# *13*	3176.71	1.00# *22*	E1		Mult.: A_2=+0.07 *2* (1997Dr03).
	3318.23	1.00# *22*	E2		Mult.: A_2=+0.07 *2* (1997Dr03).
398.57 *5*	2970.24	3.37 *23*			
401.88 *3*	1870.78	20.8§ *4*	E2		Mult.: A_2=+0.60 2, A_4=−0.10 2 (1997Dr03).
403.55 *9*	2571.68	1.89§ *23*	M1+E2	−0.57 *6*	Mult.: A_0=3.7 1; A_2/A_0=0.048 22; A_4/A_0=−0.3 3 (1993De09). δ: Also: +1.8 *8* (1997Dr03).
410.55‡ *4*	3658.83		M1+E2	0.50 *25*	Mult.: A_0=1.9 1; A_2/A_0=0.46 9; A_4/A_0=0.19 13 (1993De09). δ: from 1993De09; Also: 2.7 10 (1993De09).
410.69 *16*	2416.01	1.80§ *25*	M1+E2	0.50 *25*	Mult.,δ: a_0=1.9 *1*; A_2/A_0=0.46 *9*; A_4/A_0=0.19 *13* (1993De09). δ: Also: 2.7 *10* (1993De09).
x416.00‡ *6*					
420.62 *3*	2793.96	17.2 *3*	E2		Mult.: A_0=56.3 3; A_2/A_0=0.323 7; A_4/A_0=−0.112 10 (1993De09).
435.28‡& *9*	3529.06		M1+E2	−0.3 *1*	transition reported only in 1993De09. Mult.: A_0=3.9 1; A_2/A_0=0.25 4 (1993De09). δ: from 1993De09.
436.92‡& *6*	3230.50		E1		Mult.: A_0=3.3 1; A_2/A_0=0.02 10 (1993De09).

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^{110}Pd(α,2nγ) 1997Dr03,1993De09 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
436.92‡& *6*	3318.23		E1		Mult.: A_0=3.3 1; A_2/A_0=0.02 10 (1993De09).
439.95 *3*	3375.58	19.1 *4*	D		Mult.: A_0=12.0 20; A_2/A_0=−0.281 12 (1993De09). possible quadrupole admixture; δ=−0.2 *3* (1997Dr03).
441.45 *4*	3322.64	7.7 *4*	E2		Mult.: A_2=+0.72 *23* (1997Dr03).
444.53# *3*	2817.87	14.2# *4*	M1+E2	−0.45 *18*	Mult.: A_0=26.6 5; A_2/A_0=−0.73 2; A_4/A_0=0.05 2 (1993De09).
	3376.47	14.2# *4*	M1+E2	−0.37 *13*	Mult.: A_0=26.6 5; A_2/A_0=−0.73 2; A_4/A_0=0.05 2 (1993De09). δ: from 1993De09.
452.27‡ *5*	4383.28		M1(+E2)	0.05 *3*	Mult.: A_0=1.3 1; A_0/A_2=−0.28 10 (1993De09).
455.14 *3*	1870.78	12.3 *3*	M1+E2	+2.43 *15*	Mult.: A_2=+0.06 *23*, A_4=−0.41 *24* (1997Dr03). δ: Also: −0.45 *14* (1997Dr03).
458.75 *9*	3252.71	1.82 *25*	M1(+E2)	−0.02 *5*	Mult.: A_2=+0.39 *22* (1997Dr03).
478.22‡& *4*	3571.14		M1+E2	−0.10 *6*	transition seen only in 1993De09. Mult.: A_0=3.74 15; A_2/A_0=−0.43 8 (1993De09). δ: from 1993De09.
491.30‡ *3*	3809.51		M1+E2	−0.78 *35*	Mult.: A_0=2.71 5; A_2/A_0=−1.23 5; A_4/A_0=0.06 5 (1993De09). δ: from 1993De09.
ˣ497.68‡ *4*					
ˣ507.42‡ *5*					
514.75‡ *4*	3913.90		M1+E2	0.31 *7*	Mult.: A_0=1.48 5; A_2/A_0=0.26 6 (1993De09). δ: from 1993De09.
517.99 *12*	3399.12	1.8§ *3*	M1+E2	−0.16 *14*	Mult.: a_2=+0.23 *5* (1997Dr03). δ: Also: +0.62 *12* (1997dr3).
524.28 *4*	3318.23	7.1 *3*	E2		Mult.: A_0=52.0 3; A_2/A_0=0.340 10; A_4/A_0=−0.132 14 (1993De09).
526.65 *7*	2591.17	4.9 *3*	E1		Mult.: A_0=3.6 2; A_2/A_0=−0.13 3 (1993De09). possible M2 admixture; δ=0.03 5 (1993De09).
536.00 *19*	2005.27	1.6 *4*	E1		Mult.: A_2=−0.17 *15* (1997Dr03).
558.42# *3*	1870.78	48.4# *7*	E2		Mult.: A_2=+0.64 3, A_4=−0.12 4 (1997Dr03).
	2931.94	48.4# *7*	E2		Mult.: A_2=+0.64 *3*, A_4=−0.12 *4* (1997Dr03).
562.39 *3*	2935.62	18.3§ *6*	(E2)		Mult.: A_2=+0.24 *8* (1997Dr03).
565.10 *20*	2570.29	3.8 *8*	E2		Mult.: A_0=2.3 1; A_2/A_0=0.26 7 (1993De09).
573.31 *4*	3239.19	6.8 *3*	E2		Mult.: A_0=12.2 2; A_2/A_0=0.34 2 (1993De09).
585.7 *3*	2591.17	1.4 *5*	M1+E2	+0.27 *15*	Mult.: A_0=1.9 1;A_2/A_0=0.09 6 (1993De09).
591.57‡ *8*	3990.65		E2		Mult.: A_0=4.8 2; A_2/A_0=0.397 24; A_4/A_0=−0.22 4 (1993De09).
593.45 *7*	3529.06	3.6 *5*	M1+E2	+1.0 *5*	Mult.: A_2=+0.51 *13* (1997Dr03).
601.23 *11*	2665.87	11.1§ *14*	E2		Mult.: A_0=6.8 2; A_2/A_0=0.32 6; A_4/A_0=−0.11 9 (1993De09).
604.98 *5*	3176.71	9.4 *5*	E2		Mult.: A_0=40.6 3; A_2/A_0=0.334 12; A_4/A_0=−0.12 2 (1993De09).
606.95 *11*	1224.32	9.9§ *13*	E2		Mult.: A_{22}=−0.02 7; A_{44}=−0.08 10 (1992Ku01).
608.5 *4*	3931.01	8.9 *5*	E2		Mult.: A_0=38.2 3; A_2/A_0=0.340 16; A_4/A_0=−0.139 (22) (1993De09).
612.82 *16*	2081.74	5.4 *10*	E2		Mult.: A_2=+0.51 *18*, A_4=−0.12 *10* (1997Dr03).
617.52 *3*	617.518	1000 *130*	E2		Mult.: A_2=+0.44 2, A_4=−0.05 2 (1997Dr03).
621.41 *15*	3543.04	3.1§ *3*	E2		Mult.: A_0=7.2 5; A_2/A_0=0.26 10; A_4/A_0=−0.26 13 (1993De09).
625.94 *4*	2793.96	30.3 *8*	E1		Mult.: A_0=106.05; A_2/A_0=−0.250 6 (1993De09). stretched E1 transition; δ=−0.008 12 (1993De09).
635.7 *3*	3571.14	1.2 *4*	E2		Mult.: A_0=5.4 2; A_2/A_0=0.34 3; A_4/A_0=−0.12 5 (1993De09).
644.04‡ *3*	3966.68		M1+E2	−0.16 *2*	Mult.: A_0=3.6 2; A_2/A_0=0.07 3 (1993De09). δ: from 1993De09.
648.81 *10*	2064.63	6.8 *8*	M1+E2	−1.6 *3*	Mult.: A_2=+0.45 *7* (1997Dr03). δ: Also: −0.50 *15* (1997Dr03).
658.83 *7*	3230.50	5.7§ *8*	E2		Mult.: A_2=+0.43 *6* (1997Dr03).
ˣ661.53‡ *8*					
666.17 *6*	2081.74	32.9§ *6*	M1+E2	−0.47 *5*	Mult.: A_2=+0.36 *2* (1997Dr03).
668.18 *18*	3239.19	2.4 *3*	M1+E2	+2.6 *10*	Mult.: A_2=+0.68 *4* (1997Dr03). δ: Also: +0.54 *+30−15* (1997Dr03).
674.713‡ *19*	3913.90		E2		Mult.: A_0=10.7 2; A_2/A_0=0.322 14; A_4/A_0=−0.15 2 (1993De09).

Continued on next page (footnotes at end of table)

$^{110}Pd(\alpha,2n\gamma)$ 1997Dr03,1993De09 (continued)

$\gamma(^{112}Cd)$ (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
x682.88‡ 9					
687.77 10	2121.40	3.3§ 4	(E2)		Mult.: A_2=+0.52 19 (1997Dr03).
692.67 10	2005.27	12.1 9	E1		Mult.: A_0=16.3 2; A_2/A_0=−0.046 17 (1993De09).
692.67‡ 5	3785.81				
694.87 4	1312.37	116 3	M1+E2	−1.6 +5−8	Mult.: A_0=67.5 3; A_2/A_0=−0.224 7; A_4/A_0=0.008 10 (1993De09).
699.41 10	2570.29	10.1 10	E1		Mult.: A_0=8.8 3; A_2/A_0=−0.21 5 (1993De09). possible M2 admixture; MR:−0.02 5 (1993De09).
700.89 4	2571.68	32.3 11	E2		Mult.: A_2=+0.13 54 (1997Dr03).
713.23 4	2881.23	39.2 7	E2		Mult.: A_0=171.2 8; A_2/A_0=0.341 9; A_4/A_0=−0.121 13 (1993De09).
716.376‡ 16	3809.51		E2		Mult.: A_0=20.2 3; A_2/A_0=0.445 24; A_4/A_0=−0.139 33 (1993De09).
x723.23‡ 4					
735.08 7	3529.06	4.4§ 4	D(+Q)	−0.11 6	Mult.: A_2=+0.12 7 (1997Dr03). Mult.: D in 1997Dr03.
740.63‡ 3	4283.67		E2		Mult.: A_0=3.3 5; A_2/A_0=0.43 4; A_4/A_0=−0.08 6 (1993De09).
x749.67‡ 3					
752.43@ 4	2064.63	21.5@ 30	M1+E2	−1.5 5	Mult.: A_0=411.4 15; A_2/A_0=0.303 6; A_4/A_0=−0.092 8 (1993De01).
	2168.00	183@ 6	E2		Mult.: A_2=+0.41 5, A_4=−0.11 7 (1997Dr03).
767.65 6	2935.62	11.2§ 5	E1		Mult.: A_0=26.3 2; A_2/A_0=−0.249 14 (1993De09). possible M2 admixture; MR=−0.01 2 (1993De09).
769.36 5	2081.74	21.4§ 6	(E2)		Mult.: A_2=+0.34 16 (1997Dr03).
773.48‡ 4	4687.38		E2		Mult.: A_0=2.2 1; A_2/A_0=0.31 6; A_4/A_0=−0.09 8 (1993De09).
777.36 15	3571.14	1.8 3	E2		Mult.: A_0=15.2 2; A_2/A_0=0.352 10; A_4/A_0=−0.120 14 (1993De09).
x790.37‡ 9					
794.90 10	2665.87	6.9 6	M1+E2		A_0=8.0 10 (1993De09).
798.05 4	1415.59	631 8	E2		Mult.: A_2=+0.58 4, A_4=−0.15 5 (1997Dr03).
802.98 7	3684.23	12.0§ 7	E2		Mult.: A_2=+0.53 16, A_4=−0.48 20 (1997Dr03).
x811.77 13		4.2 5			Mult.: A_2=+0.06 15 (1997Dr03).
813.86 15	3990.65	3.3 4	(E2)		Mult.: A_2=+0.25 22 (1997Dr03).
815.57 12	1433.10	3.5 4	(E2)		
827.54 8	3399.12	3.5 3	E2		Mult.: A_0=15.1 1; A_2/A_0=0.316 9; A_4/A_0=−0.111 12 (1993De09).
x831.70 22		1.2§ 4			
x834.50 6		8.1 4			Mult.: A_2=+0.33 9 (1997Dr03).
839.96 9	2921.65	13.7 11	E2		Mult.: A_0=12.5 2; A_2/A_0=0.28 3; A_4/A_0=−0.12 4 (1993De09).
x849.51 16		3.5 4			
851.30 4	1468.85	47.7 8	M1+E2+E0	+0.23 13	Mult.: A_2=0.50 2 (1997Dr03). δ: Also: +1.4 5 (1997Dr03).
856.41‡ 3	4174.64		E1		Mult.: A_0=2.6 1; A_2/A_0=−0.39 5 (1993De09). possible M2 admixture; MR=−0.08 5 (1993De09).
859.83 25	3028.11	1.9 4	M1+E2	−0.39 9	Mult.: A_0=1.8 1; A_2/A_0=0.15 5; A_4/A_0=0.10 8 (1993De09). δ: Also: +1.3 2 (1997Dr03).
861.44 18	2866.71	2.5 5			
x862.57‡ 7					
x868.54 9		3.0 3			
x888.49 21		1.4 3			
890.82 13	2972.35	2.4 3	M1+E2	−0.33 15	Mult.: A_0=2.1 1; A_2/A_0=−0.55 8 (1993De09).
x895.59 18		3.8 8			
896.683‡ 18	4467.82		E2		Mult.: A_0=8.8 2; A_2/A_0=0.364 23; A_4/A_0=−0.06 3 (1993De09).
896.85 10	2121.40	7.8§ 10	(E2)		
903.121‡ 18	4587.35		E2		Mult.: A_0=9.0 3; A_2/A_0=0.367 19; A_4/A_0=−0.124 28 (1993De09).
x903.39 10		2.9 3			
908.29‡ 3	4284.77		E2		Mult.: A_0=3.6 2; A_2/A_0=0.27 7; A_4/A_0=−0.13 10 (1993De09).
x910.02‡ 6					
917.73 9	3291.32	4.0 3	E2		Mult.: A_2=+0.07 2 (1997Dr03).

Continued on next page (footnotes at end of table)

^{110}Pd(α,2nγ) 1997Dr03,1993De09 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
x922.67‡ 9					
x924.69‡ 6					
934.49 7	2403.28	4.5 3	M1+E2	0.33 10	Mult.: A_0=3.3 1; A_2/A_0=0.09 5 (1993De09). δ: from 1993De09.
940.680‡ 24	4871.69		E2		Mult.: A_0=6.6 1; A_2/A_0=0.35 3; A_4/A_0=−0.14 4 (1993De09).
946.39 7	3028.11	4.2 3	E2		Mult.: A_0=5.4 1; A_2/A_0=0.16 2; A_4/A_0=−0.08 3 (1993De09).
949.44‡ 3	4126.16		E2		Mult.: A_0=4.1 1; A_2/A_0=0.33 5; A_4/A_0=−0.17 7 (1993De09).
957.74 4	2373.35	142.3 15	E1		Mult.: A_0=213.4 10; A_2/A_0=−0.233 7 (1993De09). possible M2 admixture; MR=−0.02 2 (1993De09).
x962.17 12		2.5 3			
967.10‡ 3	4285.33		E2		Mult.: A_0=10.1 4; A_2/A_0= 0.285 39; A_4/A_0=−0.13 6 (1993De09).
x970.51‡ 7					
x983.03‡ 8					
983.2 3	2416.01	0.91 23			Mult.: A_2=+0.25 14, A_4=−0.12 11 (1997Dr03).
987.66 7	2403.28	4.55 24			
x991.82‡ 6					
1007.71 12	2231.61	1.4 3	D,(E2)		Mult.: A_2=0.14 14 (1997Dr03). Mult.: D,(E2) sin 1997Dr03 in contradiction with adopted value. Level energy difference=1007.21.
1032.66‡ 3	3913.90		M1(+E2)	0.09 7	Mult.: A_0=3.4 1; A_2/A_0=−0.09 4; A_4/A_0=0.17 5 (1993De09). δ: from 1993De09.
1039.00 5	2454.59	19.0 12	D		Mult.: A_2=+0.40 9 (1997Dr03). δ: 0.00 15 (1997Dr03).
x1049.80‡ 5					
1060.63‡ 3	4383.28		M1+E2	0.75 30	Mult.: A_0=6.1 1; A_2/A_0=0.67 5; A_4/A_0=0.16 6 (1993De09). δ: from 1993De09.
1067.06‡ 3	4385.29		M1+E2	0.38 10	Mult.: A_0=4.3 1; A_2/A_0=0.35 10; A_4/A_0=0.17 12 (1993De09). δ: from 1993De09; Also: 3.6 +20−10 (1993De09).
1071.24 10	3239.19	3.7 4	E2+(M1)	−7.2 25	Mult.: A_0=8.3 3; A_2/A_0=−0.26 2; A_4/A_0=0.28 3 (1993De09).
1077.84 7	2493.44	15.1 9	M1+E2	−0.03 25	Mult.: A_2=+0.47 23 (1997Dr03).
1090.86 11	2403.28	3.2 3			
1091.29‡& 7	2506.81		D		Eγ: ambiguous transition, reported only in 1993De09. It is not reported in the following paper 1997Dr03 and not confirmed in (n,n'γ) 2001Ga44. Instead, it was suggested to de-excite the 2403.28-keV level. Mult.: A_0=3.1 1; A_2/A_0=0.24 (1993De09). possible Q admixture; δ=0.05 25 (1993De09).
1103.57 8	2416.01	4.6 3	E1		Mult.: A_2=+0.31 14 (1997Dr03).
1117.34 25	2532.9	1.3 3			
1123.96 15	3291.32	3.8 4	E1		Mult.: A_0=6.0 1; A_2/A_0=−0.23 2 (1993De09); pure E1 transition; δ=0.00 2 (1993De09).
1142.09 16	2454.59	2.1 3			
x1151.22‡ 8					
1154.86 9	2570.29	14.8 13	E1		Mult.: A_0=11.4 5; A_2/A_0=−0.35 10 (1993De09) Possible M2 admixture; δ=−0.13 13 (1993De09).
1156.21 6	2571.68	28.9 17	E2		Mult.: A_2=+0.68 22 (1997Dr03).
x1158.98‡ 5					
1165.0 3	3736.7	1.3 3	E2		Mult.: A_0=5.8 2; A_2/A_0=0.36 7; A_4/A_0=−0.04 9 (1993De09).
x1172.59‡ 4					
1175.431‡ 22	5106.45		E1		Mult.: A_0=8.8 1; A_2/A_0=0.334 18; A_4/A_0=0.111 25 (1993De09).
1175.52 5	2591.17	11.2 4	E1		Mult.: A_0=8.8 1; A_2/A_0=0.334 18; A_4/A_0=0.111 25 (1993De09).
1194.22 26	2506.81	1.3 3			Mult.: A_2=−0.18 17 (1997Dr03).
x1204.51 15		1.9 3			
x1230.26‡ 8					
1250.34 7	2665.87	7.3 3	M1+E2	−2.0 5	Mult.: A_0=6.9 2; A_2/A_0=−0.58 5; A_4/A_0=0.19 6 (1993De09). δ: Also: −0.30 12 (1997Dr03).
1253.31 4	1870.78	41.3 5	E2		Mult.: A_2=+0.52 4, A_4=−0.15 6 (1997Dr03).
1262.21 15	3430.22	2.4§ 3	D(+Q)	−0.04 5	Mult.: A_0=4.6 5; A_2/A_0=−0.30 6 (1993De09).

Continued on next page (footnotes at end of table)

^{110}Pd(α,2nγ) 1997Dr03,1993De09 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
[x]1294.13 18		3.7 5			
1295.82 9	2711.42	8.9 7	M1+E2	−0.33 9	Mult.: A_0=6.0 1; A_2/A_0=0.09 3 (1993De09).
1312.41 4	1312.37	43.7 5	E2		Mult.: A_2=+0.46 2, A_4=−0.04 3 (1997Dr03).
1322.48 10	2634.86	3.9 3	D		
1326.15 12	3494.16	2.9 3	D(+Q)	+0.02 3	Mult.: A_0=4.6 1; A_2/A_0=−0.21 3 (1993De09).
[x]1332.39‡ 4					
[x]1337.37‡ 3					
1356.82 24	2669.15	3.4 10	D		Mult.: A_0=2.8 4; A_2/A_0=0.05 4 (1993De09).
[x]1368.2 4		0.9 3			
[x]1370.60‡ 5					
1375.02 8	3543.04	3.96 24	E2		Mult.: A_0=9.2 2; A_2/A_0=0.31 3; A_4/A_0=−0.07 4 (1993De09).
[x]1386.126 21		4.7 9			
1387.77 5	2005.27	42.3 12	E1		Mult.: A_2=−0.07 6 (1997Dr03). possible M2 admixture; δ=−0.09 5 (1993De09).
[x]1392.42 22		1.7 3			Mult.: A_2=−0.10 22 (1997Dr03).
[x]1401.30 19		2.0 3			
1416.03 23	3584.04	1.7 3	D(+Q)	−0.06 4	Mult.: A_2=−0.13 26 (1997Dr03).
[x]1419.10 18		2.2 3			
1424.64 5	2840.24	10.8 3	M1+E2	−0.11 8	Mult.: A_0=7.5 1; A_2/A_0=−0.33 2 (1993De09).
[x]1444.1 4		1.2 4			
1446.95 5	2064.63	19.9 5	M1+E2	−1.24 15	Mult.: A_2=−0.47 6, A_4=+0.10 10 (1997Dr03).
[x]1454.24 23		1.9 3			
1464.16 21	2081.74	2.1 3	E2		Mult.: A_0=2.0 2; A_2/A_0=0.11 6; A_4/A_0=0.05 8 (1993De09).
1468.79 4	1468.85	31.0 5	E2		Mult.: A_0=15.6 2; A_2/A_0=0.210 13; A_4/A_0=−0.036 19 (1993De09).
1483.44 8	2899.04	8.4 4	D		Mult.: A_0=6.2 2; A_2/A_0=−0.29 3; A_4/A_0=0.07 4 (1993De09). possible quadrupole admixture; δ=−0.07 11 (1997Dr03).
1504.06 5	2121.40	13.0 4	M1+E2	+0.15 5	Mult.: A_0=3.8 2; A_2/A_0=0.16 4 (1993De09). δ: Also: +1.6 2 (1997Dr03).
1505.5 3	2921.65	5.5 7	E2		Mult.: A_0=2.4 2; A_2/A_0=0.13 12 (1993De09).
1538.64 7	2156.18	10.9 5	M1+E2	−0.33 15	Mult.: A_0=3.2 1; A_2/A_0=−0.02 7 (1993De09).
[x]1546.84‡ 9					
1554.49 16	2970.24	4.5 5	M1+E2	+0.42 12	Mult.: A_0=4.2 1; A_2/A_0=0.27 3 (1993De09).
1556.47 15	2972.35	5.1 6	M1+E2	+0.17 5	Mult.: A_0=3.8 2; A_2/A_0=0.02 6 (1993De09).
[x]1586.7 3		1.4 3			
1613.73 11	2231.61	9.7 3	M1+E2	−0.6 +2−4	Mult.: A_0=3.7 2; A_2/A_0=−0.05 3 (1993De09).
1660.04 20	3075.65	4.9 3	D		Mult.: A_0=3.2 1; A_2/A_0=−0.20 6 (1993De09). possible quadrupole admixture; δ=0.00 6 (1997Dr03).
[x]1663.63 17		4.1 3			
[x]1690.46 20		3.2 3			
[x]1712.1 4		1.0 3			
1785.65 15	2403.28	5.4 3	M1+E2	−0.25 20	Mult.: A_0=2.3 1; A_2/A_0=−0.26 4 (1993De09).
1798.60 12	2416.01	11.1 3	E1		Mult.: A_0=4.2 1; A_2/A_0=−0.20 3 (1993De09).
1875.9 3	2493.44	1.7 3	E2		Mult.: A_0=1.0 1 (1993De09).
1888.70 21	2506.81	4.4 3			
[x]1888.92‡ 19					
2051.59 17	2669.15	3.0§ 3			
2056.0 4	2673.5	1.9 3			
2106.15‡ 23	2723.69		M1+E2		Mult.: A_0=0.9 2 (1993De09).
2156.4 4	2156.18	1.2 3	E2		

† from 1997Dr03, unless otherwise noted.
‡ From 1993De09.
§ Contaminated transition. The total intensity is given.
\# Multiply placed; undivided intensity given.
@ Multiply placed; intensity suitably divided.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{110}Cd(t,p) 1987Me19

Facility: Univ.Pennsylvania tandem accelerator; Beam: E(t)=15 MeV; Target: 100 μg/cm^2 enriched to 97.2% in ^{110}Cd and backed on Au; Detectors: multiangle magnetic spectrograph, FWHM≈25 keV; Measured: dσ/dΩ; Deduced: ^{112}Cd levels, L from DWBA analysis with DWUCK, Jπ.

^{112}Cd Levels

E(level)†	Jπ‡	L§	Comments
0.0	0+	0	
617 *4*	2+	2	
1223 *4*	0+	0	
1312 *4*	2+	2	
1414 *4*	(4)	(4)#	
1431 *4*	(0)	(0)#	
1467 *4*	2+	2	
1873 *4*	0+	0	
2006 *4*	3−	3	
2085 *4*	4+	4	
2123			
2162 *4*	2+	2	
2231 *4*	(2+)	(2)	L: contaminated transition.
2306 *4*	0+	0	
2375 *4*	5−	5	
2457 *4*	4+	4	
2505 *4*		2,4#	L: L=1 can not be also excluded.
2570 *4*		(0,2,6)#	
2671 *4*		(2,6)#	
2718 *4*		(0,2,6)#	
2763 *4*	2+	2	
2829 *4*	0+	0	
2865 *4*		(1,4)#	
2974 *4*		(2,4)#	
3071 *4*		(1,2,4)#	
3108 *4*	2+	2	
3133 *4*	(2+)	(2)	
3175 *4*	3−	3	
3242 *4*		(0,2,3)#	
3302 *4*	(6+)	(6)	
3335 *4*		(0,1,4)#	
3365 *4*			
3393 *4*			
3415 *4*	4+	4	

† From 1987Me19.
‡ From 1987Me19, based on L.
§ From 1987Me19, based on dσ/dΩ and DWBA analysis.
# Unresolved multiplet.

^{111}Cd(n,γ) E=th: Primary 1997Dr03

Facility: ILL Grenoble; Targets: 47 mg enriched to 90% in ^{111}Cd; 0.46 mg/cm^2 and 1.2 mg/cm^2 Cd oxide evaporated on Al foil; Detectors: one composite detector, comprising one Ge(Li) detector working in coinc. or anti–coinc. with an annulus NaI(Tl), BILL β− spectrometer and multi–wire proportional counter: Measured: Eγ, Iγ; Deduced: ^{112}Cd level scheme, Jπ, Q_n; Also, from the same collaboration: 1993De01.

^{112}Cd Levels

E(level)†	Jπ‡
0.0	0+
617.57 *23*	2+
1224.3 *3*	0+
1312.40 *23*	2+
1432.72 *21*	0+

Continued on next page (footnotes at end of table)

^{111}Cd(n,γ) E=th: Primary 1997Dr03 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	Comments
1469.0 *5*	2+	
1871.0 *3*	0+	
2065.2 *8*	3+	
2121.52 *25*	2+	
2156.2 *3*	2+	
2231.7 *6*	2+	
2300.52 *25*	0+	
2402.6 *3*	3+	
2506.57 *23*	1−	E(level): ambiguous final level. A doublet in the adopted levels.
2531.7 *3*	2+	
2561.5 *6*	(1,2+)	
2668.62 *24*	(2)−	
2673.0 *7*	2+	
2765.87 *24*	2+	
2829.18 *23*	1−	
2834.0 *7*	0+	
2930.2# *7*	1+	
2945.5 *4*	2+	
3065.4§ *4*	(2,3)−	
3111.3§# *4*	(2)+	
3133.2 *3*	1−	
3135.5 *3*	(2,3+)	
3163.51 *23*	2+	
3169.19 *24*	2+	
3189.93 *24*	0+,1,2,3+	
3231.42 *24*	1+	
3243.5 *5*	2+	
3253.61 *24*	(0+,1,2)	
3303.11 *24*	(2,3)+	
3363.30§ *24*	2+	
3378.25§ *24*	(2)+	
3393.39 *23*	(1,2+)	
3428.9§ *4*	2+	
3451.9 *4*	2+	
3455.47 *23*	0+,1,2	
3479.0 *4*	0+,1,2+	
3500.38 *23*	0+,1,2,3+	
3514.5§# *4*	(1,2,3)+	
3540.0 *3*	1,2+	
3556.8 *3*	(1,2+)	
3567.9 *3*	2+	
3571.7 *5*	(1,2+)	
3577.56 *23*	2+	
3609.6§ *5*	0+,1,2,3+	
3646.9§ *3*	0+,1,2,3+	
3652.1§ *3*	1,2+	
3695.97 *23*	0+,1,2,3+	
3707.24 *23*	1−,2,3+	
3719.0§ *3*	(2+,3+)	
3723.7§ *3*	0+,1,2,3+	
3743.1§ *6*	(1,2,3)+	
3838.3 *7*	(1,2+)	
3846.4 *5*	(1,2+)	
3892.29 *25*	0+,1,2,3+	
3951.43 *23*	1,2+	
3970.0 *4*	(1,2+)	
3996.1 *4*	1,2+	
4003.4 *6*	(3)+	
(9394.0 *3*)	(1+)	

† From a least–squares fit to Eγ.
‡ From the adopted levels.

Footnotes continued on next page

^{111}Cd(n,γ) E=th: Primary 1997Dr03 (continued)

^{112}Cd Levels (continued)

§ No secondary γ–rays from this level were observed in 1997Dr03. The level is deduced by the evaluators from the E(resonance level)–Eγ(Primary) energy difference and the adopted levels.
# Level energy deviate by more than 1 keV from the adopted level.

γ(^{112}Cd)

Eγ†	E(level)	Iγ‡
5390.5 *5*	(9394.0)	0.45 *9*
5397.8 *3*	(9394.0)	0.85 *14*
5423.9 *3*	(9394.0)	0.68 *9*
5442.48 *13*	(9394.0)	9.66 *24*
x5448.04§ *13*		4.92 *16*
x5454.38§ *13*		2.72 *12*
x5498.9§ *6*		0.66 *19*
5501.62 *17*	(9394.0)	3.8 *3*
5547.5 *4*	(9394.0)	0.82 *12*
5555.6 *6*	(9394.0)	0.40 *9*
x5572.3§ *4*		0.51 *8*
x5598.6§ *4*		0.53 *9*
x5628.71§ *20*		1.14 *11*
x5645.1§ *3*		0.77 *9*
5650.8 *5*	(9394.0)	0.53 *12*
5670.24 *24*	(9394.0)	0.96 *10*
5674.88 *25*	(9394.0)	0.92 *11*
5686.66 *14*	(9394.0)	9.7 *3*
5697.93 *13*	(9394.0)	9.1 *3*
x5736.3§ *6*		0.66 *19*
5741.76 *18*	(9394.0)	2.22 *13*
5746.95 *24*	(9394.0)	1.16 *11*
5784.3 *4*	(9394.0)	0.70 *12*
5816.33 *13*	(9394.0)	9.1 *3*
5822.2 *4*	(9394.0)	0.72 *11*
5825.99 *20*	(9394.0)	1.75 *14*
5837.08 *18*	(9394.0)	1.70 *11*
5853.86 *21*	(9394.0)	2.10 *20*
x5879.4§ *3*		0.68 *9*
5879.4 *3*	(9394.0)	0.68 *9*
5893.51 *13*	(9394.0)	4.73 *16*
5914.9 *3*	(9394.0)	0.89 *10*
5938.41 *14*	(9394.0)	5.52 *20*
5942.0 *3*	(9394.0)	1.35 *17*
5965.0 *3*	(9394.0)	0.60 *8*
6000.49 *13*	(9394.0)	4.47 *15*
6015.63 *15*	(9394.0)	3.98 *16*
6030.58 *16*	(9394.0)	1.87 *10*
6090.77 *16*	(9394.0)	3.45 *20*
6140.26 *16*	(9394.0)	2.24 *12*
6150.4 *4*	(9394.0)	0.45 *8*
6162.45 *16*	(9394.0)	2.01 *11*
6203.94 *15*	(9394.0)	2.92 *14*
6224.68 *15*	(9394.0)	3.12 *14*
6230.36 *14*	(9394.0)	4.30 *17*
6258.35 *19*	(9394.0)	6.3 *7*
6260.63 *25*	(9394.0)	4.5 *8*
x6277.5§ *4*		0.54 *9*
6282.6 *3*	(9394.0)	1.35 *13*
6328.5 *3*	(9394.0)	0.99 *12*
6448.4 *3*	(9394.0)	0.41 *6*
6463.7 *6*	(9394.0)	0.21 *5*
6559.8 *6*	(9394.0)	0.42 *9*
6564.67 *13*	(9394.0)	13.1 *4*
6627.97 *15*	(9394.0)	0.46 *10*
6720.8 *6*	(9394.0)	0.46 *10*
6725.22 *15*	(9394.0)	5.9 *3*
6832.3 *5*	(9394.0)	0.52 *8*
6862.10 *21*	(9394.0)	1.47 *11*
6887.26 *13*	(9394.0)	15.5 *6*
6991.18 *23*	(9394.0)	0.95 *9*
7093.29 *17*	(9394.0)	1.60 *10*
7162.1 *5*	(9394.0)	0.35 *7*
7237.56 *23*	(9394.0)	0.95 *9*
7272.28 *17*	(9394.0)	1.97 *12*
7328.6 *7*	(9394.0)	0.23 *7*
7522.80 *25*	(9394.0)	0.91 *9*
7924.8 *4*	(9394.0)	0.29 *4*
7961.03 *11*	(9394.0)	0.07 *3*
8081.34 *14*	(9394.0)	2.60 *18*
8169.41 *23*	(9394.0)	1.36 *13*
8776.11 *14*	(9394.0)	4.00 *4*
9393.63 *18*	(9394.0)	0.63 *8*

† From 1997Dr03.
‡ Absolute intensities per 10^5 neutron captures (1997Dr03).
§ No final level is associated with this transition.
x γ ray not placed in level scheme.

^{111}Cd(n,γ) E=th: Secondary 1997Dr03

1997Dr03: Facility: the high–flux reactor of ILL Grenoble; Targets: 47 mg enriched to 90% in ^{111}Cd and two 0.46 mg/cm^2 and 1.2 mg/cm^2 thick Cd oxide evaporated on Al foil; Detectors: a composite detector comprising one Ge(Li) detector working in coinc. or anti–coinc. with an annulus NaI(Tl) scintillator, BILL β– spectrometer ($\Delta p/p=5\times10^{-4}$), multi–wire proportional counter and curved crustal spectrometer; Measured: Eγ with Ge(Li) and curved crustal spectrometer (100–1600 keV), Iγ, ce; Also from the same collaboration: 1993De01
Others: 1991NeZX, 1987AlZE, 1987AlZH.

^{112}Cd Levels

E(level)†	Jπ‡
0.0	0+
617.519 *3*	2+
1224.341 *7*	0+
1312.391§ *8*	2+
1415.596§ *14*	4+
1433.32§ *3*	0+
1468.808 *15*	2+
1871.03# *9*	0+
2005.19 *3*	3–
2064.52# *3*	3+
2081.78# *6*	4+
2121.50# *10*	2+
2156.28# *8*	2+
2231.27 *11*	2+
2301.07 *16*	0+
2403.09 *9*	3+
2416.16& *8*	3–
2493.27@ *18*	4+
2506.36a *12*	(2)+a
2506.74&a *12*	1–a
2532.39@ *14*	2+
2561.23@ *17*	(1,2+)
2590.98& *19*	4–
2635.09 *17*	3+
2668.89& *12*	(2)–
2674.09 *16*	2+
2723.95 *13*	2+
2765.89 *13*	2+
2829.17 *10*	1–
2834.7@ *3*	0+

Continued on next page (footnotes at end of table)

^{111}Cd(n,γ) E=th: Secondary 1997Dr03 (continued)

^{112}Cd Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
2853.05[@] *14*	2+	3303.30 *14*	(2,3+)	3696.23 *17*	0+,1,2,3+
2866.86[@] *11*	(3)+	3393.37 *14*	0+ to 4+	3707.53 *11*	1−,2,3+
2931.54 *13*	1+	3429.25 *5*		3838.91 *24*	(1,2+)
2944.99 *14*	2+	3452.2 *4*	(0+)	3846.3 *4*	(1,2+)
3133.79 *12*	1−	3455.70 *22*	0+,1,2	3892.19 *23*	0+,1,2,3+
3135.72 *11*	(2,3+)	3479.3 *3*	0+,1,2+	3951.50 *15*	1,2+
3163.48 *14*	2+	3500.55 *19*	0+ to 3+	3970.04 *24*	(1,2+)
3169.46 *12*	2+	3540.36 *18*	1,2+	3998.12 *15*	1,2+
3190.17 *16*	0+,1,2,3+	3557.29 *23*	(1,2+)	4004.1 *4*	(3−)
3231.24 *16*	1+	3567.82 *22*	2+		
3243.4 *3*	2+	3572.43 *23*	(1,2+)		
3253.55 *24*	(0+,1,2)	3577.55 *11*	2+		

† From a least squares fit to Eγ.
‡ From adopted levels.
§ Probable member of the two–phonon multiplet.
\# Probable member of the three–phonon multiplet.
@ Probable member of the four–phonon multiplet.
& Probable member of the 2+⊗3− quadrupole–octupole multiplet.
a Unresolved doublet in 1997Dr03.

γ(^{112}Cd)

Eγ[†]	E(level)	Iγ[†]	Mult.[§]	δ	Comments
121.06 *10*	1433.32				
402.14 *19*	1871.03	3.6 *6*			
410.86 *21*	2416.16	2.9 *6*			
536.22 *23*	2005.19	1.3 *3*			
558.42 *17*	1871.03	6.3 *5*			
[x]560.96 *22*		2.2 *4*			
606.821[‡] *6*	1224.341	47.2 *18*	E2,M1		Mult.: α(K)exp=0.0034 *3* (1997Dr03).
612.9 *3*	2081.78	1.9 *10*			
617.517[‡] *3*	617.519	910 *30*	E2		Mult.: α(K)exp=0.00317 *16* (1997Dr03); α(L)exp=0.00039 *4* (1997Dr03); α(M)exp=0.000138 *15* (1997Dr03).
648.76[‡] *11*	2064.52	4.8 *3*			
[x]651.223[‡] *10*		1.4 *4*			
656.74[‡] *9*	3163.48	4.5 *3*			
663.5 *3*	2668.89	0.8 *3*			
666.17[‡] *6*	2081.78	4.6 *3*			
688.03 *17*	2121.50	5.6 *4*			
692.82[‡] *3*	2005.19	12.8 *5*			
694.872[‡] *7*	1312.391	161 *5*	M1+E2		Mult.: α(K)exp=0.00242 *18* (1997Dr03).
[x]699.46 *24*		1.81 *37*			
718.98 *22*	2723.95	1.6 *3*			
752.14[‡] *3*	2064.52	16.2 *5*			
762.6 *6*	2231.27	0.4 *3*			
769.54 *17*	2081.78	3.4 *3*			
798.072[‡] *14*	1415.596	55.2 *16*	E2		Mult.: α(K)exp=0.00155 *15* (1997Dr03).
[x]811.7[‡] *3*		6.8 *14*			
815.79[‡] *3*	1433.32	11.2 *5*			
[x]831.50[‡] *4*		6.0 *3*			
[x]834.93 *20*		2.0 *3*			
840.71 *18*	3707.53	2.7 *3*			
844.14 *18*	2156.28	2.8 *3*			
851.285[‡] *15*	1468.808	68.1 *19*	M1+E2+E0	0.053 *30*	Mult.: α(K)exp=0.00235 *18* (1997Dr03). δ: From γ(ω) in 1997Dr03. Other solution: δ=1.96 *70*. Ice(K)(E0,2+ to 2+)/Ice(K)(M1,2+ to 2+)=0.43 *11*, B(E0)/B(E2)=2.6 *15*, and B(E0)/B(M1)=2700 *700* (1991Gi05).
861.74 *17*	2866.86	3.6 *3*			
886.99 *23*	3303.30	1.48 *25*			
897.15 *17*	2121.50	3.6 *3*			

Continued on next page (footnotes at end of table)

^{111}Cd(n,γ) E=th: Secondary 1997Dr03 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†	Mult.§	Comments
ˣ912.93 *19*		2.2 *3*		
918.0 *3*	2231.27	0.84 *25*		
934.43 *16*	2403.09	2.1 *3*		
ˣ945.37 *17*		4.4 *3*		
947.54 *19*	2416.16	2.4 *3*		
ˣ953.37 *20*		2.1 *3*		
957.80 *19*	2829.17	2.4 *3*		
ˣ962.39 *25*		1.25 *25*		
983.00 *15*	2416.16	1.3 *3*		
987.70 *17*	2403.09	4.9 *3*		
1007.26 *17*	2231.27	2.98 *23*		
ˣ1034.46 *22*		1.43 *22*		
1037.8 *3*	2506.74	1.9 *6*		
1063.56 *22*	2532.39	1.52 *24*		
1071.13 *17*	3135.72	4.5 *3*		
1077.67 *18*	2493.27	2.61 *24*		
ˣ1086.5 *3*		1.6 *3*		
1090.64 *17*	2403.09	3.94 *25*		
ˣ1093.12 *22*		1.53 *24*		
1099.0 *3*	2532.39	0.91 *24*		
1103.46 *16*	2416.16	6.6 *3*		
ˣ1110.47 *24*		2.0 *3*		
ˣ1112.1 *4*		1.0 *4*		
1116.83 *20*	2532.39	2.0 *3*		
1175.38 *19*	2590.98	2.3 *3*		
ˣ1186.9 *4*		1.0 *3*		
ˣ1189.66 *20*		2.7 *3*		
1193.94 *18*	2506.36	3.9 *3*		
1224.41	1224.341		(E0)	
1248.92 *24*	2561.23	1.7 *3*		
1253.53 *16*	1871.03	8.8 *5*		
ˣ1268.08 *22*		1.9 *3*		
1282.4 *3*	2506.74	1.8 *5*		
ˣ1293.74 *19*		2.20 *20*		
1297.5 *3*	2765.89	1.3 *3*		
ˣ1307.62 *25*		1.22 *21*		
1312.36‡ *4*	1312.391	54.5 *12*	E2	Mult.: α(K)exp=0.00052 *6* (1997Dr03).
1322.69 *17*	2635.09	4.06 *24*		
1356.55 *16*	2668.89	15.2 *4*		
ˣ1368.9 *3*		1.4 *3*		
1387.63 *5*	2005.19	44.9 *10*		
1433.35	1433.32		E0	
ˣ1444.2 *5*		0.52 *25*		
1447.02 *16*	2064.52	15.0 *4*		
1451.21 *18*	2866.86	3.1 *3*		
ˣ1460.90 *17*		4.79 *24*		
1468.91 *9*	1468.808	40.2 *9*	E2	Mult.: α(K)exp=0.00050 *7* (1997Dr03).
ˣ1484.82 *16*		6.4 *3*		
1504.11 *16*	2121.50	29.3 *7*	E2+M1	Mult.: α(K)exp=0.00030 *10* (1997Dr03).
1538.68‡ *10*	2156.28	32.4 *8*		
1540.44 *20*	2853.05	4.5 *5*		
ˣ1555.52 *20*		3.6 *4*		
ˣ1586.6 *3*		1.19 *25*		
1604.6 *4*	2829.17	0.95 *25*		
1613.67 *16*	2231.27	28.1 *7*		
ˣ1619.77 *22*		2.4 *3*		
ˣ1642.15 *19*		3.0 *3*		
ˣ1653.94 *19*		2.25 *23*		
ˣ1663.8 *3*		1.04 *22*		
1667.01 *25*	3135.72	1.26 *22*		
1683.54 *16*	2301.07	7.3 *3*		
ˣ1690.56 *19*		2.26 *22*		
ˣ1712.0 *3*		1.3 *3*		

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^{111}Cd(n,γ) E=th: Secondary 1997Dr03 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†
1785.28 *16*	2403.09	4.3 *4*
1798.60 *16*	2416.16	13.8 *5*
x1807.16 *17*		4.0 *3*
1823.32 *17*	3135.72	4.71 *25*
1888.84 *16*	2506.36	17.9 *4*
x1894.74 *20*		2.28 *22*
1909.53 *17*	3133.79	5.80 *24*
1945.12 *17*	3169.46	4.61 *21*
x1996.24 *21*		3.3 *4*
x1999.84 *20*		2.12 *25*
x2011.96 *20*		2.4 *3*
2051.34 *23*	2668.89	2.9 *4*
2056.55 *16*	2674.09	12.3 *4*
2106.29 *16*	2723.95	13.1 *5*
2148.18 *16*	2765.89	8.1 *3*
2156.25 *17*	2156.28	1.9 *5*
x2166.09 *21*		3.0 *3*
x2189.71 *25*		1.7 *3*
x2208.26 *25*		2.3 *3*
2211.72 *16*	2829.17	18.5 *5*
2217.2 *3*	2834.7	2.6 *5*
2235.7 *21*	2853.05	2.4 *3*
2314.13 *19*	2931.54	4.7 *3*
2327.24 *18*	2944.99	4.7 *3*
x2329.89 *18*		6.2 *3*
x2340.12 *21*		2.59 *25*
2352.94 *19*	3577.55	3.4 *3*
x2363.14 *17*		6.6 *3*
2383.81 *17*	3696.23	5.35 *25*
2395.00 *18*	3707.53	3.8 *3*
x2443.22 *20*		3.2 *3*
x2449.09 *22*		2.4 *3*
x2492.26 *24*		3.2 *4*
2506.76 *16*	2506.74	55.3 *12*
2551.89 *17*	3169.46	9.1 *4*
2561.13 *22*	2561.23	2.8 *3*
2572.62 *16*	3190.17	10.1 *4*
2579.77 *23*	3892.19	4.0 *4*
2613.56 *25*	3231.24	2.6 *3*
2625.83 *26*	3243.4	3.3 *4*
2636.00 *24*	3253.55	3.7 *4*
2685.83# *17*	3303.30	8.5# *4*
	3998.12	8.5# *4*
x2692.1 *3*		2.1 *4*
x2694.51 *19*		5.9 *5*
2766.0 *3*	2765.89	1.8 *3*
2775.78 *18*	3393.37	6.1 *4*
2829.30 *16*	2829.17	19.0 *6*
x2835.47 *51*		1.4 *4*
2838.14 *22*	3455.70	4.5 *5*
2853.17 *18*	2853.05	5.4 *4*
2882.99 *19*	3500.55	4.7 *4*
2922.92 *20*	3540.36	4.1 *3*
2931.39 *17*	2931.54	7.8 *4*
x2940.17 *20*		4.8 *4*
2945.20 *20*	2944.99	4.6 *4*
2950.26 *22*	3567.82	3.8 *4*
2960.13 *16*	3577.55	15.5 *6*
3090.04 *18*	3707.53	6.7 *4*
3133.65 *16*	3133.79	15.0 *7*
3163.4 *3*	3163.48	2.6 *4*
3231.27 *19*	3231.24	6.3 *5*
x3238.51 *24*		3.5 *4*

Continued on next page (footnotes at end of table)

^{111}Cd(n,γ) E=th: Secondary 1997Dr03 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ†	Comments
x3300.70 *23*		3.4 *4*	
3333.94 *17*	3951.50	11.2 *6*	
3352.4 *4*	3970.04	0.73 *18*	
3386.50 *31*	4004.1	1.11 *22*	
3393.35 *20*	3393.37	1.89 *23*	
3452.1 *4*	3452.2	1.7 *3*	
3479.2 *3*	3479.3	0.94 *20*	
3539.8 *4*	3540.36	0.97 *23*	
3557.23 *23*	3557.29	0.97 *20*	
3572.37 *23*	3572.43	1.81 *24*	
3577.53 *18*	3577.55	2.8 *3*	
3838.84 *24*	3838.91	1.66 *22*	
3846.2 *4*	3846.3	1.15 *23*	
3951.4 *3*	3951.50	1.40 *20*	Eγ,ΔE: not consistent with level energy difference.
3970.0 *3*	3970.04	1.66 *15*	
3997.6 *3*	3998.12	2.33 *23*	

† From 1997Dr03.
‡ Measured with a curved crustal spectrometer (1997Dr03).
§ From 1997Dr03, based on ce measurements.
# Multiply placed; undivided intensity given.
x γ ray not placed in level scheme.

^{111}Cd(d,p) 1967Ba15

1967Ba15: Facility: MIT–ONR Van de Graaff accelerator; Beam E(d)=7.7 MeV; Targets: 20 μg/cm^2 enriched to 89.9% in ^{111}Cd evaporated on 100 μg/cm^2 Au, natural Cd. Jπ(^{111}Cd g.s.)=1/2+; Detectors: MIT spectrograph, 50–μ NTA photoemulsions, shielded by Ta and Al foils to suppress heavier than proton particles; Measured: dσ/dΩ(E,θ). FWHM≈20 keV; Deduced: levels, L, S, DWBA, JULIE code.
Others: 1960Co10.

^{112}Cd Levels

E(level)†	Jπ‡	L†	(2J+1)S†	Comments
0.0	0+	0	0.28	
619 *8*	2+	2	0.36	
1228 *8*	0+	0	0.051	
1436 *8*	0+	0	0.078	
1474 *8*	2+	2	0.095	
1876 *8*	0+	0	0.11	
2009 *8*	(2+,3)	(2,3)	0.033,0.06	
2087 *8*				
2123 *8*	2+	2	0.13	
2159 *8*	2+	2	0.089	
2235 *8*	(2+,3)	(2,3)	0.042,0.067	
2302 *8*	0+	0	0.22	
2374 *8*				
2424 *8*	(0+,1)	(0,1)		
2507 *8*	2+	2	0.38	
2573 *8*				
2637 *8*	2+	2	0.24	
2657 *8*				
2678 *8*	2+	2	0.35	
2725 *8*	2+	2	0.32	
2770 *8*	2+	2	0.39	
2822 *8*				L: L=0,2 for the doublet 2822+2840.
2840 *8*				L: L=0,2 for the doublet 2822+2840.
2875 *8*				
2901 *8*				

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^{111}Cd(d,p) 1967Ba15 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	L†	(2J+1)S†
2936 *8*	2+	2	0.27
2965 *8*	2+	2	0.30
2988 *8*			
3071 *8*			
3113 *8*	2+	2	1.45
3184 *8*	2+	2	0.83
3240 *8*			
3304 *8*	2+	2	0.32
3344 *8*			

† From 1967Ba15.
‡ From 1967Ba15, based on L.

^{111}Cd(d,pγ) 1980Ju05,1979Lu10

Facility: Jyvaskyla 90 cm cyclotron; Beam: pulsed, E(d)=9 MeV; Target: 0.8 mg/cm^2 ^{111}Cd; Detectors: magnetic lens, Si(Li), Si(Au), planar Ge; Measured: γ, ce, E(p), γ–p coinc., Eγ, Iγ, ce(t); Deduced: levels, $T_{1/2}$, E0/E2 ratios; ρ^2 and B(E2)(W.u.).

^{112}Cd Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	0+		
617.2 *4*	2+		
1223.9 *4*	0+		
1311.9 *5*	2+		
1415.0 *6*	4+		
1432.8 *4*	0+	1.9 ns *1*	$T_{1/2}$: from RF–ce(t) (1979Lu10,1980Ju05). Ice(K)(1432):Ice(K)(815γ):Ice(K)(209):Ice(K)(120)=0.79 8:0.10 *3*:2.5 *4*:11 *2*.
1468.4 *6*	2+		

† From a least–squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Cd)

Eγ†	E(level)	Iγ	Mult.‡	Comments
120.9 *5*	1432.8	30 *10*	E2	Iγ: from Iγ(120γ)/Iγ(815γ)=0.3 *1* (1980Ju05). B(E2)(W.u.): 66 *20* (1980Ju05).
208.9 *5*	1432.8		E0	ρ^2=0.0081 *19* (1980Ju05).
606.7 *5*	1223.9		E2	B(E2)(W.u.): 51 *13* (1980Ju05).
617.2 *5*	617.2			
694.7 *5*	1311.9			
797.8 *5*	1415.0			
815.6 *5*	1432.8	100	E2	Iγ: from Iγ(120γ)/Iγ(815γ)=0.3 *1* (1980Ju05). B(E2)(W.u.): 0.017 *4* (1980Ju05).
851.2 *5*	1468.4			
1223.9 *5*	1223.9		E0	ρ^2=0.037 (11) (1980Ju05).
1432.8 *5*	1432.8		E0	ρ^2=0.00048 *11* (1980Ju05).

† From 1980Ju05. ΔEγ=0.5 keV assumed by the evaluators.
‡ From α measurements in 1980Ju05.

^{112}Cd(γ,γ') 1971Mo31

1971Mo31: Facility: Israel Research Reactor–2; Beam: monochromatic collimated γ from Fe(n,γ) reaction; Targets: 14 g/cm^2 and 2 g/cm^2 natural Cd; Detectors: two Ge(Li), one NaI(Tl); Measured: γ, γ–γ, γ–γ(θ) coinc., Eγ, Iγ; Deduced: ^{112}Cd levels, Jπ, δ, Γ; Also, from the same collaboration: 1970Mo26.

Others: 1973Ar02, 1971Mo31, 1970Es01, 1969Ce02, 1969Mi13, 1968Mo06, 1967Pr15, 1967St33, 1966Mi13,.

^{112}Cd Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	0+		
617.2 *8*	2+		
1223.2 *12*	0+		
1311.5 *17*	2+		
1429§ *3*	0+		
1467.8 *13*	2+		
1869.7 *16*	0+		
2000? *3*	3−		
2081§ *4*	4+		
2120.2 *16*	2+		
2155.2 *16*	2+		
2229.2 *16*	2+		
2295§ *4*	0+		
2506.2 *13*	1−		Jπ: doublet in the adopted levels.
2723.2 *16*	2+		
2832.2 *23*	0+		
2850.1 *18*	2+		Jπ: from γ(θ) and γ decay to 0+ and 3− levels.
3110§ *6*	(2)+		
3193§ *6*	(2)+		
3247§ *6*	(1,2)+		
3309§ *6*	(1−,2)		
7632.3 *8*	1−	5.3 fs *9*	E(level): Possible doublet structure with Jπ=1+ for the second state (1973Ar02). $T_{1/2}$: from Γ_γ=0.086 eV *15* (1970Mo26). Others: 0.6 eV *+2−1* (1966Mi13).

† From a least–squares fit to Eγ.
‡ From the adopted levels.
§ No secondary γ–rays from this level are reported in 1971Mo31.

γ(^{112}Cd)

Eγ†	E(level)	Iγ‡	Mult.§	δ§	Comments
606 *1*	1223.2				
617 *1*	617.2				
694@ *2*	2000?				
850# *2*	1467.8				
	2850.1				
1253 *2*	1869.7				
1311 *2*	1311.5				
1386@ *2*	2000?				
1468 *2*	1467.8				
1503 *2*	2120.2				
1538# *2*	2155.2				
	2850.1				
1612 *2*	2229.2				
1888 *2*	2506.2				
2106 *2*	2723.2				
x2210 *4*					
2215 *3*	2832.2				
2507 *2*	2506.2				
2851 *3*	2850.1				
x2935 *4*					
4323 *6*	7632.3	0.2 *1*			
4385 *6*	7632.3	0.5 *1*	E1		Mult.: A_2=0.4 *1* (1971Mo31).
4439 *6*	7632.3	0.2 *1*	E1(+M2)	0.1 *5*	Mult.: A_2=0.16 *17* (1971Mo31).
4522 *6*	7632.3	0.5 *1*	E1(+M2)	−0.01 *27*	Mult.: A_2=0.04 *18* (1971Mo31).
4782 *3*	7632.3	1.9 *2*	E1(+M2)	+0.09 *12*	Mult.: A_2=0.11 *8* (1971Mo31).

Continued on next page (footnotes at end of table)

^{112}Cd(γ,γ') 1971Mo31 (continued)

γ(^{112}Cd) (continued)

Eγ†	E(level)	Iγ‡	Mult.§	δ§	Comments
4800 *3*	7632.3	1.7 *1*	E1		Mult.: A_2=0.5 *1* (1971Mo31).
4909 *2*	7632.3	0.2 *1*	[E1+M2]		
5126 *2*	7632.3	0.4 *1*			
5337 *4*	7632.3	0.5 *1*	[E1]		
5403 *2*	7632.3	0.2 *1*	[E1+M2]		
5477 *2*	7632.3	0.4 *1*	[M1+E2]		
5512 *2*	7632.3	0.7 *1*	[M1+E2]		
5551 *4*	7632.3	0.5 *1*	[E3]		
5763 *2*	7632.3	11.6 *9*	E1		Mult.: A_2=0.51 *2* (1971Mo31).
6164 *2*	7632.3	1.9 *2*	E1(+M2)	0.05 *10*	Mult.: A_2=0.08 *7* (1971Mo31).
6203 *3*	7632.3	2.2 *2*	E1		Mult.: A_2=0.57 *7* (1971Mo31).
ˣ6345 *4*					Eγ: no final level exists for this primary transition reported in 1971Mo31.
6409 *2*	7632.3	8.0 *6*	E1		Mult.: A_2=0.52 *4* (1971Mo31).
7015 *2*	7632.3	11.7 *9*	E1+M2	0.06 *2*	Mult.: A_2=0.09 *2* (1971Mo31).
7632 *1*	7632.3	55 *4*	E1		Mult.: A_2=0.51 *1* (1971Mo31).

† From 1971Mo31.
‡ Branching ratios for the primary transitions in 1971Mo31; ΔIγ=8% is quoted by the authors, but rounded to 1 by the evaluators for the cases where the the quoted uncertainty has higher precision than the given Iγ value.
§ From 1971Mo31, based on γγ(θ).
# Multiply placed.
@ Placement of transition in the level scheme is uncertain.
ˣ γ ray not placed in level scheme.

^{112}Cd(γ,pol γ') 2005Ko32,1999Le31

2005Ko32,1999Le31: Facility: Stuttgart Dynamotron; Beam: Bremsstrahlung at 3.15, 4.0, 4.1 MeV; Target: CdO enriched to 98.17% in ^{112}Cd and sandwiched between ^{27}Al disks; Detectors: four HP Ge detectors, one of which Compton–suppressed with BGO, and two segmented Ge polarimeters; Measured: γ, γ–γ coinc, γ–γ(θ), γ(lin pol), Eγ, Iγ; Deduced: E(level), Jπ, Γ, BR, B(σλ). FWHM is 2 keV for 1.3 MeV γ and 3 keV for 3 MeV γ–rays; Also, from the same collaboration: 2001Ko49, 2000Ko47.

^{112}Cd Levels

E(level)†	Jπ‡	$T_{1/2}$§	$I_{s,0}$ [eV.b]#	Comments
0.0	0+			
617	2+			
2418.0 *10*	(1,2+)	1.29 ps *3*	0.7 *1*	$T_{1/2}$: assuming J=1.
2506.0 *10*	1−	36.6 fs *19*	16.7 *8*	
2694.0 *10*	(1)	0.72 ps *14*	1.0 *2*	
2829.0 *10*	1−	21.0 fs *16*	4.5 *3*	
2931.0 *10*	1+	12.3 fs *7*	12.4 *6*	
3133.0 *10*	1−	10.7 fs *5*	26.1 *11*	
3231.1 *10*	1+	26.7 fs *16*	9.8 *5*	
3300.1 *10*	(1)	40.6 fs *22*	7.5 *4*	
3375.1 *10*	(1)	87 fs *13*	1.4 *2*	
3557.1 *10*	(1,2+)	0.52 ps *13*	0.8 *2*	
3568.1 *10*	2+	60 fs *15*	0.9 *2*	
3594.1 *10*	1,2+	0.153 ps *25*	1.3 *2*	
3683.1 *10*	1,2+	88 fs *14*	4.4 *7*	$I_{s,0}$ [eV.b]: Value corrected for a small ^{13}C contamination of the target.
3704.1 *10*	1,2+	65 fs *6*	5.9 *5*	
3810.1 *10*	1,2+	17 fs *3*	17.3 *11*	
3846.1 *10*	(1,2+)	0.20 ps *3*	1.8 *3*	
3869.1 *10*	(1,2+)	20 fs *5*	11.3 *9*	
3933.1 *10*	(1,2+)	76 fs *10*	4.5 *6*	
3997.1 *10*	1,2+	2.4 fs *6*	6.3 *10*	

† From a least–squares fit to Eγ.

Footnotes continued on next page

^{112}Cd(γ,pol γ') 2005Ko32,1999Le31 (continued)

^{112}Cd Levels (continued)

‡ From the adopted levels.
§ Calculated by the evaluators from $I_{s,0}$ in 1999Le31 and Branching from adopted gammas.
# Integrated cross section from 1999Le31.

γ(^{112}Cd)

E(level)	Eγ†	Γ_0/Γ‡	Mult.	Comments
2418.0	2418 *1*	100		
2506.0	2506 *1*	85.4 *8*	E1	Mult.: ε=−0.10 *8* from polarization measurements in ^{112}Cd(γ,pol γ') (2005Ko32).
2694.0	2694 *1*	100		
2829.0	2829 *1*	37.9 *7*		
2931.0	2931 *1*	49.9 *9*	M1	Mult.: ε=+0.08 *10* from polarization measurements in ^{112}Cd(γ,pol γ') (2005Ko32). Γ_0/Γ: 70 *4* in 1999Le31.
3133.0	3133 *1*	72.1 *8*	E1	Mult.: ε=−0.13 *6* from polarization measurements in ^{112}Cd(γ,pol γ') (2005Ko32).
3231.1	3231 *1*	72.0 *11*	M1	Mult.: ε=+0.27 *12* from polarization measurements in ^{112}Cd(γ,pol γ') (2005Ko32).
3300.1	3300 *1*	79.4 *3*		Γ_0/Γ: 74 *5* in 1999Le31.
3375.1	3375 *1*	51.3 *8*		
3557.1	3557 *1*	100		
3568.1	3568 *1*	27.9 *14*		
3594.1	3594 *1*	70.0 *20*		
3683.1	3683 *1*	100		
3704.1	3704 *1*	100		
3810.1	3810 *1*	90 *8*		Γ_0/Γ: From 1999Le31.
3846.1	3846 *1*	100		
3869.1	3869 *1*	80 *9*		Γ_0/Γ: From 1999Le31.
3933.1	3933 *1*	100		
3997.1	3997 *1*	21.3 *19*		

† From 1999Le31, ΔEγ deduced by the evaluators.
‡ From adopted gammas.

^{112}Cd(e,e') 1977Gi13

1977Gi13: Facility: Glasgow 130 MeV linear accelerator; Beam: E(e)=68,112 MeV; Target: self supporting metallic foil enriched to 96% in ^{112}Cd; Measured: form factors; Deduced: B(E2) and Q.

^{112}Cd Levels

E(level)†	Jπ†	Comments
0.0	0+	
617.48 *3*	2+	Q=−0.37 *4* (1977Gi13). B(E2)↑=0.524 *50* (1977Gi13).

† From the adopted levels.

^{112}Cd(π⁻,X) 1978Ba15

Facility: Rutherford Laboratory; Beam: E(π)=200 MeV/c, produced from 7 GeV protons; Detectors: Ge(Li), Cherenkov counter, scintillation counters, magnets, electrostatic mass separator, degraders; Measured: γ, x–rays, Eγ, E_x.
Others: J.N.Bradbury et al, Phys.Rev.Lett.34 (1975) 303.

^{112}Cd Levels

E(level)†	Jπ‡
0.0	0+
617.49 *10*	2+

† From Eγ.
‡ From the adopted levels.

^{112}Cd(π^-,X) 1978Ba15 (continued)

γ(^{112}Cd)

Eγ†	E(level)
617.49 *10*	617.49

† From 1978Ba15.

^{112}Cd(n,n'γ) 2001Ga44,2007Ga22

2007Ga22, 2001Ga44: Facility: University of Kentucky Van de Graaf accelerator; Beam: pulsed, E(n)=1.8 to 4.2 MeV from ^{3}H(p,n)^{3}He reaction, FWHM=1 ns, neutron flux =5x10^7; Target: 52.5g CdO enriched to 98.18% in ^{112}Cd; Detectors: three Compton–suppressed HPGe; Measured: γ, γ(θ), γ–γ coinc., Iγ, Eγ, $T_{1/2}$; Deduced: γ–ray Mult., ^{112}Cd level scheme; From the same collaboration: 2009Gr10, 2000Ga22, 1999Ga20, 1999Ga15, 1999Mc03, 1997LeZZ, 1997YaZZ, 1996Ga26, 1996Le19,.

Others: 2010Sc13, 1990Ar20, 1976De23.

^{112}Cd Levels

E(level)†	Jπ‡	$T_{1/2}$§	Comments
0.0	0+		
617.527[#] *12*	2+		
1224.422 *20*	0+		
1312.394[@] *13*	2+	1.5 ps *+22−5*	
1415.562[@] *16*	4+	0.7 ps *+7−2*	
1433.318[@] *22*	0+		
1468.839 *14*	2+	1.4 ps *+30−6*	
1870.910 *20*	4+		
1871.19 *10*	0+		
2005.200[b] *16*	3−	0.26 ps *5*	
2064.537[&] *17*	3+	0.47 ps *13*	
2081.699 *19*	4+	0.35 ps *10*	
2121.555 *19*	2+	0.51 ps *14*	
2156.191 *19*	2+	0.21 ps *24*	
2167.730[&] *25*	6+		
2231.215 *19*	2+	0.15 ps *14*	
2300.749 *25*	0+	>623 fs	
2373.269[c] *23*	5−	0.4 ps *+6−2*	
2403.019 *21*	3+	0.24 ps *+10−6*	
2416.04[c] *3*	3−	0.15 ps *3*	
2454.53[a] *4*	4+	0.35 ps *+9−6*	
2493.172[a] *22*	4+	0.4 ps *+4−1*	
2506.338 *24*	2+	0.21 ps *3*	
2506.731[c] *23*	1−	44 fs *8*	
2570.351 *25*	5−	>693 fs	configuration: $\nu s_{1/2}\otimes\nu h_{11/2}$.
2571.91 *7*	6+	>693 fs	
2591.079[c] *19*	4−	>693 fs	
2634.996 *22*	3+		
2650.17 *4*	0+	0.23 ps *+12−6*	
2665.63 *3*	5+	>208 fs	
2668.937[c] *24*	2−	0.21 ps *3*	
2674.03 *5*	2+	35 fs *3*	
2711.29 *3*	4+	0.26 ps *+15−7*	
2723.89 *3*	2+	159 fs *24*	
2765.76 *4*	2+	34 fs *3*	
2773.15 *4*	0+	>693 fs	
2791.79 *7*	(4−)	>97 fs	
2793.73 *4*	7−		
2816.90 *3*	4+	>416 fs	
2817.81 *4*	6−		
2829.22 *3*	1−	27 fs *3*	
2834.25 *6*	0+	>347 fs	
2840.31 *3*	4+	>485 fs	
2852.92 *3*	2+	0.44 ps *+21−10*	
2866.858 *23*	3−	0.6 ps *+8−2*	

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^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$§	Comments
2867.48 *6*	(3+)	0.09 ps *+8−3*	
2882.76 *5*	0+	>693 fs	
2893.57 *4*	4+	>416 fs	
2899.10 *5*	(5−)	0.13 ps *3*	
2921.83 *10*	6+		
2924.892 *24*	4−	>139 fs	
2931.50 *4*	1+	17 fs *4*	
2932.0 *10*	6−		
2944.86 *4*	2+	0.4 ps *+3−1*	
2947.77 *5*	3+	83 fs *24*	
2961.96 *3*	4−		
2969.85 *9*	5+		
2972.51 *6*	5+	0.6 ps *+11−2*	
2980.83 *3*	2+	0.14 ps *3*	
3002.13 *4*	(3+)	0.19 ps *+12−6*	
3011.16 *8*	6−		
3028.2 *10*	6+		
3049.21 *6*	2 to 6	0.08 ps *+12−3*	
3051.28 *13*	5+		
3066.31 *10*	(3−)	>207 fs	
3068.68 *3*	4+	>555 fs	
3071.22 *11*	(1,2)+		
3071.49 *5*	(3,4)+	>249 fs	
3075.28 *4*	5(+)	0.3 ps *+5−1*	
3081.65? *19*	(2+)		
3102.15? *9*	(1)	21 fs *6*	
3102.67 *6*	5		
3105.48 *5*	(2),3	0.3 ps *+5−1*	
3109.87 *5*	(2)+	0.13 ps *+6−3*	Jπ: from the adopted levels; J=1 in 2001Ga44.
3130.95 *3*	5−		
3133.26 *6*	1	27 fs *5*	
3135.85 *4*	(2,3)	0.3 ps *+3−1*	
3145.40 *5*	4+	0.13 ps *+5−3*	
3163.03 *5*	2+	0.26 ps *+12−7*	
3165.54 *5*	(6−)		
3169.57 *4*	2+	146 fs *14*	
3176.84 *13*	4+		
3178.80 *5*	2+	104 fs *24*	
3189.87 *6*	4,5,6	>354 fs	
3190.07 *4*	2,(3)	22.2 fs *14*	
3194.55 *4*	2+,(3)+	0.10 ps *4*	
3201.42 *19*	5−	0.5 ps *+5−2*	
3203.26 *8*	3(+)	0.12 ps *+9−4*	
3205.75 *12*	2,3,4	>111 fs	
3206.47 *6*	2,3,4	76 fs *24*	
3206.71 *4*	2,3,4	0.4 ps *+3−1*	
3231.41 *4*	1+	35 fs *4*	
3242.64 *6*	2+	0.2 ps *+3−1*	
3246.90 *5*	(2,3)	0.16 ps *3*	
3247.25 *5*	4,5,6		
3251.87 *13*	0+	0.2 ps *+6−8*	
3254.34 *7*	2,3,4	0.2 ps *+8−1*	
3254.47 *7*	4+	57 fs *17*	
3258.0 *10*			
3266.62 *4*	3,4,5	0.19 ps *5*	
3269.49 *4*	4	0.17 ps *+21−7*	
3290.63 *13*			
3291.16 *5*		0.2 ps *+5−1*	
3297.02 *4*	3	0.38 ps *+24−11*	
3300.99 *16*	1	0.10 ps *+12−4*	
3303.34 *4*	2,3	173 fs *24*	
3312.21 *4*	1,2,3	76 fs *17*	
3319.88 *3*		0.17 fs *3*	

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^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$§	Comments
3325.99 *6*			
3329.25 *5*	3,4,5		
3332.05 *4*	3,4,5	0.12 ps *3*	
3332.47 *6*	1,2,3	97 fs *24*	
3336.04 *7*	2,3	0.10 ps *3*	
3341.87 *5*	3+	37 fs *4*	
3353.37 *6*	0 to 3	0.13 ps *4*	
3363.60 *5*	2+	0.24 ps *+10−6*	
3364.01 *7*	2 to 6	0.2 ps *+7−1*	
3369.64 *3*	2,3	35 fs *3*	
3375.47 *6*	1	52 fs *8*	
3378.50 *4*	2,3,4	0.4 ps *+3−1*	
3383.64 *4*	(3)	97 fs *17*	
3392.78 *12*	1	>693 fs	
3393.39 *5*	1,2,3	>970 fs	
3393.64 *6*		0.2 ps *+3−1*	
3400.35 *9*			
3402.93 *6*	3+	>527 fs	
3422.57 *16*	0 to 4		
3425.61 *6*	2,3	0.09 ps *3*	
3426.32 *14*	0 to 4	33 fs *+17−10*	
3428.77 *14*	2+	0.08 ps *+5−3*	
3429.7 *3*			
3433.81 *7*	3,4,5	0.11 ps *+6−3*	
3452.00 *6*	(0+)		
3452.90 *8*	3+,(2)	0.2 ps *+4−1*	
3453.9 *3*			
3455.42 *7*	2,3	0.3 ps *+3−1*	
3471.40 *22*			
3478.48 *8*	1,2,3	0.2 ps *+7−1*	
3487.56 *7*	(4)+	83 fs *17*	Jπ: from the adopted levels. Jπ=3+ in 2001Ga44 seems to be a missprint since 2869.99γ is claimed to be a stretched E2 transition to 2+.
3489.88 *4*	3,5	68 fs *13*	
3500.42 *5*	1,2,3	0.15 ps *3*	
3511.7 *3*	3 to 6	>485 fs	
3512.80 *7*	3+	0.10 ps *3*	
3522.52 *5*	1,2,3	33 fs *3*	
3530.90 *5*			
3531.34 *8*	3+	76 fs *24*	
3540.29 *5*	1,2,3	15.3 fs *21*	
3556.84 *12*	1	48 fs *4*	
3557.34 *4*	1,2,3	0.07 ps *3*	
3568.05 *5*	2+	62 fs *10*	
3574.49 *9*	2,3	0.1 ps *+24−5*	
3577.2 *3*	0 to 4		
3579.36 *5*	2,3	0.13 ps *3*	
3594.59 *6*	1	76 fs *14*	
3598.82 *8*	3(+)	31 fs *8*	
3608.87 *6*	1,2,3	0.12 ps *3*	
3613.27 *10*	3+	0.10 ps *+6−3*	
3618.50 *14*	2,3,4	0.06 ps *+6−2*	
3622.19 *11*	1,2,3	0.033 ps *10*	
3627.7 *3*	4,5,6		
3646.45 *5*	1,2,3	0.24 ps *+8−5*	
3652.17 *6*	1	0.12 ps *4*	
3665.79 *5*	3,(2)	132 fs *24*	
3676.74 *8*	2,3	0.09 ps *3*	
3682.83 *12*	1	32 fs *8*	
3687.93 *9*	1	0.13 ps *5*	
3690.69 *13*	2,3	0.10 ps *+11−4*	
3697.75 *12*	2,3,4	0.3 ps *+10−1*	
3703.81 *9*	1	22 fs *4*	
3707.40 *9*	1,2,3	36 fs *8*	

Continued on next page (footnotes at end of table)

^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$§	E(level)†	Jπ‡	$T_{1/2}$§
3720.7 *3*	2 to 6		3832.67 *11*	1,2,3	22 fs *7*
3722.70 *24*	0 to 4	16 fs *+12−8*	3844.26 *10*	0 to 4	263 fs
3731.96 *10*	1,2,3	0.125 ps *+9−4*	3846.48 *10*	1	40 fs *9*
3739.56 *8*	3+	66 fs *20*	3854.4 *3*	2+	
3743.79 *6*	3+	54 fs *8*	3864.6 *10*		
3746.9 *3*	2 to 6		3869.00 *10*	1	13 fs *3*
3754.17 *6*	2 to 6	>416 fs	3878.63 *13*	1,2,3	53 fs *24*
3755.46 *13*	1	28 fs *9*	3929.22 *21*	0 to 4	0.1 ps *+8−1*
3763.95 *5*	1,2,3	104 fs *14*	3932.19 *12*	0 to 4	0.09 ps *+6−3*
3770.47 *8*	2,3	26 fs *6*	3933.07 *13*	1	12 fs *4*
3783.206 *15*	3+	0.2 ps *+4−1*	3939.28 *14*	1,2,3	0.05 fs *+3−2*
3787.3 *3*	2+		3952.27 *7*	1,2,3	43 fs *6*
3801.3 *3*	2 to 6		3963.8 *4*	1,2	0.03 ps *+4−2*
3804.88 *14*	0 to 4	0.2 ps *+5−1*	3969.30 *20*	0 to 4	0.05 ps *+7−2*
3810.04 *7*	1	9.7 fs *21*	4033.89 *20*	0 to 4	0.06 ps *+5−2*
3810.89 *10*	1,2,3	0.07 ps *+3−2*			

† From a least-squares fit to Eγ.
‡ From 2001Ga44, based on γ-ray Mult., observed decay branches and excitation function measurements, unless otherwise stated.
§ From DSAM in 2007Ga22.
# Quadrupole one-phonon level.
@ Probable member of the two-phonon multiplet.
& Probable member of the three-phonon multiplet.
a Probable member of the four-phonon multiplet.
b Octupole one-phonon level.
c Probable member of the quadrupole-octupole multiplet.

γ(^{112}Cd)

E(level)	Eγ†	Iγ†	Mult.@	δ@	Comments
	x903.69 *11*				
	x907.21 *5*				
	x909.48 *6*				
	x928.3 *5*				
	x1066.28 *4*				
	x1157.06 *6*				
	x1171.27 *6*				
	x1230.75 *14*				
	x1243.57 *6*				
	x1272.51 *7*				
	x1490.87 *7*				
	x1517.68 *9*				
	x1548.04 *9*				
	x1562.30 *9*				
	x1590.61 *11*				
	x1608.04 *15*				
	x1659.5 *5*				
	x1757.15 *20*				
	x2109.55 *9*				
	x2176.20 *6*				
	x2183.31 *9*				
	x2334.41 *17*				
617.527	617.516 *21*	100	E2		
1224.422	606.842 *25*	100	E2		
1312.394	694.841 *21*	74.3 *5*	M1+E2	−2.6 *+4−3*	δ: Also −1.00 *+9−17* (2001Ga44).
	1312.390 *21*	25.7 *5*	E2		
1415.562	798.037 *20*	100	E2		
1433.318	121.0§		E2		
	815.786 *20*		E2		
1468.839	244.8§	0.6 *2*			
	851.274 *20*	62.8 *6*	M1+E2	+0.14 *5*	

Continued on next page (footnotes at end of table)

^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.@	δ@	Comments
1468.839	1468.836 *21*	36.6 *5*	E2		
1870.910	401.88# *13*	20.7# *9*	E2		
	455.26# *13*	11.5# *6*	M1+E2	+2.7 *+4−3*	
	558.39# *11*	35.9# *9*	E2		
	1253.487# *21*	31.8# *10*	E2		
1871.19	402.50# *16*	10.1# *11*	E2		
	558.7#	<0.05#	E2		
	1253.56# *12*	89.9# *11*	E2		
2005.200	536.31 *8*	0.9 *1*	E1		Eγ: Misprint in Table 1 (1999Ga20): Eγ assigned to 3_1^-−>2^+_2 transition.
	692.787 *23*	18.0 *5*	E1		
	1387.676 *21*	81.1 *5*	E1		
2064.537	648.91 *3*	13.1 *3*	M1+E2	−1.20 *+20−15*	
	752.139 *21*	46.3 *6*	M1+E2	−2.75 *+23−17*	Iγ: From adopted gammas.
	1447.000 *21*	40.6 *6*	M1+E2	−1.70 *+10−12*	
2081.699	612.88 *25*	10.5 *17*	E2		
	666.154 *21*	45.2 *10*	M1+E2	−0.41 *3*	
	769.36 *3*	31.8 *8*	E2		
	1464.04 *3*	12.5 *4*	E2		
2121.555	688.23 *5*	11.2 *7*	E2		
	808.82 *19*	2.8 *1*	M1+E2		
	897.068 *24*	8.9 *2*	E2		
	1504.040 *21*	75.0 *7*	M1+E2	+1.36 *7*	
	2121.49 *13*	2.1 *1*	E2		
2156.191	687.41 *9*	4.9 *7*	M1+E2	−2.3 *19*	
	1538.645 *21*	87.4 *7*	M1+E2	+0.085 *+25−22*	
	2156.20 *3*	7.7 *3*	E2		
2167.730	297.29 *12*		E2		
	752.139 *21*		E2		
2231.215	762.41 *5*	1.9 *1*	M1+E2	−1.4 *+8−34*	
	918.72 *4*	2.5 *1*	M1+E2	+0.21 *+20−13*	
	1006.81 *3*	3.7 *1*	E2		
	1613.661 *22*	91.8 *2*	M1+E2	−0.020 *+20−27*	
2300.749	831.79 *8*	32.6 *8*	E2		
	1683.218 *23*	67.4 *8*	E2		
2373.269	291.5		E1		
	367.9		E2		
	957.719 *22*	98.0 *2*	E1		
2403.019	531.89 *6*	3.5 *4*	M1+E2	−0.6 *+4−25*	
	934.193 *24*	20.7 *4*	M1+E2	−4.0 *6*	
	987.89 *10*	33.8 *5*	M1+E2	−0.025 *+27−36*	Eγ: Uncertainty increased by evaluators. δ: Also: −6.2 *+10−17* (2001Ga44).
	1090.56 *6*	19.5 *4*	M1+E2	+0.099 *+27−36*	
	1785.48 *3*	22.5 *5*	M1+E2	−0.107 *+36−43*	
2416.04	411.39 *23*		M1+E2	−0.35 *+18−23*	δ: Also: +4.2 *+∞−20* (2001Ga44).
	946.92 *8*	5.6 *7*	E1		
	1103.58 *10*	27.8 *8*	E1		
	1798.50 *4*	59.1 *10*	E1		
2454.53	1038.93 *4*	92.0 *3*	M1+E2	−0.27 *18*	
	1142.21 *7*	8.0 *3*	E2		
2493.172	1024.29 *4*	11.5 *4*	E2		
	1077.602 *21*	83.8 *5*	M1+E2	+0.13 *+6−5*	
	1875.70 *5*	4.7 *4*	E2		
2506.338	1194.00 *7*	15.2 *4*	M1+E2	+0.20 *+16−12*	
	1888.787 *22*	84.8 *4*	M1+E2	−0.18 *6*	δ: Also: +4.2 *+15−8* (2001Ga44).
2506.731	501.5&				Eγ: Not reported in 2001Ga44. Table 1, transition 1_1^-−>3^+_1.
	1037.8 *3*		E1		
	1073.32 *17*	4.1 *4*	E1		
	1282.29 *9*	4.7 *4*	E1		
	2506.704 *24*	85.4 *5*	E1		
2570.351	197.03 *3*	32 *3*	M1+E2		
	565.10 *20*	10.4 *10*	E2		

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^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[@]	δ[@]	Comments
2570.351	699.59 *4*	23.8 *13*	E1		
	1154.75 *3*	33.7 *16*	E1		
2571.91	701.00 *6*	100	E2		
2591.079	509.2[&]				Eγ: Observed only in 1999Ga20. Could be a misprint in 4_1^-->4^+_3 in Table 1.
	526.522 *22*	26.3 *6*	E1		Eγ: The final level of 526.5γ in Table 1 of 1999Ga15 seems to be a misprint.
	585.78 *3*	12.6 *4*	M1+E2	+0.47 *+8−7*	
	720.44 *9*	6.4 *4*	E1		
	1175.500 *22*	54.8 *6*	E1		
2634.996	570.5[‡]	6.2 *1*	M1+E2		
	629.80 *3*	23.3 *5*	E1		
	1219.4		M1+E2		
	1322.590 *22*	61.1 *3*	M1+E2	−1.37 *+16−15*	
	2017.5[‡]	5.3 *1*	M1+E2		
2650.17	1337.75 *11*	12.4 *15*	E2		
	2032.62 *4*	87.6 *15*	E2		
2665.63	583.92 *3*	37.5 *11*	M1+E2	+0.30 *4*	
	601.01 *5*	22.8 *14*	E2		
	795.08 *13*	15.0 *13*	M1+E2	+0.14 *+18−17*	
	1250.17 *7*	24.6 *9*	M1+E2	−0.12 *+6−5*	
2668.937	663.59 *15*	5.2 *2*	M1+E2	+1.3 *+23−8*	
	1356.522 *22*	80.4 *6*	E1		
	2051.50 *6*	14.4 *6*	E1		
2674.03	2056.48 *4*	100	M1+E2	+0.05 *+7−8*	
2711.29	705.95 *8*	5.9 *8*	E1		
	1295.735 *25*	94.1 *8*	M1+E2	−0.08 *6*	
2723.89	718.89 *7*	10.3 *5*	E1		
	2106.31 *3*	89.7 *5*	M1+E2	+0.05 *+6−5*	δ: Also: 2.0 *+3−2* (2001Ga44).
2765.76	894.5[‡]	5.9 *8*	E2		
	1296.9[‡]		M1+E2		
	1453.4[‡]	7.3 *4*	M1+E2		
	2148.21 *3*	82.0 *11*	M1+E2	+0.06 *+7−6*	δ: Also: +1.9 *+3−2* (2001Ga44).
	2765.7[‡] *3*	4.8 *2*	E2		
2773.15	541.80 *5*	16.1 *8*	E2		
	1460.83 *4*	83.9 *8*	E2		
2791.79	786.59 *6*	100	(M1+E2)	+0.038 *+49−14*	
2793.73	420.68 *8*	38.6 *22*	E2		
	625.97 *3*	61.4 *22*	E1		
2816.90	735.195 *23*		M1+E2	+4.0 *+39−13*	δ: Also: −0.65 *+16−20* (2001Ga44).
	811.3[‡]		E1		
	1401.3[‡]		M1+E2		
2817.81	444.537 *25*	100	M1+E2	−0.29 *+5−7*	
2829.22	957.0[‡]		E1		
	2211.65 *4*	56.0 *12*	E1		
	2829.20 *4*	44.0 *12*	E1		
2834.25	712.68 *8*	13 *3*	E2		
	1521.82 *12*	18.1 *13*	E2		
	2216.74 *10*	69 *3*	E2		
2840.31	1424.734 *24*	100	M1+E2	−1.28 *+18−24*	
2852.92	1419.6[‡]	6.1 *2*	E2		
	1540.4[‡]	26.4 *11*	M1+E2		
	2235.46 *8*	17.4 *4*	M1+E2	−0.39 *+20−25*	
	2852.87 *3*	50.0 *17*	E2		
2866.858	450.75 *6*	9.1 *4*	M1+E2	+0.73 *+69−71*	
	784.91 *8*	10.1 *8*	E1		
	861.678 *24*	55.2 *6*	M1+E2	+0.069 *+89−69*	
	1451.30 *3*	35.7 *7*	E1		
2867.48	1398.64 *6*		M1+E2		
	1555.1[‡]		M1+E2		
	2249.91 *10*	100	M1+E2		
2882.76	726.79 *14*	22 *3*	E2		
	1413.86 *5*	61 *3*	E2		

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^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[@]	δ[@]	Comments
2882.76	1570.51 *14*	17.4 *15*	E2		
2893.57	771.76 *9*	27 *3*	E2		
	811.9[‡]		M1+E2		
	2276.07 *4*	73 *3*	E2		
2899.10	1483.53 *4*	100	(E1)		Mult.: Stretched transition; δ=+0.014 *+33−30*.
2921.83	840.13 *9*	100	E2		
2924.892	333.72 *3*	18.4 *10*	M1+E2	−0.21 *+18−17*	δ: Also: +1.4 *+7−5* (2001Ga44).
	551.63 *6*	8.7 *8*	M1+E2		
	919.58 *6*	30.7 *10*	M1+E2	−0.22 *10*	
	1054.24 *5*	19.0 *9*	E1		
	1509.36 *4*	23.3 *7*	E1		
2931.50	1618.84 *11*	23.7 *10*	M1+E2		
	2314.12 *6*	26.3 *14*	M1+E2		
	2931.42 *4*	49.9 *15*	M1		
2932.0	558.7[‡]	100	M1+E2		
2944.86	2327.44 *7*	57.7 *20*	M1+E2	+1.4 *+11−14*	δ: Also: +0.24 *+240−25* (2001Ga44).
	2944.78 *4*	42.3 *20*	E2		
2947.77	2330.22 *4*	100	M1+E2	−3.6 *+10−16*	
2961.96	370.86 *3*	18.8 *11*	M1+E2	+0.06 *+15−10*	
	588.83 *5*	30.5 *12*	M1+E2		
	956.7[‡]		M1+E2		
	1546.35 *4*	50.7 *14*	E1		
2969.85	1554.28 *8*	100	M1+E2		
2972.51	804.89 *10*	20.5 *11*	M1+E2	−2.5 *+7−12*	
	890.77 *6*	16.1 *21*	M1+E2	+0.17 *+7−6*	
	1556.8[‡]	63.4 *19*	M1+E2		
2980.83	1512.13 *17*	11.9 *25*	M1+E2		
	1668.4[‡]	7.7 *18*	M1+E2		
	2363.274 *25*	80 *3*	M1+E2	−0.01 *6*	δ: Also: +2.3 *+5−4* (2001Ga44).
3002.13	996.75 *14*	17 *3*	E1		
	1586.57 *3*	36.6 *14*	M1+E2	+0.12 *6*	
	1689.7[‡]		M1+E2		
	2384.54 *11*	46.5 *17*	M1+E2	+8.3 *+44−20*	δ: Also: +0.33 *+5−6* (2001Ga44).
3011.16	637.89 *7*	100	M1+E2	+3.5 *+27−14*	δ: Also: +0.36 *+25−17* (2001Ga44).
3028.2	946.5[‡]		E2		
3049.21	967.63 *7*	22.1 *17*			
	1633.39 *10*	77.9 *17*			
3051.28	1635.70 *13*	100	M1+E2	+0.35 *+14−9*	
3066.31	1753.8[‡]	36.0 *15*	E1		
	2448.76 *10*	64.0 *15*	E1		
3068.68	1063.49 *3*	36.4 *7*	E1		
	1599.70 *8*	34.0 *8*	E2		
	1653.09 *6*	16.3 *6*	M1+E2	−0.54 *21*	
	1756.30 *14*	13.3 *8*	E2		
3071.22	840.13[‡&] *9*				
	949.65 *11*				
	1638.4[‡]				
	3071.2[‡]				
3071.49	1006.9[‡]	72 *3*			
	1066.28 *4*	28 *3*			
3075.28	1659.70 *3*	100	M1+E2	+0.13 *5*	
3081.65?	3081.60 *19*	100	E2		
3102.15?	3102.10 *9*	100			
3102.67	729.41 *9*	21.1 *20*			
	1687.08 *7*	78.9 *20*			
3105.48	1636.7[‡]				
	1690.1[‡]				
	1792.77 *7*	33.4 *18*			
	2488.14 *6*	66.6 *18*			
3109.87	1641.14 *10*	37.9 *9*			
	2492.24 *6*	45.1 *10*			
	3110.01 *16*	17.0 *8*			
3130.95	714.84 *5*	19.6 *14*	E2		

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^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[@]	δ[@]	Comments
3130.95	1125.78 *3*	65.4 *13*	E2		
	1715.08 *12*	15.0 *8*	E1		
3133.26	3133.21 *6*	100			
3135.85	1071.26 *10*	14.3 *13*			
	1667.0[‡]				
	1823.39 *4*	51.2 *23*			
	2518.43 *6*	35 *3*			
3145.40	1063.6[‡]		M1+E2		
	1729.82 *4*	100	M1+E2	−0.43 *+11−12*	δ: Also: +3.0 *+15−7* (2001Ga44).
3163.03	656.3[‡]		E1		
	3162.98 *5*	100	E2		
3165.54	792.27 *4*	100	M1+E2		
3169.57	1164.2[‡]		E1		
	1945.14 *17*	42.4 *15*	E2		
	2552.01 *3*	57.6 *15*	M1+E2	−0.68 *+13−20*	δ: Also: −4.8 *+19−58* (2001Ga44).
3176.84	2559.28 *13*	100	E2		
3178.80	2561.23 *9*	73.7 *11*	M1+E2		
	3178.76 *6*	26.3 *11*	E2		
3189.87	1022.09 *13*	45.5 *23*			
	1774.30 *6*	54.5 *23*			
3190.07	2572.51 *3*	100			
3194.55	1189.41 *4*	37.1 *11*			
	1882.1[‡]				
	2576.72 *8*	62.9 *11*			
3201.42	1196.21 *19*	100	E2		
	1785.8[‡]		E1		
3203.26	2585.70 *8*	100	(M1+E2)	−0.10 *+5−6*	
3205.75	1736.90 *12*	100			
	1790.2[‡]				
3206.47	1084.93 *6*	43.2 *22*			
	2588.85 *9*	56.8 *22*			
3206.71	1792.1[‡]				
	1894.30 *3*	100			
3231.41	1919.4[‡]		M1+E2		
	2614.02 *14*	28.0 *16*	M1+E2		
	3231.35 *4*	72.0 *16*	M1		
3242.64	1161.08 *12*	39 *3*	E2		
	2625.07 *8*	35.9 *23*	M1+E2	+1.9 *+15−9*	δ: Also: +0.10 *+35−22* (2001Ga44).
	3242.49 *10*	24.8 *19*	E2		
3246.90	1778.0[‡]				
	2629.34 *4*	100			
3247.25	1831.67 *4*	100			
3251.87	2634.31 *13*	100	E2		
3254.34	1785.2[‡]				
	1942.01 *8*	58.8 *17*			
	2636.62 *11*	41.2 *17*			
3254.47	1249.01	63.5 *22*	E1		Eγ: as per e-mail reply (Aug 14/01) from the lead author (P. Garrett) of 2001Ga44, listed experimental energy of 1248.14 *12* should be replaced by level-energy difference. Since this peak lies on the tail of a strong 1253 peak, experimental energy is not reliable.
	1838.89 *6*	36.5 *22*	M1+E2	+3.1 *+30−11*	δ: Also: −0.45 *+30−25* (2001Ga44).
3258.0	1252.8[‡]				
3266.62	1851.04 *3*	100			
3269.49	1264.25 *4*	69.3 *17*			
	1854.04 *8*	30.7 *17*			
3290.63	1419.43 *8*	100			
3291.16	1209.4[‡]				
	1285.95 *4*	100			
	1875.7[‡]				
3297.02	1881.5[‡]	76.2 *15*			
	2679.46 *3*	23.8 *15*			

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^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†	Mult.@	δ@	Comments
3300.99	3300.94 *16*	100			
3303.34	2685.78 *3*	100			
3312.21	1306.97 *5*	24.6 *7*			
	2000.01 *8*	23.0 *10*			
	2694.56 *6*	52.5 *11*			
3319.88	1314.6‡				
	1851.04 *3*	61.7 *18*			
	2702.24 *7*	38.3 *18*			
3325.99	734.91 *5*	100			
3329.25	1913.67 *4*	100			
3332.05	1326.83 *3*	65 *5*			
	1916.72 *12*	35 *5*			
3332.47	2714.91 *5*	100			
3336.04	2718.48 *6*	100			
3341.87	2724.31 *4*	100	M1+E2	+7.4 *+17−16*	
3353.37	2735.81 *5*	100			
3363.60	2745.86 *7*	63.2 *18*	M1+E2	−0.49 *+15−17*	
	3363.67 *6*	36.8 *18*	E2		
3364.01	909.48 *6*	100			
3369.64	1900.77 *7*	21.2 *11*			
	2752.08 *3*	78.8 *11*			
3375.47	2758.02 *14*	48.8 *14*			
	3375.40 *6*	51.2 *14*			
3378.50	1909.63 *3*	74.7 *16*			
	2761.18 *14*	25.3 *16*			
3383.64	1227.70 *13*	23.0 *22*			
	2766.05 *4*	77.0 *22*			
3392.78	3392.72 *12*	100			
3393.39	2775.83 *4*	100			
3393.64	977.59 *5*	100			
3400.35	2087.94 *8*	100			
3402.93	2785.37 *5*	100	M1+E2	−1.8 *+3−4*	δ: Also: −0.34 *+10−13* (2001Ga44).
3422.57	1953.71 *16*	73.7 *18*			
	2805.0‡	26.3 *18*			
3425.61	2113.19 *5*	100			
3426.32	2808.76 *14*	100			
3428.77	2811.2‡	87.6 *14*	M1+E2		
	3428.71 *14*	12.4 *14*	E2		
3429.7	2014.1‡ *3*	100			
3433.81	2018.23 *6*	100			
3452.00	945.26 *5*	100	E1		
3452.90	2037.4 *3*	37 *5*			
	2835.33 *8*	63 *5*			
3453.9	1985.0‡ *3*	100			
3455.42	2837.85 *6*	100			
3471.40	1389.7‡ *3*	100			Eγ: 1398.7 in table 1 of 2001Ga44 is a misprint (as per e-mail reply Aug 14/01 from the lead author (P. Garrett)).
	2055.8‡ *3*	100			
3478.48	2166.06 *7*	73 *4*			
	2861.0‡	27 *4*			
3487.56	2869.99 *6*	100	E2		
3489.88	1368.12 *7*	19.8 *19*			
	2074.36 *4*	51.4 *20*			
	2872.4‡	28.7 *5*			
3500.42	2882.85 *4*	100			
3511.7	1138.4 *3*	100			
3512.80	2895.23 *7*	100	M1+E2	−0.18 *6*	
3522.52	2904.95 *4*	100			
3530.90	1525.69 *4*	100			
3531.34	2218.9‡				
	2913.77 *8*	100	M1+E2	−0.18 *+10−9*	
3540.29	2922.72 *4*	100			

Continued on next page (footnotes at end of table)

^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[@]	δ[@]	Comments
3556.84	3556.78 *12*	100			
3557.34	2939.77 *3*	100			
3568.05	2099.17 *7*	37.3 *17*	M1+E2	+0.01 *+28−22*	δ: Also: +2.3 *+29−9* (2001Ga44).
	2950.52 *12*	34.9 *16*	M1+E2	+1.6 *+12−8*	δ: Also: +0.15 *+40−20* (2001Ga44).
	3568.00 *8*	27.8 *19*	E2		
3574.49	2262.06 *10*	36.5 *23*			
	2956.96 *18*	63.5 *23*			
3577.2	2264.8 *3*	100			
3579.36	2267.21 *8*	28.7 *19*			
	2961.69 *5*	71.3 *19*			
3594.59	2977.24 *14*	30 *3*			
	3594.49 *6*	70 *3*			
3598.82	2981.25 *8*	100	M1+E2	−0.16 *+8−10*	δ: Also: −2.8 *+6−11* (2001Ga44).
3608.87	2991.30 *5*	100			
3613.27	2143.97 *19*	49 *3*	E2		
	2995.85 *11*	51 *3*	M1+E2	+2.0 *+21−15*	
3618.50	1613.8[‡] *3*				
	2202.7[‡] *3*				
	3000.83 *18*	100			
3622.19	3004.62 *11*	100			
3627.7	2212.1 *3*	100			
3646.45	3028.88 *4*	100			
3652.17	3034.60 *6*	84 *3*			
	3652.07 *23*	16 *3*			
3665.79	3048.22 *4*	100			
3676.74	2208.09 *11*	57.3 *24*			
	3059.00 *10*	42.7 *24*			
3682.83	3682.76 *12*	100			
3687.93	3687.86 *9*	100			
3690.69	3073.12 *13*	100			
3697.75	1692.8[‡] *3*				
	3080.13 *12*	100			
3703.81	3703.74 *9*	100			
3707.40	3089.83 *9*	100			
3720.7	2305.1 *3*	100			
3722.70	3105.13 *24*	100			
3731.96	3114.39 *10*	100			
3739.56	3121.99 *8*	100	M1+E2	−0.32 *+14−20*	
3743.79	3126.22 *5*	100	M1+E2	−12 *+4−20*	
3746.9	2331.3 *3*	100			
3754.17	2338.58 *5*	100			
3755.46	3755.39 *13*	100			
3763.95	3146.38 *4*	100			
3770.47	3152.90 *8*	100			
3783.206	3165.631 *10*	100	M1+E2	−2.7 *+10−14*	δ: Also: −0.23 *+14−20* (2001Ga44).
3787.3	3787.2 *3*	100	E2		
3801.3	2385.7 *3*	100			
3804.88	3187.30 *14*	100			
3810.04	3809.97 *7*	100			
3810.89	3193.31 *10*	100			
3832.67	3215.09 *11*	100			
3844.26	3226.68 *10*	100			
3846.48	3846.41 *10*	100			
3854.4	3854.3 *3*	100	E2		
3864.6	2449.0	100			
3869.00	3868.93 *10*	100			
3878.63	3261.05 *13*	100			
3929.22	3311.64 *21*	100			
3932.19	3314.61 *12*	100			
3933.07	3933.00 *13*	100			
3939.28	3321.70 *14*	100			
3952.27	3334.69 *6*	100			
3963.8	3963.7 *4*	100			

Continued on next page (footnotes at end of table)

^{112}Cd(n,n'γ) 2001Ga44,2007Ga22 (continued)

γ(^{112}Cd) (continued)

E(level)	Eγ†	Iγ†
3969.30	3351.72 *20*	100
4033.89	3416.31 *20*	100

† From 2001Ga44. ΔEγ represent only the statistical uncertainty.
‡ From level–energy differences in 2001Ga44.
§ Weak γ ray.
\# From 2009Gr10.
@ From γ(θ) in 2001Ga44 and the observed multiple γ–ray branches.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{112}Cd(p,p') 1992Pi08,1990Pi14

1990Pi14,1990Pi08: Facility: KVI cyclotron; Beam: E(p)=34.9 MeV; Target: 1 mg/cm^2 enriched to 98% in ^{112}Cd; Detectors: KVI QMG/2 magnetic spectrograph, multiwhire drift chamber, scintillator counter. FWHM=15 MeV; Measured: dσ/dΩ, coupled–channel calculations; Deduced: ^{112}Cd levels, Jπ, β(λ); Spectroscopic data, presented in 1992Pi08 and 1990Pi14 is a combination from (p,p) and (d,d) data sets.
Also, from the same collaboration: 1989De40, 1988Pi04, 1985De57, 1984Pi01.
Others: 1965Co04, 1967Ko07, 1968Ma34, 1968St18, 1969Lu02, 1976De28.

^{112}Cd Levels

BEλ and β_λ were deduced from comparison of DWBA calculations with dσ/dΩ.

E(level)†	Jπ‡	L§	Comments
0.0	0+		
617 *2*	2+	2	β_2=0.173 *11* (1968Ma34). Other: β_2=0.20 *1* (1968St18).
1224 *2*	0+	0	
1312 *2*	2+	2	
1416 *2*	4+	4	B(E4)↑: 0.09 *1* W.u. (1992Pi08).
1436? *10*			
1469 *2*	2+	2	
1871 *2*	0+		
2005 *1*	3−	3	B(E3)↑=0.0207 (1985De57). β_3=0.164 *11* (1968Ma34); 0.15 *2* (1968St18); 0.049 *5* (1985De57); 0.147 (1984Pi01).
2081 *2*	4+	4	B(E4)↑: 8.2 *10* W.u. (1992Pi08).
2121 *2*	2+	2	
2156 *2*	2+	2	
2231 *2*	2+	2	
2299 *2*	0+	0	
2373 *2*	5−	5	β_5=0.048 or 0.044 if two–step contributions through 2+ and 3− states are included (1984Pi01).
2416 *2*	3−	3	B(E3)↑=0.0019 (1985De57). β_3=0.0148 *17* (1985De57); 0.035 or 0.038 if two–step contributions through 2+ and 3− states are included (1984Pi01).
2454 *2*	4+	4	B(E4)↑: 8.4 *8* W.u. (1992Pi08).
2492 *2*	4+	4	B(E4)↑: 8.2 *9* W.u. (1992Pi08).
2506 *5*	(1−)	(1)	
2569 *5*	6+	6	
2584?	1−	1	level reported only in 1984Pi01.
2590 *5*	4−		
2632 *5*	5−	5	
2644? *5*	3−	3	level reported only in 1985De57. B(E3)↑=0.000172 (1985De57). β_3=0.0045 *11* (1985De57).
2657 *3*	1−	1	E(level): 2647 in 1990Pi14.
2667 *5*	2−		
2711 *5*	4+	4	B(E4)↑: 3.6 *4* W.u. (1992Pi08).
2724 *5*	2+	2	
2765 *5*	2+	2	
2791 *5*	5−	5	

Continued on next page (footnotes at end of table)

^{112}Cd(p,p') 1992Pi08,1990Pi14 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	L§	Comments
2815 *5*	4+	4	B(E4)↑: 2.6 *3* W.u. (1992Pi08).
2836 *5*	4+	4	B(E4)↑: 1.8 *4* W.u. (1992Pi08).
2866 *2*	3−	3	E(level): 2863 keV in 1990Pi14. B(E3)↑=0.00123 (1985De57). β_3=0.0122 *11* (1985De57).
2895 *5*	4+	4	B(E4)↑: 4.7 *5* W.u. (1992Pi08).
2928 *5*	5−	5	E(level): 2923 in 1990Pi14.
2942 *5*	2+	2	
2962? *4*	3−	3	level reported only in 1985De57. B(E3)↑=0.00022 (1985De57). β_3=0.0051 *13* (1985De57).
2969 *5*	2+	2	
3046 *5*	1−	1	
3072 *5*	4+	4	E(level): probably identical with the 3069 level in 1967Ko07. B(E4)↑: 4.6 *8* W.u. (1992Pi08).
3102 *5*	4+	4	B(E4)↑: 0.68 *13* W.u. (1992Pi08).
3131 *5*	3−	3	E(level): 3130 in 1990Pi14.
3176 *5*	2+	2	
3185? *5*	3−		Level reported only in 1989De40.
3204 *5*	4+	4	B(E4)↑: 1.27 *24* W.u. (1992Pi08).
3244 *5*	(6+)	(6)	
3265 *5*	4+	4	B(E4)↑: 2.5 *5* W.u. (1992Pi08).
3290? *5*	(4+)		level reported only in 1989De40.
3292 *5*	(6+)	(6)	
3325? *5*	4+		reported only in 1989De40.
3326? *2*	3−	3	level reported only in 1985De57. B(E3)↑=0.00045 (1985De57). β_3=0.0073 *20* (1985De57).
3327 *5*	(5−)	(5)	
3344? *1*	3−	3	B(E3)↑=0.00044 (1985De57). β_3=0.0072 *15* (1985De57).
3359 *5*	2+	2	
3417 *5*	4+	4	B(E4)↑: 3.1 *4* W.u. (1992Pi08).
3452 *5*	6+	6	
3487 *5*	(6+)	(6)	
3489? *5*	4+		level reported only in 1989De40.
3534 *5*	4+	4	B(E4)↑: 0.00 *1* W.u. (1992Pi08).
3557 *5*	3−	3	
3586 *5*	3−	3	E(level): 3583 in 1990Pi14.
3614 *5*	3−	3	
3664 *5*	3−	3	E(level): 3663 in 1990Pi14.
3691 *5*	4+	4	B(E4)↑: 2.2 *4* W.u. (1992Pi08).
3748 *5*	4+	4	B(E4)↑: 1.0 *3* W.u. (1992Pi08).
3764 *5*	4+	4	B(E4)↑: 0.68 *16* W.u. (1992Pi08).
3800 *5*	4+	4	B(E4)↑: 1.3 *3* W.u. (1992Pi08).
3815 *5*	3−	3	
3835 *5*	4+	4	B(E4)↑: 1.0 *3* W.u. (1992Pi08).
3863 *5*	4+	4	B(E4)↑: 1.37 *23* W.u. (1992Pi08).
3892 *5*	(3−)		E(level): 3889 in 1989De40. Jπ: reported only in 1989De40.
3945 *5*	4+	4	B(E4)↑: 0.43 *14* W.u. (1992Pi08).
4010 *5*	3−	3	
4034 *5*	3−	3	
4060 *5*	4+	4	B(E4)↑: 0.84 *16* W.u. (1992Pi08).
4090 *5*	3−	3	
4118 *5*	4+	4	B(E4)↑: 0.01 *3* W.u. (1992Pi08).
4172 *5*	3−	3	
4221 *5*	7−	7	
4248 *5*	3−	3	
4279 *5*	3−	3	
4320 *5*	4+	4	B(E4)↑: 0.71 *22* W.u. (1992Pi08).
4338 *5*	7−	7	
4364 *5*	4+	4	B(E4)↑: 0.62 *17* W.u. (1992Pi08).

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^{112}Cd(p,p') 1992Pi08,1990Pi14 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	L§	Comments
4385 5	3–	3	
4419 5	(4+)	(4)	B(E4)↑: 0.83 17 W.u. (1992Pi08).
4468 5	3–		
4499 5	3–		
4546 5	(2–)		

† From 1992Pi08.
‡ From 1992Pi08, based on the deduced L values.
§ From 1992Pi08, based on comparison of DWBA calculations with dσ/dΩ.

^{112}Cd(p,p'γ) 1992Ku01

1992Ku01: Beam: E(p)=7–9 MeV; Target: 1–2 mg/cm^2 enriched to 96% in ^{112}Cd; Detectors: one 19% Ge, four Si(Li), magnetic lens; Measured: p–γ coinc., Iγ, Eγ; Deduced: ^{112}Cd level scheme, Jπ, γ-ray Mult.; Also, from the same collaboration: 1990KuZD, 1990KuZY, 1990KuZZ.

^{112}Cd Levels

E(level)†	Jπ‡
0.0	0+
617.42 19	2+
1224.0 3	0+
1312.39 20	2+
1415.37 25	4+
1433.3 3	0+
1468.71 20	2+
1870.48 23	4+
1870.71 25	0+
2005.1 3	3–
2064.3 3	3+
2081.51 24	4+

† From a least-squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Cd)

Eγ†	E(level)	Iγ†
121.0 3	1433.3	2.5 4
211.0 3	2081.51	
244.8 3	1468.71	<0.4
401.9 3	1870.48	
402.0 3	1870.71	<0.2
455.1 3	1870.48	
558.0 3	1870.48	
	1870.71	<0.3
606.7 3	1224.0	12 2
612.8 3	2081.51	
617.4 3	617.42	1000
649.0 3	2064.3	
666.0 3	2081.51	<0.7
692.7 3	2005.1	11 2
694.8 3	1312.39	24 4
751.8 3	2064.3	1.6 2
769.3 3	2081.51	
797.9 3	1415.37	17 3
815.8 3	1433.3	4.1 6
851.2 3	1468.71	8.0 12
1253.0 3	1870.48	
1253.6 3	1870.71	4.9 7
1312.3 3	1312.39	7.8 12
1387.7 3	2005.1	18 3
1446.8 3	2064.3	1.3 2
1468.8 3	1468.71	3.8 6

† From 1992Ku01.

^{112}Cd(pol p,p') 1994Pe23

1994Pe23: Facility: Eindhoven University of Technology cyclotron; Beam: E(pol p)=22.3 MeV; Target: 600–1000 μg/cm^2 enriched to ^{112}Cd to 96–98%; Detectors: Si(Li); Measured: σ(θ), dσ/dΩ(E, θ), FWHM=38–47 keV; Deduced: levels, optical model parameters, deformation strength, coupled channel calculations in vibrational model.
Others: 1994He22, 1989Wa05.

^{112}Cd Levels

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^{112}Cd(pol p,p') 1994Pe23 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡
0.0	0+
617	2+
1224	0+
1312	2+
1415	4+
2005	3−
2373	5−
2507	1−

† From 1994Pe23.
‡ From the adopted levels.

^{112}Cd(d,d') 1990Pi14,1990Pi08

1990Pi14,1990Pi08: Facility: KVI cyclotron; Beam: E(d)=50.4 MeV; Target: 1 mg/cm^2 enriched to 98% in ^{112}Cd; Detectors: KVI QMG/2 magnetic spectrograph, multiwhire drift chamber, scintillator counter. FWHM=15 MeV; Measured: dσ/dΩ, coupled−channel calculations; Deduced: ^{112}Cd levels, Jπ, β(λ).
Others: 1966Ki04: Beam: E(d)=15 MeV; Measured: σ(E,θ); FWHM≈40–50 keV; Deduced: ^{112}Cd levels.

^{112}Cd Levels

E(level)†	Jπ‡	Comments
0.0	0+	
617 *2*	2+	
1224 *2*	0+	
1312 *2*	2+	
1416 *2*	4+	
1469 *2*	2+	
1871 *2*	0+	
2005 *2*	3−	
2121 *2*	2+	
2156 *2*	2+	
2231 *2*	2+	
2299 *2*	0+	
2373 *2*	5−	
2416 *2*	3−	
2454 *2*	4+	
2492 *2*	4+	
2506 *5*	(1−)	
2569 *5*	6+	
2590 *5*	4−	
2632 *5*	5−	
2657 *5*	1−	E(level): 2647 in 1990Pi14.
2667 *5*	2−	
2711 *5*	4+	
2724 *5*	2+	
2765 *5*	2+	
2791 *5*	5−	
2815 *5*	4+	
2836 *5*	4+	
2866 *5*	3−	
2895 *5*	4+	
2928 *5*	5−	E(level): 2923 keV in 1990Pi14.
2942 *5*	2+	
2969 *5*	2+	
3046 *5*	1−	
3072 *5*	4+	
3102 *5*	4+	
3131 *5*	3−	E(level): 3130 keV in 1990Pi14.

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^{112}Cd(d,d') 1990Pi14,1990Pi08 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	Comments
3176 *5*	2+	
3204 *5*	4+	
3244 *5*	(6+)	
3265 *5*	4+	
3292 *5*	(6+)	
3327 *5*	(5−)	
3359 *5*	2+	
3417 *5*	4+	
3452 *5*	6+	
3534 *5*	4+	
3557 *5*	3−	
3586 *5*	3−	E(level): 3583 keV in 1990Pi14.
3614 *5*	3−	
3664 *5*	3−	E(level): 3663 keV in 1990Pi14.
3691 *5*	4+	
3748 *5*	4+	
3764 *5*	4+	
3800 *5*	4+	
3815 *5*	3−	
3835 *5*	4+	
3863 *5*	4+	
3892 *5*		
3945 *5*	4+	
4010 *5*	3−	
4034 *5*	3−	
4060 *5*	4+	
4090 *5*	3−	
4118 *5*	4+	
4172 *5*	3−	
4221 *5*	7−	
4248 *5*	3−	
4279 *5*	3−	
4320 *5*	4+	
4338 *5*	7−	
4364 *5*	4+	
4385 *5*	3−	
4419 *5*	(4+)	
4468 *5*	3−	
4499 *5*	3−	

† From 1990Pi08. Note, that one 2− and two 4− levels were reported in 1990Pi14, but there is no information on their energies.
‡ From 1990Pi08, based on dσ/dΩ and coupled−channel analysis.

^{112}Cd(pol d,d') 1994He22

Facility: Garching Tandem; Beam: E(pol d)=20 MeV; Targets: 107 μg/cm^2 to 2.4mg/cm^2 enriched to 98% in ^{112}Cd; Detectors: Q3D magnetic spectrograph, focal plane particle detector, surface barrier detectors; Measured: dσ/dΩ. Coupled channel analysis; Deduced: ^{112}Cd levels, Jπ.

^{112}Cd Levels

E(level)†	Jπ‡	Comments
0.0	0+	
617.5 *10*	2+	
1224.2 *10*	0+	
1312.3 *10*	2+	
1415.3 *10*	4+	
1433.2 *10*	0+	
1468.8 *10*	2+	

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^{112}Cd(pol d,d') 1994He22 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	Comments
1870.9 *10*	4+,0+	
1954.8? *10*	2,3	ambiguous level which is not observed in any other data set.
2005.1 *10*	3−	
2064 *1*		
2082 *1*	4+	
2122 *1*	2+,1−	
2156 *1*	2+	
2167 *1*	6+	Jπ: from the adopted levels; 2+,3− in 1994He22.
2231 *1*	2+	
2300 *1*	(0+)	
2373 *1*	5−	
2416 *1*	3−	
2454 *1*	4+	
2493 *1*	4+	
2507 *1*	(2+)	
2533 *1*		
2570 *1*	(6+)	
2589 *1*	(6+)	
2635 *1*	2+,1−	
2649 *1*	2+,3−	
2653 *1*	(1−)	
2667 *1*	5+	Jπ: from the adopted levels; 5− in 1994He22.
2673 *1*	2+	Jπ: from the adopted levels; 4+ in 1994He22.
2711 *1*	4+	
2722 *1*	2+	
2763 *1*	2+	
2775 *1*	0+,4+	Jπ: from the adopted levels; (6+) in 1994He22.
2793 *1*	(5−)	
2816 *1*	4+	
2819 *1*		
2830 *1*	4+	
2832 *1*		
2835 *1*	4+	
2840 *1*	2+,4+	
2844 *1*		
2850 *1*	2+	
2867 *1*	3−	
2877 *1*	(2+)	
2882 *1*		
2892 *1*	(4+)	
2897 *1*	(4+)	
2916 *1*		
2922 *1*	(5−)	
2926 *1*	4−	Jπ: from the adopted levels; 2+ in 1994He22.
2932 *1*	6−	Jπ: from the adopted levels; (6+) in 1994He22.
2942 *1*	(2+)	
2946 *1*	(2+)	
2949 *1*	2+	
2967 *1*	(2+)	
2976 *1*	2+,4+	
2980 *1*	2+	
3022 *1*	(3−)	
3046 *1*	(4+)	
3050 *1*	4+,1−	
3058 *1*	2+,3−	
3065 *1*	3−	
3074 *1*	5−	
3080 *1*		
3091 *1*	2+	Jπ: from the adopted levels; (6+) in 1994He22.
3100 *1*	4+	Jπ: from the adopted levels; 4+,2+ in 1994He22.
3104 *2*	(4+)	
3124 *2*	2+,3−	
3131 *2*	3−	

Continued on next page (footnotes at end of table)

^{112}Cd(pol d,d') 1994He22 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	Comments
3168 *2*	(4+)	
3177 *2*	2+	
3188§ *2*	2+	
3205 *2*	4+	
3246 *2*	2+,4+,5−	
3265 *2*	4+	
3293§ *2*	(6+)	
3309 *2*	(5−)	
3329 *2*	5−	
3350 *2*	0+	Jπ: from the adopted; 2+ in 1994He22.
3366 *2*	2+	
3372§ *2*		
3380 *2*	2+	
3417§ *2*	4+	
3422 *2*	(4+)	
3457 *2*	(2+)	
3492 *2*		
3543 *2*	4+	
3560 *2*	(3−)	
3590 *2*	(2+)	
3616 *2*	(3−)	
3625 *2*	(6+)	
3667 *2*	3−	
3691 *2*	4+	
3700 *2*	(5−)	
3717 *2*	2+	
3740 *2*	(2+)	
3754 *2*	(2+)	
3761 *2*	(2+)	

† From 1994He22.
‡ Based on dσ/dΩ analysis in 1994He22, unless otherwise noted.
§ Unresolved multiplet.

^{112}Cd(α,α') 1977Sp05

1977Sp05: Eα=17.5 MeV. Measured: σ(E,θ). FWHM≈30 keV. Deduced: ^{112}Cd levels.
Others: 1967BaZV, 1981Mi08.

^{112}Cd Levels

E(level)†	Jπ‡	Comments
0.0	0+	
616 *3*	2+	β_2: 0.19 (1967BaZV).
1310 *3*	2+	
1414 *4*	4+	
1470 *5*	2+	
2003 *3*	3−	β_3: 0.15 (1967BaZV).
2420 *30*		E(level): from 1967BaZV; unresolved multiplet.
2820 *30*		E(level): from 1967BaZV; unresolved multiplet.

† from 1977Sp05.
‡ From the adopted levels.

Coulomb Excitation 2011Ch23,1985Fe05,1969Mi07

2011Ch23: Facility: ANU 14UD Pelletron; Beams: E(^{32}S)=92 MeV, E(^{112}Cd)=240 MeV; Targets: stack of 0.05 mg/cm^2 ^{nat}Ag, 0.98 mg/cm^2 ^{nat}Cd, 2.64 mg/cm^2 Fe, 5.47 mg/cm^2 Cu. The multilayer target was pressed on 12 µm Cu; Detectors: ANU Hyperfine spectrometer, 4 HPGe, two NaI, three silicon photodiodes; Measured: γ, charged particles (cp), γ–cp, Eγ, W(θ); Deduced: γ, $T_{1/2}$.

1985Fe05, 1976Es01, 1976Es02: Facility: ANU 14UD Pelletron accelerator; Beam: E(^{16}O)=40–44 MeV FWHM 105 keV, E(α)=8–17 MeV FWHM=24 keV; Targets: 3–8 µg/cm^2 evaporated on 10–15 µg/cm^2 thick carbon foils; Detectors: annular Si surface barrier detectors; Measured: B(E2), B(E3); Deduced: Q.

1969Mi07: Facility: ORNL Van de Graaff; Beams: E(p)=2.7–3 MeV, E(α)=10–11 MeV; Targets: enriched to 98.9% in ^{112}Cd and natural Cd; Detectors: Ge(Li); Measured: γ, γ–γ coinc., γ(θ), Iγ, Eγ.

Others: 1985Si01, 1980Br01, 1980Ju05, 1978Jo07, 1977Ma41, 1973Gr16, 1970St17, 1965Mc05, 1963Ha20, 1962Ec03.

^{112}Cd Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	0+		
617.54 *5*	2+	6.46 ps *4*	B(E2)↑(617.52γ)=0.486 *5* (1985Si01), 0.524 *50* (1977Gi13), 0.484 *4* (1976Es02), 0.478 *33* (1970St17), 0.524 *21* (1969Mi07), 0.514 *60* (1965Mc05) and 0.546 *39* (1962Ec03). Q: −0.38 *3*, weighted average of −0.37 *4* (1977Gi13), −0.39 *8* (1976Es02), −0.42 *8* (1976Es01), −0.38 *11* (1977Ma41). Others: −0.40 *+13−20* (1971Ha47), −0.15 *7* (1970St17). µ: +0.71 *3*, weighted average of +0.71 *5* (conventional kinematics in 2011Ch23), +0.73 *4* (inverse kinematics in 2011Ch23), 0.60 *12* (1970St17), 0.72 *22* via IMPAC (1974Hu01), 0.74 *22* (1978BrZX) and 0.64 *16* (1980Br01) from γ–γ(θ,H,t) coinc.
1224.35 *11*	0+	4.2 ps *11*	B(E2)(W.u.)=51 *13* and Ice(K)(1223.9)/Ice(K)(606.84)=0.33 *5* in 1980Ju05.
1312.41 *4*	2+	1.9 ps *3*	B(E2)(↓)=0.0021 *3* (1969Mi07).
1415.58 *11*	4+	0.87 ps *10*	B(E2)↑=0.34 *5* (1978Jo07), 0.356 *42* (1965Mc05), and 0.41 *8* (1962Ec03).
1468.85 *7*	2+	2.7 ps *5*	B(E2)↑(1468.84γ)=0.0055 *10* (1969Mi07).
2005.20 *7*	3−	0.26 ps *5*	B(E3)↑=0.114 *9* (1985Fe05), 0.158 *27* (1978Jo07), 0.106 *22* (1965Mc05), 0.37 *18* (1963Ha20). β_3: 0.146 (1965Mc05).

† From a least-squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Cd)

Eγ†	E(level)	Iγ†	Mult.†	δ†	α	I(γ+ce)†	Comments
244.86 *23*	1468.85	1.0 *3*	(E2)		0.0642 *10*		
536.31 *10*	2005.20	1.11 *12*	E1				
606.84 *10*	1224.35	100	E2				
617.52 *10*	617.54	100	E2				
692.79 *10*	2005.20	22.2 *6*	E1				
694.87 *4*	1312.41	100 *3*	M1+E2	−4.0 *7*			δ: Others: −0.77 *6* (1973Gr16); δ=−0.87 *10* or −3.5 *9* (1969Mi07).
798.04 *10*	1415.58	100	E2				
851.27 *10*	1468.85	100.0 *10*	M1+E2+E0	+0.14 *5*	0.00267 *13*		α: 0.00267 *13*, using weighted average of α(K)exp=0.00235 *18* (1997Dr03) and 0.00234 *12* (1991Gi05), and α/εK=1.143 *24* (2008Ki07). δ: Others: +0.10 *7* (1973Gr16); 0.05 or +2.0 *+7−5* (1969Mi07).
1224.33 *6*	1224.35		E0			0.124 *19*	
1312.41 *4*	1312.41	37.7 *4*	E2				
1387.68 *10*	2005.20	100 *6*	E1				
1468.84 *10*	1468.85	58.3 *8*	E2				

† From the adopted gammas.

^{113}Cd(pol d,t) 1990Bl10

1990Bl10: Facility: Garching–Munich Tandem; Beam: (pol d)=20 MeV; Targets: one 205 μg/cm^2 thick enriched to 96.3% in ^{113}Cd with a 10 μg/cm^2 carbon backing and one 20 μg/cm^2 thick ^{113}Cd target; Detectors: Q3D magnetic spectrograph, two single–wire proportional counters, one plastic scintillator; Measured: E(θ), dσ/dΩ; Deduced: ^{112}Cd levels, Jπ, C^{2}S; FWHM=5–9 keV depending on target thickness.

^{112}Cd Levels

Jπ(^{113}Cd)=1/2+. ^{113}Cd(g.s.) configuration=$\nu s_{1/2}$.

E(level)†	Jπ‡	L§	C^{2}S#	Comments
0.0	0+	0	1.140	C^{2}S: for $\nu s_{1/2}$ transfer.
618 *6*	2+	2	0.374	C^{2}S: for $\nu d_{5/2}$ transfer.
1314 *13*	2+	2	0.134	C^{2}S: for $\nu d_{5/2}$ transfer.
1417 *14*	4+	4	0.169	C^{2}S: for $\nu g_{7/2}$ transfer.
1470 *15*	2+	2	0.013	C^{2}S: for $\nu d_{3/2}$ transfer; Otherwise, 0.02 for $\nu d_{5/2}$ transfer.
1872 *19*	0+	0	0.025	C^{2}S: for $\nu s_{1/2}$ transfer.
2005 *20*	3−	3	0.014	C^{2}S: for $\nu f_{7/2}$ transfer.
2065 *21*	3+		0.009	C^{2}S: for $\nu d_{5/2}$ transfer.
2082 *21*	4+	4	0.093	C^{2}S: for $\nu g_{7/2}$ transfer.
2121 *21*	2+	2	0.012	C^{2}S: for $\nu d_{3/2}$ transfer.
2155 *22*	2+	2	0.012	C^{2}S: for $\nu d_{3/2}$ transfer; Otherwise, 0.002 for $\nu d_{5/2}$ transfer.
2230 *22*	2+	2	0.006	C^{2}S: for $\nu d_{3/2}$ transfer.
2299 *23*	0+	0	0.133	C^{2}S: for $\nu s_{1/2}$ transfer.
2305 *23*				
2372 *24*	5−	5	0.232	C^{2}S: for $\nu h_{11/2}$ transfer.
2402 *24*	2,3+		0.003	C^{2}S: for $\nu d_{5/2}$ transfer.
2414 *24*	3,4−		0.006	C^{2}S: for $\nu f_{7/2}$ transfer.
2453 *25*	3,4+		0.110	C^{2}S: for $\nu g_{7/2}$ transfer.
2491 *25*	3,4+		0.054	C^{2}S: for $\nu g_{7/2}$ transfer.
2501? *25*	0+	0	0.010	C^{2}S: for $\nu s_{1/2}$ transfer. Not observed in any other data set; In particular, it was not observed in ^{112}Cd(n,n'γ) (2001Ga44) and hence suggested to be due to ^{114}Cd presence in the target composition.
2505 *25*	2+	2	0.034	C^{2}S: for $\nu d_{3/2}$ transfer; Otherwise, 0.011 for $\nu d_{5/2}$ transfer.
2517 *25*				Doublet consisting of Jπ=(1+,2+) and Jπ=5−,6− with C^{2}S=0.004 and 0.013 for $\nu h_{11/2}$ and $\nu d_{3/2}$ transfers, respectively.
2569 *26*	5,6−		0.098	C^{2}S: for $\nu h_{11/2}$ transfer.
2589 *26*	3,4−		0.005	C^{2}S: for $\nu f_{7/2}$ transfer.
2634 *26*	2,3+		0.440	C^{2}S: for $\nu d_{5/2}$ transfer.
2649 *26*	0+	0	0.023	C^{2}S: for $\nu s_{1/2}$ transfer.
2673 *27*	2+	2	0.097	C^{2}S: for $\nu d_{3/2}$ transfer; Otherwise, 0.067 for $\nu d_{5/2}$ transfer.
2710 *27*	3,4+		0.372	C^{2}S: for $\nu g_{7/2}$ transfer.
2724 *27*	2,3+		0.407	C^{2}S: for $\nu d_{5/2}$ transfer.
2765 *28*	2+	2	0.057	C^{2}S: for $\nu d_{3/2}$ transfer; Otherwise, 0.005 for $\nu d_{5/2}$ transfer.
2799 *28*	1,2+		0.012	C^{2}S: for $\nu d_{3/2}$ transfer.
2818 *28*				Doublet consisting of Jπ=1+,2+ and Jπ=5−,6− with C^{2}S=0.038 and 0.562 for $\nu d_{3/2}$ and $\nu h_{11/2}$ transfers, respectively.
2834 *28*	0+	0	0.032	C^{2}S: for $\nu s_{1/2}$ transfer.
2853 *29*	0+	0	0.004	C^{2}S: for $\nu s_{1/2}$ transfer.
2868 *29*	3+		0.648	C^{2}S: for $\nu g_{7/2}$ transfer; Otherwise, 0.013 for $\nu d_{5/2}$ transfer.
2882 *29*	0+	0	0.015	C^{2}S: for $\nu s_{1/2}$ transfer.
2894 *29*	3,4+		0.446	C^{2}S: for $\nu g_{7/2}$ transfer.
2924 *29*	0+	0	0.003	C^{2}S: for $\nu s_{1/2}$ transfer.
2931 *29*	1,2+		0.014	C^{2}S: for $\nu d_{3/2}$ transfer.
2946 *30*				Doublet consisting of Jπ=2+,3+ and Jπ=3+,4+ with C^{2}S=0.019 and 0.060 for $\nu d_{5/2}$ and $\nu g_{7/2}$ transfers, respectively.
2960 *30*	4−			C^{2}S: (f7/2+f5/2)=0.012+0.018.
2980 *30*	2+	2	0.013	C^{2}S: for $\nu d_{3/2}$ transfer; Otherwise, 0.006 for $\nu d_{5/2}$ transfer.
3001 *30*	(3+)		0.062	C^{2}S: for $\nu g_{7/2}$ transfer; Otherwise, 0.003 for $\nu d_{5/2}$ transfer.
3026 *30*				
3069 *31*				Doublet consisting of Jπ=1+,2+ and Jπ=3+,4+ with C^{2}S=0.016 and 0.043 for $\nu d_{3/2}$ and $\nu g_{7/2}$ transfers, respectively.
3085 *31*				Doublet consisting of Jπ=2+,3+ and Jπ=5−,6− with C^{2}S=0.004 and 0.015 for $\nu d_{5/2}$ and $\nu h_{11/2}$transfers, respectively.
3101 *31*	2+	2	0.016	C^{2}S: for $\nu d_{5/2}$ transfer; Otherwise, 0.014 for $\nu d_{3/2}$ transfer.
3109 *31*	2+	2	0.099	C^{2}S: for $\nu d_{3/2}$ transfer; Otherwise, 0.018 for $\nu d_{5/2}$ transfer.
3128 *31*				Doublet consisting of Jπ=1+,2+ and Jπ=5−,6− with C^{2}S=0.004 and 0.048 for $\nu d_{3/2}$ and $\nu h_{11/2}$ transfers, respectively.

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^{113}Cd(pol d,t) 1990Bl10 (continued)

^{112}Cd Levels (continued)

E(level)†	Jπ‡	L§	C²S#	Comments
3146 *31*	3,4+		0.156	C^2S: for $vg_{7/2}$ transfer.
3177 *32*				Doublet consisting of Jπ=1+,2+ and Jπ=3+,4+ with C^2S=0.032 and 0.079 for $vd_{3/2}$ and $vg_{7/2}$ transfers, respectively.
3194 *32*	2+	2	0.073	C^2S: for $vd_{3/2}$ transfer; Otherwise, 0.023 for $vd_{5/2}$ transfer.
3204 *32*	(3+)		0.176	C^2S: for $vg_{7/2}$ transfer; Otherwise, 0.014 for $vd_{5/2}$ transfer.
3230 *32*	1,2+		0.026	C^2S: for $vd_{3/2}$ transfer.
3242 *32*	2+	2	0.013	C^2S: for $vd_{5/2}$ transfer; Otherwise, 0.011 for $vd_{3/2}$ transfer.
3252 *32*	(0+,3+)		0.033	C^2S: for $vg_{7/2}$ transfer; Otherwise, 0.002 for $vs_{1/2}$ and 0.009 for $vd_{5/2}$ transfers, respectively.
3259 *33*	3,4+		0.068	C^2S: for $vg_{7/2}$ transfer.
3296 *33*	2+	2	0.114	C^2S: for $vd_{5/2}$ transfer; Otherwise, 0.038 for $vd_{3/2}$ transfer.
3312 *33*				Doublet consisting of Jπ=1+,2+ and Jπ=5−,6− with C^2S=0.014 and 0.090 for $vd_{3/2}$ and $vh_{11/2}$ transfers, respectively.
3330 *33*	2,3+		0.051	C^2S: for $vd_{5/2}$ transfer.
3340 *33*	2+	2	0.035	C^2S: for $vd_{3/2}$ transfer; Otherwise, 0.006 for $vd_{5/2}$ transfer.
3352 *33*	0+	0	0.015	C^2S: for $vs_{1/2}$ transfer.
3361 *34*	2+	2	0.023	C^2S: for $vd_{3/2}$ transfer; Otherwise, 0.004 for $vd_{5/2}$ transfer.
3381 *34*	2+	2	0.009	C^2S: for $vd_{3/2}$ transfer; Otherwise, 0.004 for $vd_{5/2}$ transfer.
3402 *34*	2,3+		0.050	level could be unresolved doublet. C^2S: for $vd_{5/2}$ transfer.
3422 *34*				Doublet consisting of Jπ=0+ and Jπ=1+,2+ with C^2S=0.005 and 0.007 for $vs_{1/2}$ and $vd_{3/2}$ transfers, respectively.
3433 *34*				Doublet consisting of Jπ=0+ and Jπ=1+,2+ with C^2S=0.004 and 0.020 for $vs_{1/2}$ and $vd_{3/2}$ transfers, respectively.

† From 1990Bl10.
‡ From 1990Bl10, based on the deduced L values.
§ From 1990Bl10, based on DWBA analysis with the DWUCK program.
# From 1990Bl10, calculated from $C^2S=(1/(2J+1))(d\sigma/d\Omega)/(d\sigma/d\Omega)_{DWBA})/N$, where N=3.33.

^{114}Cd(p,t) 1972Co22

Facility: Princeton AVF cyclotron; Beam: E(p)=27.9 MeV; Target: 100μg/cm^2, carbon backing; Detectors: silicon surface–barrier telescope; Measured: σ(θ), FWHM≈30 keV; Deduced: σ(2')/σ(2) ratio.
Others: 1965Ba20, 1982NaZL, 1982Cr01, 1985BaZT, 1986Ba39, 1987Fo07, 1987Na20.

^{112}Cd Levels

E(level)†	Jπ†	Comments
0.0	0+	
617	2+	
1313	2+	σ/σ(619)=0.25 (1972Co22).
1468	2+	σ/σ(619)=0.10 (1972Co22).

† From the adopted levels.

Adopted Levels, Gammas

Q(β^-)=665 *4*; S(n)=–7671 *6*; S(p)=–6027 *4*; Q(α)=–2809 *5* 2012Wa38.

^{112}In Levels

Cross Reference (XREF) Flags

A ^{109}Ag(α,nγ)	E ^{110}Cd(α,d)	I ^{113}In(p,d)
B ^{112}In IT Decay (20.67 min)	F ^{111}Cd(^{3}He,d)	J ^{113}In(d,t)
C ^{110}Pd(^{7}Li,5nγ)	G ^{112}Cd(p,nγ)	K ^{113}In(γ,xn)
D ^{110}Cd(α,npγ)	H ^{112}Cd(d,2nγ)	L ^{100}Mo(^{16}O,p3nγ)

E(level)[†]	Jπ	XREF	$T_{1/2}$[b]	Comments
0.0[‡]	1+[‡]	ABCDEFGHIJK	14.88 min *15*	%β^-=42.6 *48*; %ε+%β^+=57.4 *48*. %ε+%β^+: from %β^+=24 *2* (1983Ry06) and Iε/Iβ^+=1.392 *18*. Jπ: L=4 in ^{113}In(p,d) (1978EmZT); Direct feeding of 0+ and 2+ states in ^{112}Cd following ^{112}In ε Decay. $T_{1/2}$: weighted average of 14.97 min *10* (1983Ry06), 14.5 min *1* (1953Bl44), 14.4 min *4* (1965Fu07), 15.2 min *1* (1980Ad04), 14.5 min *6* (1968Ro03); Other: 13.8 min (1974Ku10) and 14.4 min (1998Ko24). μ=+2.82 *3*; Q=+0.087 *5*. μ,Q: Using atomic beam magnetic resonance technique in 1968CaZX. configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(1g_{7/2})^{+1}$.
156.592[§] *25*	4+[§]	ABCDEFGHIJK	20.67 min *8*	XREF: J(147). %IT=100. μ=5.277 *4*; Q=+0.714 *10*. μ,Q: Using colinear fast–beam laser spectroscopy technique in 1987Eb02. Jπ: L=0 in ^{113}In(d,t) (1967Hj03); 156.56γ M3 to 1+. $T_{1/2}$: weighted average of 20.56 min *6* (1983Ry06), 20.7 min *3* (1953Bl44), 21.0 min *5* (1962Ru05), 20.9 min *2* (1968Ko25), 20.9 min *1* (1980Ad04); Others: 20.7 min (1974Ku10) and 20.4 min *4* (1968Ro03). configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(1s_{1/2})^{+1}$.
162.89[§] *4*	(5)+[§]	A CD GH L		Jπ: 187.93γ E2 from (7)+; multiplet member.
206.717[‡] *20*	(2)+[‡]	A D GHI		Jπ: 206.75γ M1 to 1+; multiplet member. configuration: $\pi(1g_{9/2}{}^{-1})\nu(1g_{7/2}{}^{+1})$.
350.80[#] *5*	(7)+[#]	A CDE GHIJ L	0.69 μs *5*	XREF: E(354)I(356)J(339). Jπ: L=2 in ^{113}In(p,d) (1978EmZT); multiplet member. $T_{1/2}$: from 263.01γ–187.93γ(t) in ^{109}Ag(α,nγ) (1976Io04); Other: 2.1 μs *2* from 188γ(t) in ^{112}Cd(d,2nγ) (1972BrYL) and 1.48 μs from 187γ(t) in ^{112}Cd(d,2nγ) (1973FrYM) differ significantly from adopted value. μ: +4.73 *4*, from g=+0.675 *6* in 1976Io04. Q: 1.03 *3* from TDPAD in ^{112}Cd(d,2nγ) (1993Io02); Also from the same group: 0.75 *15* from PAD in ^{109}Ag(α,nγ)(1981Io07). configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(2d_{5/2})^{+1}$.
456.426[‡] *24*	(3)+[‡]	A E GHIJ		XREF: E(420)J(447). Jπ: 249.68γ M1 to (2)+; L=2+4 in ^{113}In(d,t) (1967Hj03); multiplet member. configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(1g_{7/2})^{+1}$.
562.78[@] *4*	(5)+[@]	A E G IJ		XREF: E(560)J(525). Jπ: 399.87γ M1,E2 to (5)+; 406.20γ M1,E2 to 4+; L=2 in ^{113}In(p,d) (1978EmZT); Member of the $\pi g_{9/2}\otimes\nu d_{3/2}$ multiplet.
592.08[‡] *4*	(4)+[‡]	A GH J		XREF: J(591). Jπ: 135.64γ M1 to (3)+, 385.5γ to (2)+, 429.17γ to (5)+; L=(2+4) in ^{113}In(d,t) (1967Hj03); member of the $\pi g_{9/2}\otimes\nu g_{7/2}$ multiplet.
594.888[#] *22*	2+[#]	A G I		Jπ: 388.20γ M1 to (2)+, 594.85γ M1+E2 to 1+; L=2+4 in ^{113}In(p,d) (1978EmZT); multiplet member. configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(2d_{5/2})^{+1}$.

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Adopted Levels, Gammas (continued)

^{112}In Levels (continued)

E(level)[†]	Jπ	XREF	$T_{1/2}$[b]	Comments
613.82[a,c] *6*	(8)–[a]	A CDE GHI L	2.81 μs *3*	XREF: E(620)I(622). Jπ: 263.01γ E1+M2 to (7)+; member of the split $\pi g_{9/2} \otimes \nu h_{11/2}$ multiplet. $T_{1/2}$: from 187.93γ(t) in ^{109}Ag(α,nγ) (1976Io04); 2.81 μs *6* in ^{112}Cd(p,nγ) (1976Io05); Others: 1.6 μs *2* in ^{110}Cd(α,npγ) (1972BrYL). μ: +3.08 *3* (1976Io02). Q: 0.095 *3* from γ(t,θ) in (1993Io02). configuration: $\pi(1g_{9/2})^{-1} \otimes \nu(1h_{11/2})^{+1}$.
624.42 *5*	(7+)	A CD GH J		XREF: J(648). Jπ: 273.01γ to (7)+; L(p,d)=(2).
670.23[d] *5*	(8+)	A C E I L		XREF: E(680)I(672). Jπ: 319.41γ M1 to (7)+; band member.
676.29 *6*	(6+)	A C E GH		XREF: E(680). Jπ: L=4 in ^{113}In(p,d) (1978EmZT); 51.87γ M1+E2 to (7+).
728.978 *25*	(1,2)–	A E G J		XREF: J(742). Jπ: 728.98γ E1 to 1+; 522.29γ to (2)+.
729.87[@] *4*	(3)+[@]	A E G J		XREF: E(730)J(742). Jπ: 573.29γ M1+E2 to 4+, 523.13γ to (2)+; Member of the split $\pi g_{5/2} \otimes \nu s_{1/2}$ multiplet; However 4+ can not be excluded; L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
790.28 *5*	(6,7,8)+	A E		XREF: E(790). Jπ: 439.49γ M1,E2 to (7)+.
795.25[‡] *6*	(5)+[‡]	A G I		Jπ: 203.17γ M1(+E2) to (4)+; Member of the split $\pi g_{9/2} \otimes \nu g_{7/2}$ multiplet.
800.56[a,c] *7*	(9–)[a]	A C L		Jπ: 186.74γ M1+E2 to (8)–; band member.
822.32 *6*	(5+)	A C GH		Jπ: 146.04γ M1 to (6+).
833.10 *5*	(5,6)+	A IJ		XREF: J(866). Jπ: 670.19γ M1 to (5)+, 482.31γ M1,E2 to (7)+; L=2+4 in ^{113}In(p,d) (1978EmZT).
883.72[#] *5*	3+[#]	A G I		XREF: I(886). Jπ: 288.81γ M1+E2 to 2+ and 727.16γ to 4+; Member of the split $\pi g_{9/2} \otimes \nu d_{5/2}$ multiplet. configuration: $\pi(1g_{9/2})^{-1} \otimes \nu(2d_{5/2})^{+1}$.
918.84 *5*	(1,2)–	A EFG		XREF: E(920)F(915). Jπ: 323.87γ E1 to 2+, 918.81γ E1 to 1+; L=1 in ^{111}Cd(^{3}He,d) (1978EmZT).
924.66 *5*	(1,2,3)–	A G I		XREF: I(923). Jπ: 717.90γ E1 to (2)+, 195.73γ M1 to (1)–,2–.
928.67 *5*	(0,1,2)–	E G		XREF: E(920). Jπ: 928.59γ E1 to 1+.
955	(2,3)+	F J		XREF: J(963). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT); L=(2) in ^{113}In(d,t) (1967Hj03).
1003 *4*	+	IJ		XREF: J(996). Jπ: L=2 in ^{113}In(p,d).
1007.42 *7*	(4+)	A C E GH		XREF: E(1005). Jπ: 185.10γ M1 to (5+); L=(2) in ^{113}In(d,t) (1967Hj03), L=2 in ^{113}In(p,d) (1978EmZT).
1037.78 *8*	(0,1,2)–	G		Jπ: 1037.77γ E1 to 1+.
1062.90 *4*	3+	A EFG		XREF: E(1060)F(1056). Jπ: 1062.92γ E2 to 1+; 856.22 M1 to (2)+; L=4 in ^{111}Cd(^{3}He,d) (1978EmZT); However, 1+,(2)+ in ^{109}Ag(α,nγ) and ^{112}Cd(p,nγ) (1988Ki04).
1151.26 *9*	(4,5)+	G IJ		XREF: I(1142)J(1117). Jπ: 421.39γ to (3)+; L=2 in ^{113}In(d,t) (1967Hj03); possible L=2(+0) doublet in ^{113}In(p,d) (1978EmZT).
1212.16 *10*	(0–,1–,2–)	FG J		XREF: F(1212)J(1202). possibly unresolved doublet in ^{113}In(d,t) and ^{111}Cd(^{3}He,d). Jπ: 293.32γ E2,M1 to (1,2)–; L=1 in ^{111}Cd(^{3}He,d) (1978EmZT).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{112}In Levels (continued)

E(level)†	Jπ	XREF	Comments
1212.25 *5*	(1+,2+,3+)	G I	XREF: I(1213). possibly unresolved doublet in ^{113}In(p,d). Jπ: L=2(+0) in ^{113}In(p,d) (1978EmZT); 149.46γ to 3+.
1221.50 *5*	(3,4)+	A G	Jπ: 765.06γ M1 to (3)+; 214.12γ to (4–).
1250.89 *7*	(0 to 3)+	A G I	XREF: I(1249). Jπ: 326.19γ E1 to (1,2,3)–, 521.94γ to (1,2)–; L=0+2 in ^{113}In(p,d) (1978EmZT).
1260.47 *8*	(0,1,2)–	A G	Jπ: 531.44γ M1,E2 to (1,2)–, 1260.51γ to 1+.
1261.57 *8*	(0 to 4)+	A G	Jπ: 1054.92γ M1,E2 to (2)+.
1279.67 *4*	(0 to 3)+	E G	XREF: E(1270). Jπ: 1073.01γ M1,E2 to (2)+, 1279.65γ to 1+.
1286.31 *7*	(3,4)–	G	Jπ: 223.51γ E1 to 3+.
1286.93 *7*	(3+,4+,5+)	A C GH	Jπ: 279.51γ M1 to (4+).
1338	(0,1)+	EF IJ	XREF: E(1345)I(1340)J(1322). Jπ: L=0 in ^{111}Cd(^{3}He,d) (1978EmZT).
1388.90[ac] *8*	(10–)[a]	A C L	Jπ: 588.34γ M1,E2 to (9–); Member of the split $\pi g_{9/2}\otimes\nu h_{11/2}$ multiplet.
1398	(0 to 3)+	EF I	XREF: E(1395)I(1401). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1435	(0 to 3)+	F I	XREF: I(1438). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1473	(0 to 3)+	EF	XREF: E(1470). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1488	(0 to 3)+	F	Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1529	(0 to 3)+	F I	XREF: I(1531). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1554	(0 to 3)+	I	Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1608	(0,1)+	EF I	XREF: E(1590)I(1593). Jπ: L=0 in ^{111}Cd(^{3}He,d) (1978EmZT).
1631		F	
1678	(0 to 3)+	F I	XREF: I(1976). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1708	(0 to 3)+	F	Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1741	(0 to 3)+	F I	XREF: I(1738). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1754.90[d] *21*	(9+)	C L	Jπ: 1404.0γ E2 to (7)+; band member.
1777	(0 to 3)+	EF I	XREF: E(1800)I(1783). Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1872	(0 to 3)+	F	Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
1955	(0 to 3)+	F	Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
2011.9 *4*	(10)–	C	Jπ: 1398.0γ (E2) to (8)–; near–yrast state assumed.
2067	(0 to 3)+	F	Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
2070.7[m] *8*	(11–)	C	Jπ: 682γ (M1) to (10–), 1270γ (E2) to (9–); band member.
2113.15[c] *19*	(11–)	C L	Jπ: 724.3γ M1 to (10–), 1312.5γ to (9–); band member.
2115.28[d] *24*	(10+)	C L	Jπ: 360.4γ M1 to (9+), 1445.2γ E2 to 8+; band member.
2172	(0 to 3)+	F	Jπ: L=2 in ^{111}Cd(^{3}He,d) (1978EmZT).
2234	(0 to 3)+	F	Jπ: L=0+2 in ^{111}Cd(^{3}He,d) (1978EmZT).
2374.9 *6*	(11–,12–)	C	Jπ: 986γ to (10–), 973γ from (13–).
2441.2 *8*		C	
2493.2 *3*	(11–)	C L	Jπ: 1104.2γ M1 to (10–); yrast state assumed.
2652.7[m] *13*	(13–)	C	Jπ: 582γ E2 to (11–); band member.
2665.59[c] *22*	(12)–	C L	Jπ: 552.4γ M1 to (11–), 1276.7γ E2 to (10–); band member.
2756.1[j] *7*	(12–)	C	Jπ: 643γ to (11–), 1367γ to (10–); band member.
2802.05[d] *25*	(11+)	C L	Jπ: 686.9γ M1 to (10+), 1047.4γ E2 to (9+); band member.
2964.0 *6*	(12–)	C	Jπ: 952γ to (10–), 1575γ to (10–).
3062.6[e] *4*	(12+)	C L	Jπ: 260.6γ M1 to (11+), 947.4γ (E2) to (10+) band member.
3102.7[c] *4*	(13)–	C L	Jπ: 437.1γ M1 to (12)–; band member.
3126.9 *4*	(13)–	C L	Jπ: 461.4γ M1 to (12)–, 135.3γ (M1) from 14–.
3153.5 *3*	(12)–	C L	Jπ: 660.2γ M1 to (11–), 487.7γ to (12)–, 1765γ to (10–).
3190.8 *5*	(13+)	C L	Jπ: 128.3γ (M1) to 12+.
3191.0 *8*	(11–,12–)	C	Jπ: 1802γ to (10–).
3262.3[c] *5*	(14–)	C L	Jπ: 159.6γ (M1) to (13)–; band member.
3293.1[f] *6*	(12+)	C	Jπ: 491γ to 11+, 329γ to (12–); band member.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{112}In Levels (continued)

E(level)[†]	Jπ	XREF	$T_{1/2}$[b]	Comments
3296.1[g] *6*	(12+)	C		Jπ: 332γ to (12–), 1181γ to 10+; band member.
3327.2[i] *7*	(12–)	C		Jπ: 363γ to (12–), 1214γ to (11–); band member.
3347.7[k] *3*	(13–)	C L		Jπ: 194.2γ (M1) to (12)–, 681.9γ (M1) to (12–); band member.
3369.3[e] *6*	(14+)	C L		Jπ: 178.5γ (M1) to (13+); band member.
3378.0[j] *10*	(13–)	C		Jπ: 622γ to (12–), band member.
3391.1[h] *12*	[13+]	C		Jπ: 427γ to (12–); assumed band head in ^{110}Pd(^{7}Li,5nγ).
3457.7[m] *16*	(15–)	C		Jπ: 805γ E2 to (13–); band member.
3523.1[f] *12*	(13+)	C		Jπ: 230γ to (12+); band member.
3564.3[i] *9*	(13–)	C		Jπ: 237γ to (12–); band member.
3584.1[g] *12*	(13+)	C		Jπ: 288γ to (12+); band member.
3606.8[c] *6*	(15–)	C L		XREF: C(3605). Jπ: 344.6γ (M1) to (14–); band member.
3642.0[e] *6*	(15+)	C L	0.58 ps *11*	XREF: C(3641). Jπ: 272.7γ M1 to (14+); band member.
3644.7[k] *4*	(14–)	C L		Jπ: 296.9γ M1 to (13–); band member.
3685.1[h] *15*	[14+]	C		Jπ: 294γ to [13+]; probable band member.
3769.7[i] *11*	(14–)	C		Jπ: 205γ to (13–); band member.
3853.1[f] *16*	(14+)	C		Jπ: 330γ to (13+); band member.
3854.9 *11*	(13– to 15–)	C		Jπ: 477γ to (13–); 554γ from (15–).
3862.9[j] *13*	(14–)	C		Jπ: 485γ to (13–); band member.
3991.8[k] *5*	(15–)	C L	0.50 ps *+25–19*	XREF: C(3991). Jπ: 347.1γ (M1) to (14–); band member.
4035.2[e] *7*	(16+)	C L	0.34 ps *7*	XREF: C(4034)L(4036). Jπ: 393.3γ M1 to (15+); band member.
4041.1[g] *16*	(14+)	C		Jπ: 457γ to (13+); band member.
4064.1[h] *18*	[15+]	C		Jπ: 379γ to [14+]; probable band member.
4105.0[i] *12*	(15–)	C		Jπ: 335γ to (14–); band member.
4166.9[g] *11*	(15+)	C		Jπ: 976γ to (13+); band member.
4170.1[f] *19*	(15+)	C		Jπ: 317γ to (14+); band member.
4203.9[j] *13*	(15–)	C		Jπ: 341γ to (14–); band member.
4354.2[k] *9*	(16–)	C L	<0.42 ps	Jπ: 362.4γ (M1) to (15–); band member.
4390.7[m] *19*	(17–)	C		Jπ: 933γ E2 to (15–); band member.
4394.7[c] *9*	(16–)	C L		XREF: C(4393). Jπ: 787.9γ M1 to (15–); band member.
4408.8[l] *9*	(15–)	C		Jπ: 764γ to (14–); band member.
4452.1[h] *21*	(16+)	C		Jπ: 388γ to (15+); probable band member.
4551.1[f] *21*	(16+)	C		Jπ: 381γ to (15+); band member.
4552.4[i] *12*	(16–)	C		Jπ: 447γ to (15–); band member.
4589.4[e] *8*	(17+)	C L	0.15 ps *4*	XREF: C(4588). Jπ: 554.2γ M1 to (16+); band member.
4678.6 *8*	(16–)	C		Jπ: 1072γ to (15–), 1416γ to (14–).
4751.5[g] *10*	(16+)	C		Jπ: 1382γ to (14+); band member.
4758.9[k] *11*	(17–)	C L		XREF: C(4758). Jπ: 404.7γ (M1) to (16–); band member.
4822.8[l] *12*	(16–)	C		Jπ: 414γ to (15–); band member.
4917.1[h] *23*	[17+]	C		Jπ: 465γ to [16+]; band member.
5063.7 *10*	(17–)	C		Jπ: 1457 γ to (15–); yrast state assumed.
5073.7[g] *9*	(17+)	C		Jπ: 322γ to (16+), 1432γ to (15+); band member.
5168.1[k] *14*	(18–)	C L		Jπ: 409.2γ (M1) to (17–); band member.
5235.7[m] *22*	(19–)	C		Jπ: 845γ (E2) to (17–); band member.
5272.8[l] *16*	(17–)	C		Jπ: 450γ to (16–); band member.
5297.0[e] *8*	(18+)	C L	<0.17 ps	XREF: C(5295). Jπ: 707.6γ to 17+; band member.
5537.0[g] *10*	(18+)	C		Jπ: 463γ to (17+), 1502γ to (16+); band member.
5638.1[k] *15*	(19–)	C L		XREF: C(5636). Jπ: 470.0γ (M1) to (18–); band member.
5773.8[l] *19*	(18–)	C		Jπ: 501γ to (17–); band member.
6035.1[e] *10*	(19+)	C		Jπ: 738.0γ to (18+); band member.
6059.0[g] *14*	(19+)	C		Jπ: 522γ to (18+); band member.
6155.8[m] *24*	(21–)	C		Jπ: 920γ E2 to (19–); band member.
6322.8[l] *21*	(19–)	C		Jπ: 549γ to (18–); band member.
6373.1[k] *18*	(20–)	C		Jπ: 735γ to (19–); band member.

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Adopted Levels, Gammas (continued)

^{112}In Levels (continued)

E(level)†	Jπ	XREF	Comments
6412.0[g] *18*	(20+)	C	Jπ: 353γ to (19+); band member.
6850.0[g] *20*	(21+)	C	Jπ: 438γ to (20+); band member.
6859.8[l] *24*	(20−)	C	Jπ: 537γ to (19−); band member.
7148[m] *3*	(23−)	C	Jπ: 992γ to (21−); band member.
8328[m] *3*	(25−)	C	Jπ: 1180γ to (23−); band member.

† From a least–squares fit to Eγ.
‡ Member of the $\pi g_{9/2}\otimes\nu g_{7/2}$ multiplet.
§ Member of the $\pi g_{9/2}\otimes\nu s_{1/2}$ multiplet.
# Member of the $\pi g_{9/2}\otimes\nu d_{5/2}$ multiplet.
@ Member of the $\pi g_{9/2}\otimes\nu d_{3/2}$ multiplet.
a Member of the $\pi g_{9/2}\otimes\nu h_{11/2}$ multiplet.
b From ^{100}Mo(^{16}O,p3nγ), unless otherwise noted.
c (A): Band based on 614–keV level; configuration=$\pi g_{9/2}^{-1}\otimes\nu h_{11/2}$; configuration=$\pi g_{9/2}^{-1}\otimes\nu(h_{11/2}(g_{7/2}/d_{5/2})^2)$ after the back bending.
d (B): Band based on 670–keV level; configuration=$\pi g_{9/2}^{-1}\otimes\nu g_{7/2}$.
e (C): band based on 3063–keV level; configuration=$\pi g_{9/2}^{-1}\otimes\nu(h^2_{11/2}g_{7/2})$.
f (D): Band based on 3293–keV level (2010He09).
g (E): Band based on 3296–keV level (2010He09).
h (F): Band based on 3390–keV level (2010He09).
i (G): Band based on 3327–keV level (2010He09).
j (H): Band based on 2756–keV level (2010He09).
k (I): Band based on 3154–keV level (2010He09).
l (J): Band based on 4409–keV level (2010He09).
m (K): ΔJ=2 band based on (11−) level; configuration=$\pi g_{9/2}^{-2}g_{7/2}\otimes\nu h_{11/2}$.

γ(^{112}In)

E(level)	Eγ†	Iγ†	Mult.‡	α	Comments
156.592	156.61 *3*	100	M3	6.50	Mult.: α(K)exp=5.4 *5* in ^{112}Cd(p,nγ) (1988Ki04), 5.8 *12* in ^{112}In IT decay (20.56 min) (1962Ru05) and 4.8 *3* in ^{109}Ag(α,nγ) (1991Kr14); α(L)exp=1.36 *12* in ^{112}Cd(p,nγ) (1988Ki04); K/LM=3.3 *7* (1962Ru05) and 3.7 *4* in ^{112}In IT decay (20.5 min) (1953Bl44). B(M3)(W.u.)=0.00511 *24*.
162.89	(6.30 *5*)	100	[M1]	240 *7*	Eγ: not observed experimentally. Obtained from energy level difference by the evaluators. Mult.: From Jπ difference.
206.717	206.75 *3*	100	M1	0.0692	Mult.: A_2=−0.130 *4*; A_4=0.022 *6* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.066 *5*, weighted average of 0.059 *7* in ^{109}Ag(α,nγ) (1988Ki04) and 0.072 *6* in ^{112}Cd(p,nγ) (1988Ki04); α(L)exp=0.0068 *7* in ^{109}Ag(α,nγ) (1988Ki04) and 0.0075 *6* in ^{112}Cd(p,nγ) (1988Ki04); α(M)exp=0.0015 *4* in ^{109}Ag(α,nγ) (1988Ki04) and 0.0013 *1* in ^{112}Cd(p,nγ) (1988Ki04).
350.80	187.93 *3*	100	E2	0.1663	Mult.: α(K)exp=0.11 *1*, α(L)exp=0.021 *3* and α(M)exp=0.0056 *6* (1988Ki04). B(E2)(W.u.)=0.094 *7*.
456.426	249.68 *3*	100	M1	0.0420	Mult.: A_2=−0.203 *9*; A_4=−0.007 *11* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.036 *4* in ^{109}Ag(α,nγ) (1988Ki04) and 0.041 *3* ^{112}Cd(p,nγ) (1988Ki04); α(L)exp=0.0054 *10* in ^{112}Cd(p,nγ) (1988Ki04); α(M)exp=0.0013 *3* in ^{112}Cd(p,nγ) (1988Ki04)
	456.40 *5*	3.0 *5*			

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Adopted Levels, Gammas (continued)

γ(^{112}In) (continued)

E(level)	Eγ†	Iγ†	Mult.‡	δ&	α	Comments
562.78	399.88 *4*	50.0 *19*	M1,E2		0.01260	Mult.: α(K)exp=0.0125 *15* in ^{109}Ag(α,nγ) (1988Ki04).
	406.18 *3*	100 *3*	M1,E2		0.01212	Mult.: α(K)exp=0.0123 *14* in ^{109}Ag(α,nγ) (1988Ki04).
592.08	135.64 *3*	100 *3*	M1		0.218	Mult.: A_2=−0.287 *52*; A_4=0.005 *66* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.18 *2* in ^{109}Ag(α,nγ) (1988Ki04) and 0.20 *4* in ^{112}Cd(p,nγ) (1988Ki04); δ=0.01 *10* in ^{112}Cd(p,nγ) (1983Ko12).
	385.5 *1*	6.2 *4*				
	429.17 *5*	9.4 *4*				
594.888	138.37§ *8*	0.96§ *8*				
	388.20 *3*	43 *3*	M1		0.01357	Mult.: A_2=0.156 *25*; A_4=−0.020 *30* in ^{112}Cd(p,nγ) (1983Ko12). Mult.: α(K)exp=0.0111 *11* in ^{109}Ag(α,nγ) (1988Ki04) and 0.0127 *12* in ^{112}Cd(p,nγ) (1988Ki04); δ=0.05 *5* in ^{112}Cd(p,nγ) (1983Ko12).
	594.85 *3*	100 *4*	M1+E2	+0.10 *3*	0.00478	Mult.: A_2=−0.082 *11*; A_4=0.032 *14* in (1983Ko12) and p_{exp}=−0.19 *4* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.0046 *6* in ^{109}Ag(α,nγ) (1988Ki04) and 0.0045 *4* in ^{112}Cd(p,nγ) (1988Ki04).
613.82	263.01 *3*	100	E1+M2	0.09 *4*	0.0129 *15*	Mult.: DCO=1.17 *10* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); α(K)exp=0.015 *2* and α(L)exp=0.0015 *2* in ^{109}Ag(α,nγ) (1988Ki04). δ: from PAC measurements (1987Iw04). B(E1)(W.u.)=5.58×10^{-9} *8*; B(M2)(W.u.)=0.003 *3*.
624.42	273.62 *3*	100				Mult.: A_2=0.176 *35*, A_4=−0.019 *47* (1978EmZT), consistent with J to J.
670.23	319.41 *3*	100	M1		0.0222	Mult.: α(K)exp=0.022 *3*; α(L)exp=0.0019 *3* in ^{109}Ag(α,nγ) (1988Ki04); DCO=0.42 *15* in ^{110}Pd(^{7}Li,5nγ) (2011He04); Others: DCO=1.06 *7* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); pol=−0.079 *28* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
676.29	51.87 *3*	100	M1+E2		3.37	Mult.: A_2=−0.084 *14*; A_4=−0.008 *18* in ^{109}Ag(α,nγ) (1978EmZT).
728.978	522.29 *8*	9.5 *11*				
	728.98 *3*	100	E1+M2	+0.13 *+5−7*	0.00109 *11*	Mult.: α(K)exp=0.00100 *9* in ^{109}Ag(α,nγ) (1988Ki04). δ: from ^{112}Cd(p,nγ).
729.87	273.49 *8*	100.0 *16*				Iγ: from (α,nγ) (1978EmZT).
	523.13 *8*	32 *4*				Iγ: from (α,nγ) (1978EmZT).
	573.29 *3*	38.3 *21*	M1+E2	+0.10 *5*	0.00522	Mult.: A_2=−0.092 *18* and A_4=0.004 *23* in ^{112}Cd(p,nγ) (1983Ko12); Also: A_2=−0.079 *7* and A_4=0.010 *9* in ^{112}Cd(p,nγ) (1983Ko12) pol=−0.10 *10* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.0042 *10* ^{109}Ag(α,nγ) (1988Ki04) and 0.00099 *15* in ^{112}Cd(p,nγ) (1988Ki04). δ: from ^{112}Cd(p,nγ) (1983Ko12).
790.28	120.01 *4*	10 *2*				
	439.49 *3*	100 *4*	M1,E2		0.00997	Mult.: α(K)exp=0.0090 *16* in ^{109}Ag(α,nγ) (1988Ki04).
795.25	203.17 *4*	100	M1(+E2)	+0.01 *11*	0.0725 *13*	Mult.: A_2=−0.238 *69*; A_4=0.033 *91* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.072 *12*; α(L)exp=0.0097 *10* in ^{109}Ag(α,nγ) (1988Ki04). δ: from ^{112}Cd(p,nγ) (1983Ko12).
800.56	186.74 *4*	100	M1+E2		0.0909	Mult.: A_2=−0.105 *14*, A_4=0.010 *20* in ^{109}Ag(α,nγ) (1978EmZT).

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Adopted Levels, Gammas (continued)

γ(^{112}In) (continued)

E(level)	Eγ†	Iγ†	Mult.‡	δ&	α	Comments
822.32	146.04 *3*	100	M1		0.1775	Mult.: α(K)exp=0.17 *4*; α(L)exp=0.022 *9* in ^{109}Ag(α,nγ) (1988Ki04).
833.10	270.22 *8*	7.5 *17*				
	482.31 *3*	100 *6*	M1,E2		0.00793	Mult.: α(K)exp=0.0081 *13* in ^{109}Ag(α,nγ) (1988Ki04).
	670.19 *13*	9.8 *12*	M1		0.00361	Mult.: α(K)exp=0.0036 *8* in ^{109}Ag(α,nγ) (1988Ki04).
883.72	288.81§ *8*	100§ *3*	M1+E2	+0.05 *3*	0.0288	Mult.: A_2=−0.171 *14*; A_4=0.006 *18* in ^{112}Cd(p,nγ) (1983Ko12); pol=−0.35 *6* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.024 *5* in ^{112}Cd(p,nγ) (1988Ki04). δ: from ^{112}Cd(p,nγ).
	291.5§ *2*	3.2§ *16*				
	427.29§ *8*	10.3§ *10*				
	727.16§ *8*	63§ *3*				
918.84	189.86§ *8*	22.0§ *12*				
	323.87§ *8*	100§ *5*	E1		0.00666	Mult.: α(K)exp=0.0065 *14*, weighted average of 0.007 *2* in ^{109}Ag(α,nγ) (1988Ki04) and 0.006 *2* in ^{112}Cd(p,nγ) (1988Ki04).
	918.81§ *8*	93.9§ *25*	E1		6.07×10^{-4}	Mult.: A_2=0.086 *20*; A_4=0.029 *27* in ^{112}Cd(p,nγ) (1983Ko12); pol=−0.20 *10* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.00063 *7* in ^{112}Cd(p,nγ) (1988Ki04); δ=0.00 *12* or −0.31 *7* in ^{112}Cd(p,nγ) (1983Ko12).
924.66	195.73§ *8*	51§ *3*	M1		0.0801	Mult.: α(K)exp=0.067 *7*, weighted average of 0.060 *6* in ^{109}Ag(α,nγ) (1988Ki04) 0.073 *6* in ^{112}Cd(p,nγ) (1988Ki04).
	468.15§ *8*	10.9§ *8*				
	717.90§ *8*	100§ *4*	E1		1.00×10^{-3}	Mult.: A_2=0.159 *19*; A_4=0.009 *25* in ^{112}Cd(p,nγ) (1983Ko12); pol=−0.24 *11* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.009 *1* in ^{112}Cd(p,nγ) (1988Ki04).
928.67	199.73§ *8*	2.0§ *6*				
	928.59§ *8*	100§ *3*	E1		5.95×10^{-4}	Mult.: A_2=0.016 *18*; A_4=0.028 *24* in ^{112}Cd(p,nγ) (1983Ko12); pol=−0.21 *9* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.00057 *6* in ^{112}Cd(p,nγ) (1988Ki04).
1007.42	185.10 *3*	100	M1		0.0931	Mult.: α(K)exp=0.07 *1* in ^{112}Cd(p,nγ) (1988Ki04).
1037.78	1037.77§ *8*	100§	E1		4.81×10^{-4}	Mult.: α(K)exp=0.00044 *6* in ^{112}Cd(p,nγ) (1988Ki04).
1062.90	333.2 *1*	7.1 *18*				
	856.22 *6*	34 *3*	M1		0.00205	Mult.: A_2=0.148 *67*; A_4=−0.062 *82* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.0015 *35* in ^{112}Cd(p,nγ) (1988Ki04).
	1062.92 *7*	100 *7*	E2		1.06×10^{-3}	Mult.: A_2=−0.036 *14*; A_4=0.023 *19* in ^{112}Cd(p,nγ) (1983Ko12); pol=−0.32 *7* in ^{112}Cd(p,nγ) (1983Ko12); α(K)exp=0.00086 *9*, weighted average of 0.00083 *13* in ^{109}Ag(α,nγ) (1988Ki04) and 0.00088 *12* in ^{112}Cd(p,nγ) (1988Ki04).
1151.26	421.39§ *8*	100§				
1212.16	293.32§ *8*	100§	E2,M1		0.0277	Mult.: α(K)exp=0.030 *5* in ^{112}Cd(p,nγ) (1988Ki04).
1212.25	149.46§ *8*	24§ *2*				
	283.56§ *8*	24§ *3*				
	287.54§ *8*	100§ *4*				
	483.25§ *8*	67§ *4*				
1221.50	214.12 *9*	22 *7*				Iγ: weighted average of 18.0 *13* in ^{109}Ag(α,nγ) (1988Ki04) and 35.0 *25* in ^{112}Cd(p,nγ) (1988Ki04).
	765.06 *4*	100 *4*	M1		0.00265	Mult.: α(K)exp=0.0025 *4* in ^{109}Ag(α,nγ) (1988Ki04).

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Adopted Levels, Gammas (continued)

γ(^{112}In) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[‡]	α	Comments
1250.89	326.19 10	100 20	E1	0.00653	Iγ: 18% from Iγ(521.94) in ^{112}Cd(p,nγ) (1988Ki04). Mult.: α(K)exp≤0.012 in ^{112}Cd(p,nγ) (1988Ki04).
	521.94 8	100 30			
1260.47	531.44 11	83 9	M1,E2	0.00627	Mult.: α(K)exp=0.006 2 in ^{112}Cd(p,nγ) (1988Ki04).
	1260.51 11	100 17			
1261.57	666.6 1	20 5			
	1054.92 10	100 8	M1,E2	1.28×10^{-3}	Mult.: α(K)exp=0.0010 2 in ^{112}Cd(p,nγ) (1988Ki04).
1279.67	823.22[§] 8	88[§] 13			
	1073.01[§] 8	100[§] 6	M1,E2	1.23×10^{-3}	Mult.: α(K)exp=0.0011 2 in ^{112}Cd(p,nγ) (1988Ki04).
	1279.65 5				Eγ: from ^{112}Cd(p,nγ).
1286.31	223.51[§] 8	100[§] 6	E1	0.0180	Mult.: α(K)exp=0.019 5 in ^{112}Cd(p,nγ) (1988Ki04).
	367.37[§] 8	80[§] 4			
1286.93	279.51 3	100	M1	0.0313	Mult.: α(K)exp=0.029 5 in ^{109}Ag(α,nγ) (1988Ki04).
1388.90	588.34 3	100	M1,E2	0.00491	Mult.: DCO=0.62 10 in ^{110}Pd(^{7}Li,5nγ) (2011He04) and 0.96 7 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); pol=−0.037 23 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); α(K)exp=0.0046 11 in ^{109}Ag(α,nγ) (1988Ki04).
1754.90	1084.8[#] 3	45.0[#] 3	M1	1.20×10^{-3}	Mult.: DCO=1.22 10 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: DCO=0.75 11 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.10 6 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
	1404.0[#] 3	100[#] 4	E2	6.42×10^{-4}	Mult.: DCO=1.96 15 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: DCO=1.60 7 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=+0.08 3 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
2011.9	1398.0[@] 5	100	(E2)	6.46×10^{-4}	Mult.: DCO=1.7 4 in ^{110}Pd(^{7}Li,5nγ) (2011He04).
2070.7	682[@]		(M1)	0.00346	Mult.: DCO=1.18 5 in ^{110}Pd(^{7}Li,5nγ) (2012Li51).
	1270[@]		(E2)	7.44×10^{-4}	Mult.: DCO=1.28 25 in ^{110}Pd(^{7}Li,5nγ) (2012Li51).
2113.15	724.3[#] 3	100[#] 6	M1	0.00301	Mult.: DCO=1.02 6 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: DCO=0.70 14 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.057 25 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
	1312.5[#] 3	24.8[#] 4	E2	7.05×10^{-4}	Mult.: DCO=1.69 14 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: DCO=1.7 4 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=+0.24 4 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
2115.28	360.4[#] 7	8.12[#] 13	M1	0.01635	Mult.: DCO=1.21 11 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: DCO=1.10 15 in ^{110}Pd(^{7}Li,5nγ) (2011He04).
	1445.2[#] 3	100.0[#] 5	E2	6.22×10^{-4}	Mult.: DCO=1.69 12 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: DCO=1.50 4 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=+0.06 3 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
2374.9	986[@]	100			
2441.2	326[@]	100			
2493.2	1104.2[#] 3	100[#]	M1	1.16×10^{-3}	Mult.: DCO=1.16 9 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01) pol=−0.02 5 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
2652.7	582[@] 1	100	E2	0.00459	Mult.: DCO=1.52 6 in ^{110}Pd(^{7}Li,5nγ) (2012Li51).
2665.59	290[@]				
	552.4[#] 3	100.0[#] 7	M1	0.00571	Mult.: DCO=1.02 6 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 0.98 7 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.10 4 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
	1276.7[#] 3	33.0[#] 3	E2	7.37×10^{-4}	Iγ: 45 5 in ^{110}Pd(^{7}Li,5nγ). Mult.: DCO=1.85 18 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.46 11 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=+0.16 7 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
2756.1	643[@]				
	1367[@]				
2802.05	361[@]				
	686.9[#] 3	100.0[#] 6	M1	0.00340	Mult.: DCO=1.03 7 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 0.92 5 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.08 3 (2012Tr01).
	790.0[@] 5	19.2 14	(E1)	8.22×10^{-4}	Mult.: DCO=0.92 18 in ^{110}Pd(^{7}Li,5nγ) (2011He04).
	1047.4[#] 7	16.9[#] 2	E2	1.09×10^{-3}	Iγ: 24.1 19 in ^{110}Pd(^{7}Li,5nγ) (2011He04). Mult.: DCO=1.78 13 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.69 14 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=+0.12 4 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
	1412.9[@] 5	4.4 5			
2964.0	952[@]				

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Adopted Levels, Gammas (continued)

$\gamma(^{112}In)$ (continued)

E(level)	Eγ†	Iγ†	Mult.‡	α	Comments
2964.0	1575@				
3062.6	260.6# *3*	100.0# *4*	M1	0.0376	Mult.: DCO=0.97 *7* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.03 *6* in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.03 *4* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
	947.4# *7*	7.4# *4*	(E2)	1.37×10^{-3}	Mult.: DCO=1.32 *14* in ^{110}Pd(^{7}Li,5nγ) (2011He04). Iγ: 11.8 *8* in ^{110}Pd(^{7}Li,5nγ) (2011He04).
	949.1# *7*	12.0# *5*			
3102.7	437.1# *3*	100#	M1	0.01010	Mult.: DCO=0.98 *6* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.05 *10* in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.01 *4* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
3126.9	461.4# *3*	100#	M1	0.00884	Mult.: DCO=0.80 *5* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 0.98 *7* in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.13 *3* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
3153.5	487.7# *7*	18.8# *9*			
	660.2# *3*	100# *3*	M1	0.00374	Mult.: DCO=0.94 *9* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); pol=−0.05 *5* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
	779@				
	1041@				
	1765@				
3190.8	128.3# *3*	100#	(M1)	0.254	Mult.: DCO; 0.21 *13* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.03 *10* in ^{110}Pd(^{7}Li,5nγ) (2011He04).
3191.0	1802@	100			
3262.3	135.3# *7*	22.9# *4*	(M1)	0.219 *5*	Mult.: DCO=1.09 *11* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.20 *13* in ^{110}Pd(^{7}Li,5nγ) (2011He04).
	159.6# *3*	100.0# *7*	(M1)	0.1392	Mult.: DCO=0.97 *9* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.23 *11* in ^{110}Pd(^{7}Li,5nγ) (2011He04).
3293.1	102@				
	329@				
	491@				
	800@				
3296.1	332@				
	494@				
	1181@				
	1183@				
3327.2	363@				
	1214@				
3347.7	194.2# *3*	89.3# *8*	(M1)	0.0818	Mult.: D from DCO=0.99 *9* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); (M1) from assumed by the evaluators; band structure.
	681.9# *3*	100.0# *16*	(M1)	0.00346	Mult.: D from DCO=0.95 *6* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); (M1) from assumed by the evaluators; band structure.
	973@				
3369.3	178.5# *3*	100#	(M1)	0.1027	Mult.: D from DCO=1.06 *9* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01) and 1.00 *8* in ^{110}Pd(^{7}Li,5nγ) (2011He04); (M1) assumed by the evaluators from the band structure.
3378.0	622@	100			
3391.1	427@	100			
3457.7	805@ *1*		E2	0.00200	Mult.: DCO=1.86 *13* (2012Li51).
3523.1	230@	100			
3564.3	237@				
	808@				
3584.1	288@	100			
3606.8	344.6# *3*	100#	(M1)	0.0183	Mult.: D from DCO=1.01 *9* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 1.06 *8* in ^{110}Pd(^{7}Li,5nγ) (2011He04); assumed (M1) by the evaluators from the band structure.
3642.0	272.7# *3*	100#	M1	0.0334	Mult.: DCO=0.91 *6* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 0.97 *7* in ^{110}Pd(^{7}Li,5nγ)(2011He04); pol=−0.09 *4* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01). B(M1)(W.u.)=1.8 *4*.
3644.7	296.9# *3*	100#	M1	0.0268	Mult.: DCO=0.86 *7* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); pol=−0.04 *4* in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
	519@				
3685.1	294@	100			
3769.7	205@	100			

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Adopted Levels, Gammas (continued)

γ(^{112}In) (continued)

E(level)	Eγ†	Iγ†	Mult.‡	α	Comments
3853.1	330@	100			
3854.9	477@	100			
3862.9	485@	100			
3991.8	347.1# 3	100#	(M1)	0.0180	Mult.: DCO=1.01 9 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01). B(M1)(W.u.)=1.0 +4−6.
4035.2	393.3# 3	100#	M1	0.01313	Mult.: DCO=1.10 7 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 0.90 10 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.14 3 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01). B(M1)(W.u.)=1.05 22.
4041.1	457@	100			
4064.1	379@	100			
4105.0	335@	100			
4166.9	976@	100			
4170.1	317@	100			
4203.9	341@	100			
4354.2	362.4# 7	100#	(M1)	0.01613	B(M1)(W.u.)>1.1. Mult.: DCO=0.91 7 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01).
4390.7	933@ 1	100	E2	1.42×10^{-3}	Mult.: DCO=2.01 11 (2012Li51).
4394.7	787.9# 7	100#	M1	0.00248	Mult.: DCO=0.89 7 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 0.54 13 in ^{110}Pd(^{7}Li,5nγ) (2011He04).
4408.8	554@				
	764@				
4452.1	388@	100			
4551.1	381@	100			
4552.4	447@	100			
4589.4	554.2 3	100	M1	0.00567	Mult.: DCO=0.89 6 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); Also: 0.80 11 in ^{110}Pd(^{7}Li,5nγ) (2011He04); pol=−0.16 4 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01). B(M1)(W.u.)=0.86 23.
4678.6	1072@				
	1416@				
4751.5	1382@	100			
4758.9	404.7 7	100	(M1)	0.01223	Mult.: D from DCO=0.74 7 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); (M1) assumed from the band structure.
4822.8	414@				
	619@				
4917.1	465@	100			
5063.7	385@				
	1457@				
5073.7	322@				
	521@				
	1432@				
5168.1	409.2# 7	100#	(M1)	0.01190	Mult.: D from DCO=1.00 9 in ^{100}Mo(^{16}O,p3nγ) (2012Tr01); (M1) assumed from the band structure.
5235.7	845@ 1	100	(E2)	0.00178	Mult.: DCO=1.29 19 (2011Li51).
5272.8	450@	100			
5297.0	707.6 3	100	[M1]	0.00318	Mult.: DCO=0.88 16 in ^{110}Pd(^{7}Li,5nγ) (2011He04). B(M1)(W.u.)>0.36.
5537.0	463@				
	1502@				
5638.1	470.0# 7	100#	(M1)	0.00845	Mult.: D from DCO=0.92 7; assumed (M1) from the band structure.
5773.8	501@	100			
6035.1	738.0@ 5	100	(M1)	0.00288	Mult.: DCO=0.86 18 in ^{110}Pd(^{7}Li,5nγ) (2011He04).
6059.0	522@	100			
6155.8	920@ 1	100	E2	1.46×10^{-3}	Mult.: DCO=2.21 41 (2012Li51).
6322.8	549@	100			
6373.1	735@	100			
6412.0	353@	100			
6850.0	438@	100			
6859.8	537@	100			
7148	992@ 1	100			
8328	1180@ 1	100			

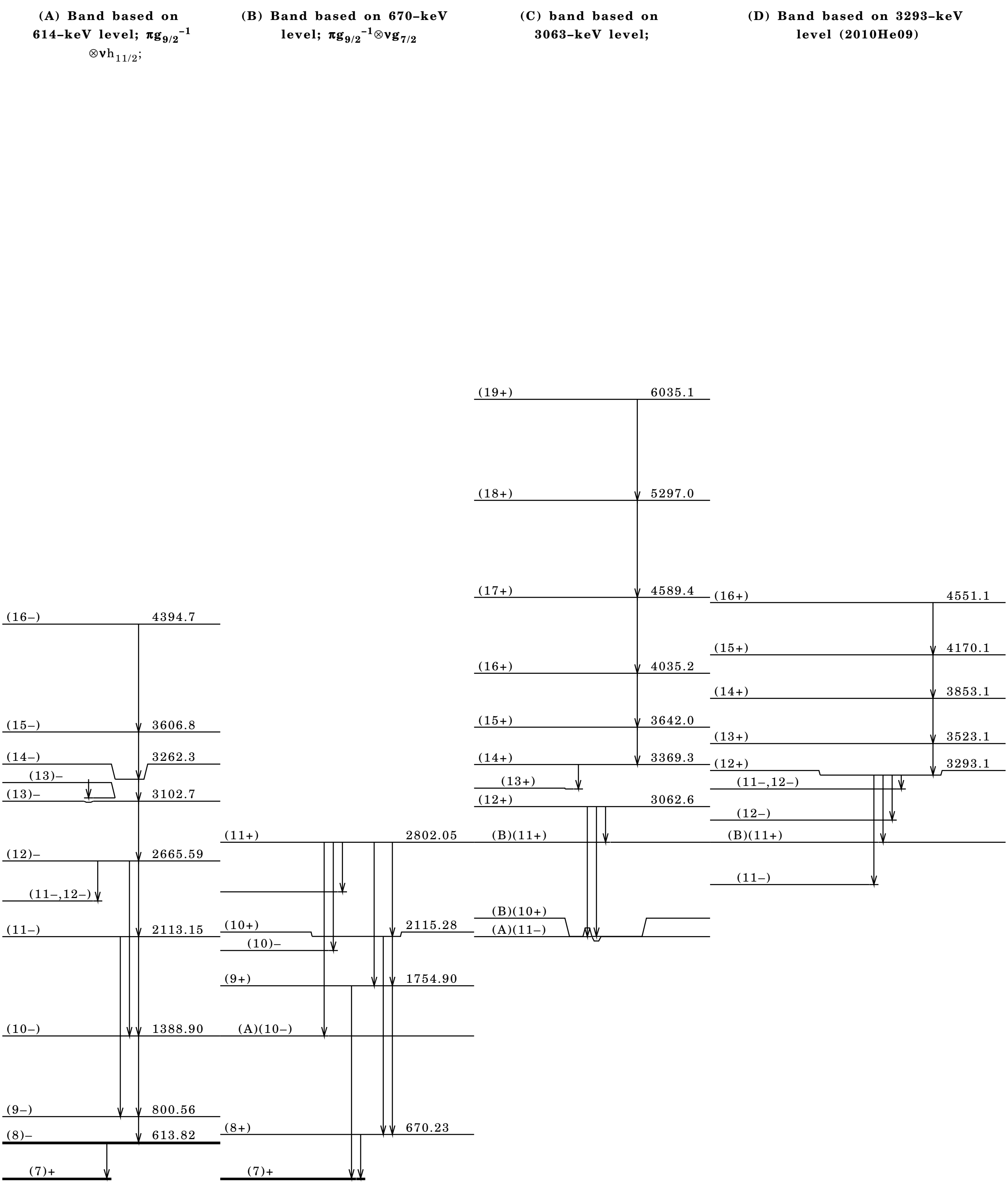
Footnotes continued on next page

Adopted Levels, Gammas (continued)

$\gamma(^{112}In)$ (continued)

† From $^{109}Ag(\alpha,n\gamma)$, unless otherwise noted.
‡ From DCO and γ–ray polarization measurements, unless otherwise noted.
§ From $^{112}Cd(p,n\gamma)$ (1988Ki04).
# From $^{100}Mo(^{16}O,p3n\gamma)$ (2012Tr01).
@ From $^{110}Pd(^{7}Li,5n\gamma)$.
& If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

Adopted Levels, Gammas (continued)



$^{112}_{49}In_{63}$

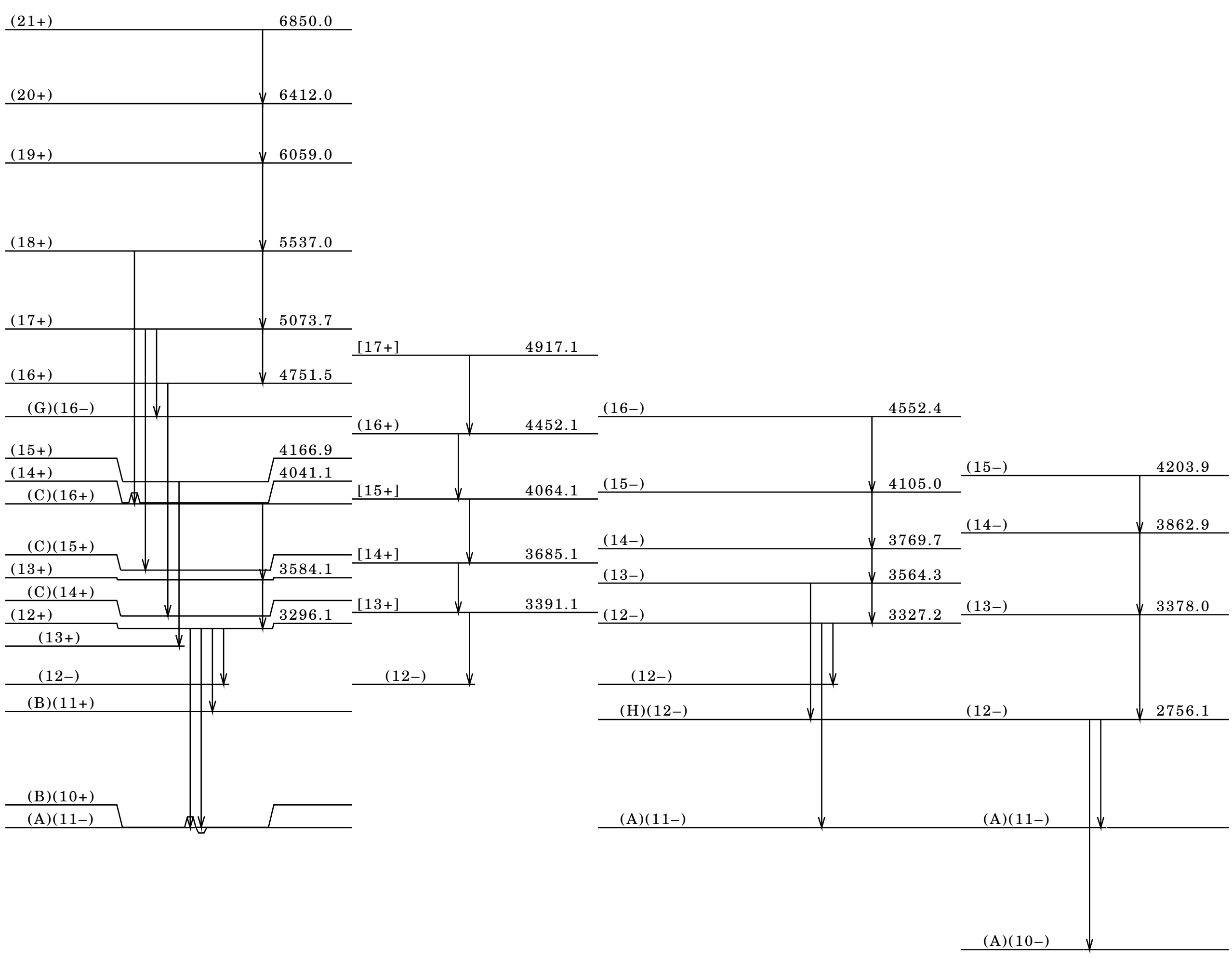
Adopted Levels, Gammas (continued)

(E) Band based on 3296-keV level (2010He09)

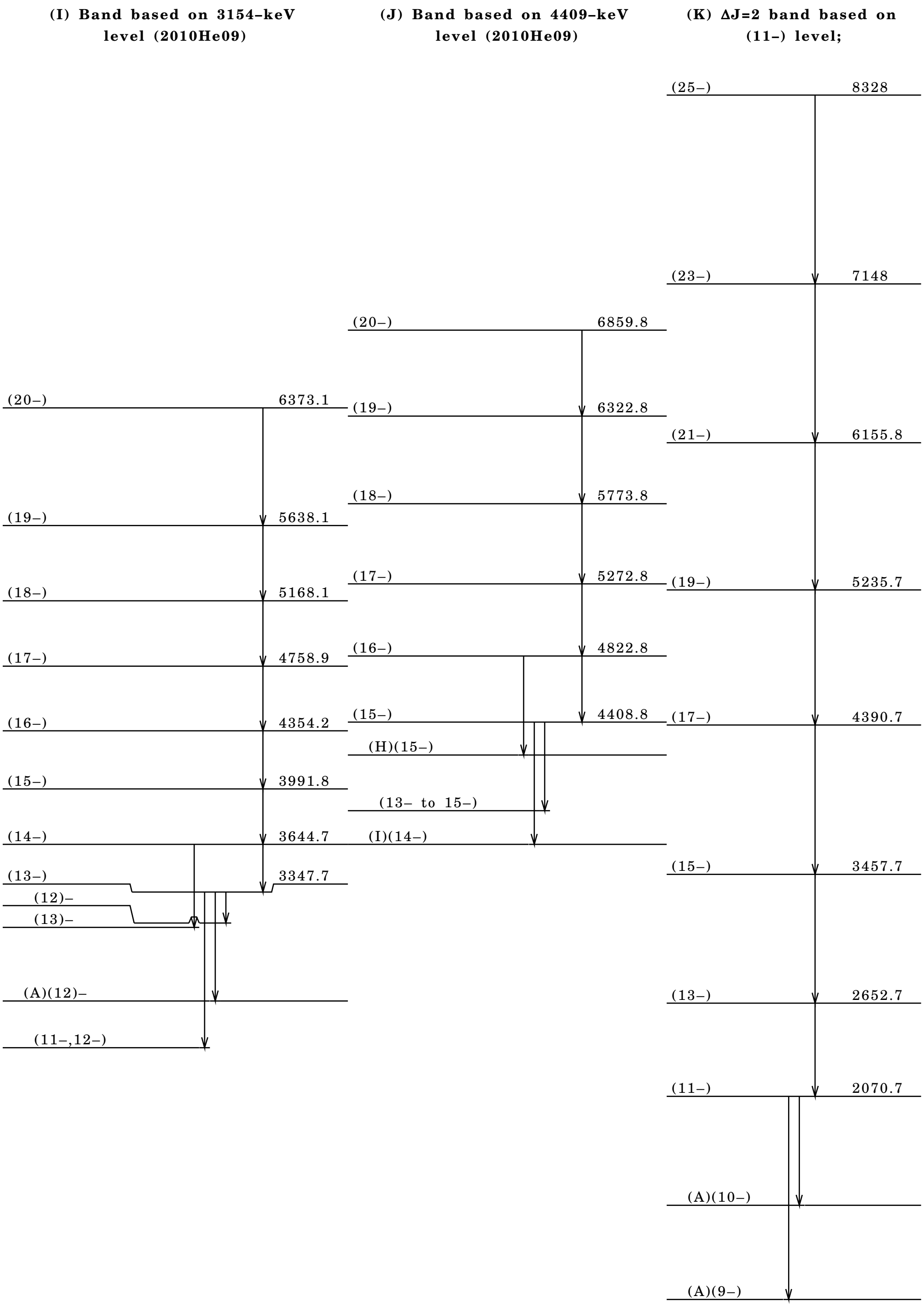
(F) Band based on 3390-keV level (2010He09)

(G) Band based on 3327-keV level (2010He09)

(H) Band based on 2756-keV level (2010He09)



Adopted Levels, Gammas (continued)



$^{112}_{49}In_{63}$

^{112}In IT Decay (20.67 min) 1983Ry06,1962Ru05,1953Bl44

Parent ^{112}In: E=156.61 *3*; Jπ=4+; $T_{1/2}$=20.67 min *8*; %IT decay=100.

1983Ry06: Facility: SAMES accelerator at NPL–Teddington; Source: from ^{113}In(n,2nγ). E(n)=14 MeV from a (d,t) reaction on Ti–T target; Detectors: one coaxial Ge, one gas–flow proportional counter; Measured: γ, ce, Eγ, Iγ, α(K)exp, α(L)exp; Deduced: level scheme, mult., Jπ, t, σ(^{112}In)/σ(^{112m}In).

1962Ru05: Facility: cyclotron accelerator at Osaka; Sources: from ^{113}In(γ,n), ^{112}Cd(d,2n), ^{109}Ag(α,n); Detectors: β–spectrometer, one NaI(Tl); Measured: γ, ce, Eγ, Iγ, α(K)exp; Deduced: level scheme, γ–ray Mult., Jπ, $T_{1/2}$.

1953Bl44: Source: chemically separated from 109Ag(α,n); Detectors: double–coil lens spectrometer, 180^0 spectrometer; Measured: β(t) ce(t); Deduced: α(K)exp, K/LM, ^{112}In level scheme, γ–ray Mult., Jπ, $T_{1/2}$.

Others: 1973FrYM, 1968Ko25, 1968Ro03, 1947Te04, 1942Sm10, 1940La07, 1939Ba03, 1937La05; Also, R.K.Girgis and R.Van Lieshout in Physica 25 (1959) 597.

^{112}In Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	1+	14.88 min *15*	$T_{1/2}$: weighted mean of 14.97 min *10* (1983Ry06), 14.5 min *1* (1953Bl44), 14.4 min *4* (1965Fu07), 15.2 min *1* (1980Ad04), 14.5 min *6* (1968Ro03); Other: 13.8 min (1974Ku10).
156.61 *3*	4+	20.67 min *8*	$T_{1/2}$: weighted average of 20.56 min *6* (1983Ry06), 20.7 min *3* (1953Bl44), 21.0 min *5* (1962Ru05), 20.9 min *2* (1968Ko25), 20.9 min *1* (1980Ad04); Others: 20.7 min (1974Ku10) and 20.4 min *4* (1968Ro03).

† From Eγ.
‡ From the adopted levels.

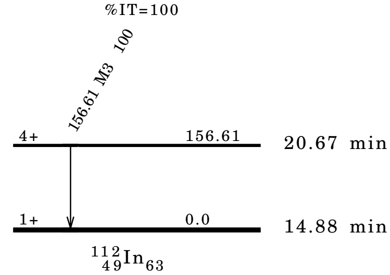
γ(^{112}In)

E(level)	Eγ†	Iγ‡	Mult.	α	Comments
156.61	156.61 *3*	100	M3	6.50	Mult.: α(K)exp=5.8 *12* and K/LM=3.3 *7* (1962Ru05); α(K)exp=3.7 *4* (1953Bl44).

† From the adopted gammas.
‡ For absolute intensity per 100 decays, multiply by 0.1333 *16*.

Decay Scheme

Intensity: relative photon branching from each level
%IT=100



^{100}Mo(^{16}O,p3nγ) 2012Tr01

Facility: 15–UD Pelletron accelerator at IUAC, New Delhi; Beam: E(^{18}O)=80 MeV; Target: 2.7 mg/cm^2 enriched in ^{100}Mo and deposited on a 12 mg/cm^2 Pb backing; Detectors: INGA γ–ray array comprising 18 Compton–suppressed Clover detectors working in add–back mode. The Clovers were also used as Compton polarimeters; Measured: Eγ, Iγ, γ–γ, γ–γ–γ coinc., γ–γ(θ), γ–γ(lin pol); Deduced: ^{112}In level scheme, DCO, γ–polarization asymmetry (pol), Jπ, $T_{1/2}$; Also, from the same collaboration: 2012Tr11.

^{100}Mo(^{16}O,p3nγ) 2012Tr01 (continued)

^{112}In Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$[§]	Comments
162.89[@] *4*	5+		E(level),Jπ: from the adopted levels.
350.82[@] *3*	7+		
613.9[#] *3*	8−		
670.02[@] *24*	8+		
801.0[#] *4*	9−		
1389.2[#] *5*	10−		
1754.82[@] *24*	9+		
2113.6[#] *5*	11−		
2115.2[@] *4*	10+		
2493.5 *5*	11−		
2666.0[#] *5*	12−		
2802.1[@] *4*	11+		
3062.7[&] *5*	12+		
3103.1[#] *6*	13−		
3127.4 *6*	13−		
3153.7[a] *6*	12−		
3191.0[&] *6*	13+		
3262.7[#] *6*	14−		
3347.9[a] *6*	13−		
3369.5[&] *6*	14+		
3607.3[#] *7*	15−		
3642.2[&] *7*	15+	0.58 ps *11*	
3644.8[a] *6*	14−		
3991.9[a] *7*	15−	0.50 ps *+25−19*	
4035.5[&] *8*	16+	0.34 ps *7*	
4354.3[a] *10*	16−	<0.42 ps	
4395.2[#] *10*	16−		
4589.7[&] *8*	17+	0.15 ps *4*	
4759.0[a] *12*	17−		
5168.2[a] *14*	18−		
5297.3[&] *9*	18+	<0.17 ps	
5638.2[a] *16*	19−		

[†] From a least–squares fit to Eγ.
[‡] From 2012Tr01, based on γ–ray Mult.
[§] From DSAM measurements in 2012Tr01. Systematic error of 15% as estimated by the authors was taken into account by the evaluators.
[#] (A): ΔJ=1 structure based on 8−.
[@] (B): ΔJ=1 structure based on 5+.
[&] (C): ΔJ=1 band based on 12+; configuration=$\pi g_{9/2}^{-1}\otimes\nu(h^2_{11/2})(g_{7/2}/d_{5/2})$.
[a] (D): ΔJ=1 band based on 12−; configuration=$\pi g_{9/2}^{-1}\otimes\nu(h^3_{11/2})$.

γ(^{112}In)

DCO ratios were obtained by sorting the detectors at 32° on one axis and the detectors at 90° on the other axis, with gate on ΔJ=1, dipole transition. Expected values are 2.0 for ΔJ=2, quadrupole and 1.0 for ΔJ=1, dipole.
Polarization asymmetry (pol) is positive for electric and negative for magnetic transitions.

Eγ[†]	E(level)	Iγ[†]	Mult.[‡]	δ	Comments
128.3 *3*	3191.0	60.1 *2*	D		Mult.: DCO=1.21 *13* (2012Tr01).
135.3 *7*	3262.7	6.1 *1*	D		Mult.: DCO=1.09 *11* (2012Tr01).
159.6 *3*	3262.7	26.7 *2*	D		Mult.: DCO=0.97 *9* (2012Tr01).
178.5 *3*	3369.5	59.3 *2*	D		Mult.: DCO=1.06 *9* (2012Tr01).
187.1 *3*	801.0				
187.93 *3*	350.82				Eγ: from the adopted gammas.
194.2 *3*	3347.9	10.8 *1*	D		Mult.: DCO=0.99 *9* (2012Tr01).
260.6 *3*	3062.7	56.9 *2*	M1		Mult.: DCO=0.97 *7* (2012Tr01); pol=−0.03 *4* (2012Tr01).
263.1 *3*	613.9		E1+M2	0.09 *4*	Mult.,δ: from the adopted gammas; DCO=1.17 *10* (2012Tr01).
272.7 *3*	3642.2	47.2 *2*	M1		Mult.: DCO=0.91 *6* (2012Tr01); pol=−0.09 *4* (2012Tr01).
296.9 *3*	3644.8	17.0 *2*	M1		Mult.: DCO=0.86 *7* (2012Tr01); pol=−0.04 *4* (2012Tr01).
319.2 *3*	670.02	104.3 *8*	M1		Mult.: DCO=1.06 *7* (2012Tr01); pol=−0.079 *28* (2012Tr01).
344.6 *3*	3607.3	20.7 *1*	D		Mult.: DCO=1.01 *9* (2012Tr01).

Continued on next page (footnotes at end of table)

$^{100}Mo(^{16}O,p3n\gamma)$ 2012Tr01 (continued)

$\gamma(^{112}In)$ (continued)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
347.1 *3*	3991.9	10.4 *1*	(M1)	Mult.: DCO=1.01 *9* (2012Tr01).
360.4 *7*	2115.2	6.1 *1*	D	Mult.: DCO=1.21 *11* (2012Tr01).
362.4 *7*	4354.3	7.8 *1*	(M1)	Mult.: DCO=0.91 *7* (2012Tr01).
393.3 *3*	4035.5	34.5 *2*	M1	Mult.: DCO=1.10 *7* (2012Tr01); pol=−0.14 *3* (2012Tr01).
404.7 *7*	4759.0	5.4 *1*	D	Mult.: DCO=0.74 *7* (2012Tr01).
409.2 *7*	5168.2	3.9 *1*	D	Mult.: DCO=1.00 *9* (2012Tr01).
437.1 *3*	3103.1	35.6 *3*	M1	Mult.: DCO=0.98 *6* (2012Tr01); pol=−0.01 *4* (2012Tr01).
461.4 *3*	3127.4	30.3 *2*	M1	Mult.: DCO=0.80 *5* (2012Tr01); pol=−0.13 *3* (2012Tr01).
470.0 *7*	5638.2	2.0 *1*	D	Mult.: DCO=0.92 *7*.
487.7 *7*	3153.7	2.2 *1*		
552.4 *3*	2666.0	59.4 *4*	M1	Mult.: DCO=1.02 *6* (2012Tr01); pol=−0.10 *4* (2012Tr01).
554.2 *3*	4589.7	20.3 *2*	M1	Mult.: DCO=0.89 *6* (2012Tr01); pol=−0.16 *4* (2012Tr01).
588.2 *3*	1389.2	134.8 *9*	M1	Mult.: DCO=0.96 *7* (2012Tr01); pol=−0.037 *23*; (2012Tr01).
660.2 *3*	3153.7	11.7 *3*	M1	Mult.: DCO=0.94 *9* (2012Tr01); pol=−0.05 *5* (2012Tr01).
681.9 *3*	3347.9	12.1 *2*	D	Mult.: DCO=0.95 *6* (2012Tr01).
686.9 *3*	2802.1	53.9 *3*	M1	Mult.: DCO=1.03 *7* (2012Tr01); pol=−0.08 *3* (2012Tr01).
707.6 *3*	5297.3	15.6 *1*	[M1]	
724.3 *3*	2113.6	100 *6*	M1	Mult.: DCO=1.02 *6* (2012Tr01); pol=−0.057 *25* (2012Tr01).
787.9 *7*	4395.2	3.8 *1*	D	Mult.: DCO=0.89 *7* (2012Tr01).
947.4 *7*	3062.7	4.2 *2*		
949.1 *7*	3062.7	6.8 *3*		
1047.4 *7*	2802.1	9.1 *1*	E2	Mult.: DCO=1.78 *13* (2012Tr01); pol=+0.12 *4* (2012Tr01).
1084.8 *3*	1754.82	13.1 *1*	M1	Mult.: DCO=1.22 *10* (2012Tr01); pol=−0.10 *6* (2012Tr01).
1104.2 *3*	2493.5	17.2 *2*	M1	Mult.: DCO=1.16 *9* (2012Tr01); pol=−0.02 *5* (2012Tr01).
1276.7 *3*	2666.0	19.6 *2*	E2	Mult.: DCO=1.85 *18* (2012Tr01); pol=+0.16 *7* (2012Tr01).
1312.5 *3*	2113.6	24.8 *4*	E2	Mult.: DCO=1.69 *14* (2012Tr01); pol=+0.24 *4* (2012Tr01).
1404.0 *3*	1754.82	29.1 *13*	E2	Mult.: DCO=1.96 *15* (2012Tr01); pol=+0.08 *3* (2012Tr01).
1445.2 *3*	2115.2	75.1 *4*	E2	Mult.: DCO=1.69 *12* (2012Tr01); pol=+0.06 *3* (2012Tr01).

† From 2012Tr01; ΔE=0.3 keV for intense lines and 0.7 keV for weak lines. The evaluators assign 0.3 keV for Iγ≥10 and 0.7 keV for Iγ<10.
‡ From 2012Tr01, based on DCO and pol measurements.

$^{109}Ag(\alpha,n\gamma)$ 1988Ki04,1978EmZT,1991Kr14

1988Ki04: Facility: 90–cm Jyvaskyla cyclotron and 103–cm Debrecen cyclotron; Beam: E(α)=17.1 MeV; Target: selfsupporting 0.4–0.8 mg/cm^2 thick, enriched to 99% in ^{109}Ag; Detectors: one HPGe, one Si(Li), superconducting magnetic lens; Measured: γ, Iγ, ce; Deduced: ^{112}In level scheme, Jπ, α, γ–ray mult.

1978EmZT: Beam: E(α)=16.7 MeV; Target: 3.3 mg/cm^2 thick, enriched to 99.3% in ^{109}Ag; Detectors: two Ge(Li), two HPGe; Measured: γ, γ–γ γ–γ(t) coinc., Eγ, Iγ; Deduced: DCO, ^{112}In level scheme.

1991Kr14: Facility: Variable Energy Cyclotron Center, Calcutta; Beam: E(α)=14 MeV; Target: 4.5 mg/cm^2 thick natural silver; Detectors: one Si(Li), one HPGe; Measured: x–rays, γ–rays; Deduced: α(K)exp for 156.61γ.

Others: 1990Io01, 1990TuZX, 1986Wa10, 1984Ba15, 1981Io07, 1979EmZX, 1976Io04, 1976Ei04, 1965Fu07, NP36 (1962) 431.

^{112}In Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0§	1+§		
156.594# *25*	4+#		
162.89# *4*	(5)+#		
206.720§ *20*	2+§		
350.80@ *5*	7+@	0.69 μs *5*	Jπ: 6+ in 1976Io04. $T_{1/2}$: from 263.01γ–187.93γ(t) in 1976Io04. Q: 0.75 *15* from PAD in (1981Io07). configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(2d_{5/2})^{+1}$.
456.41§ *3*	3+§		
562.78& *4*	5+&		
592.06§ *4*	4+§		
594.896@ *23*	2+@		

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$^{109}Ag(\alpha,n\gamma)$ 1988Ki04,1978EmZT,1991Kr14 (continued)

^{112}In Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	Comments
613.81[b] *6*	(8)–[b]	2.81 μs *3*	$T_{1/2}$: from 187.93γ(t) in 1976Io04; Other: 2.8 μs (1987Iw04), 1.25 μs (1973FrYM), 1.6 μs *2* (1972BrYL). μ: +3.08 *3* from DPAD in 1976Io04.
624.42 *5*	7(+)		
670.23 *6*	(6,7,8)+		
676.28 *6*	6(+)		
728.99 *3*	(1)–,2–		
729.88[a] *4*	3+[a]		
790.27 *6*	(7,8)+		
795.23[§] *5*	5+[§]		
800.55[b] *7*	(9–)[b]		
822.31 *6*	(5+)		
833.10 *5*	(6)+		
883.82[@] *4*	3+[@]		
918.82 *5*	(2)–		
924.72 *5*	(3)–		
1007.41 *7*	(4+)		
1062.96 *5*	1+,(2)+		
1221.48 *5*	(3,4)+		
1250.92 *7*	(2,3)+		
1260.47 *8*	≤3–		
1261.57 *8*	≤4+		
1286.92 *7*	(3+)		
1388.89[b] *8*	(10–)[b]		

† From a least–squares fit to Eγ.
‡ From 1988Ki04, based on γ–ray multipolarity.
§ Member of the $\pi g_{9/2}\otimes\nu g_{7/2}$ multiplet.
\# Member of the $\pi g_{9/2}\otimes\nu s_{1/2}$ multiplet.
@ Member of the $\pi g_{9/2}\otimes\nu d_{5/2}$ multiplet.
& Member of the $\pi g_{9/2}\otimes\nu d_{3/2}$ multiplet.
a Member of the $\pi g_{5/2}\otimes\nu s_{1/2}$ multiplet.
b Member of the $\pi g_{9/2}\otimes\nu h_{11/2}$ multiplet.

γ(^{112}In)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
(6.30 *5*)	162.89			Eγ: from the adopted levels.
51.87 *3*	676.28	8.2 *4*	M1+E2	Mult.: A_2=–0.084 *14*; A_4=–0.008 *18* (1978EmZT).
ˣ99.66 *6*		1.3 *1*		
120.01 *4*	790.27	1.7 *3*		
ˣ130.44 *4*		1.5 *1*		
135.64 *3*	592.06	24.4 *6*	M1	Mult.: α(K)exp=0.18 *2* (1988Ki04). Mult.: A_2=–0.184 *7*, A_4=–0.006 *10* (1978EmZT).
146.04 *3*	822.31	30.5 *8*	M1	Mult.: α(K)exp=0.17 *4*; α(L)exp=0.022 *9* (1988Ki04). Mult.: A_2=–0.104 *8*, A_4=0.023 *12* (1978EmZT).
156.61 *3*	156.594	60 *2*	M3	Mult.: α(K)exp=4.8 *3* (1991Kr14).
185.10 *3*	1007.41	17.4 *5*	M1	Mult.: α(K)exp=0.10 *2* (1988Ki04). Mult.: A_2=0.126 *14*, A_4=0.011 *19* (1978EmZT).
186.74 *4*	800.55	95 *3*	M1+E2	Mult.: A_2=–0.105 *14*, A_4=0.010 *20* (1978EmZT).
187.93 *3*	350.80	222 *6*	E2	Mult.: α(K)exp=0.11 *1*; α(L)exp=0.021 *3*; α(M)exp=0.0056 *6* (1988Ki04). Mult.: A_2=0.073 *5*, A_4=0.001 *7* (1978EmZT).
195.74 *10*	924.72	1.9 *1*	M1	Mult.: α(K)exp=0.060 *6* (1988Ki04).
203.17 *3*	795.23	11.5 *3*	M1	Mult.: α(K)exp=0.072 *12*; α(L)exp=0.0097 *10* (1988Ki04); M1(+E2) with δ=–0.01 *11* in the adopted gammas. Mult.: A_2=–0.254 *37*, A_4=0.046 *49* (1978EmZT).
206.75 *3*	206.720	100 *3*	M1	Mult.: α(K)exp=0.059 *7*; α(L)exp=0.0068 *7*; α(M)exp=0.0015 *4* (1988Ki04). Mult.: A_2=–0.105 *5*, A_4=0.004 *6* (1978EmZT).
214.12 *9*	1221.48	1.4 *1*		
ˣ215.85 *9*		0.9 *1*		

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$^{109}Ag(\alpha,n\gamma)$ 1988Ki04,1978EmZT,1991Kr14 (continued)

$\gamma(^{112}In)$ (continued)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
249.68 3	456.41	56 2	M1	Mult.: α(K)exp=0.036 4 (1988Ki04). Mult.: A_2=−0.131 12, A_4=0.016 16 (1978EmZT).
263.01 3	613.81	172 10	E1+M2	Mult.: α(K)exp=0.015 2; α(L)exp=0.0015 2 (1988Ki04). Mult.: A_2=0.046 4, A_4=0.000 8 (1978EmZT).
270.22 8	833.10	1.3 3		
273.49 8	729.88	18.8 3		
273.62 3	624.42	18.8 3	E1+M2	Mult.: A_2=0.176 35, A_4=−0.019 47 (1978EmZT).
279.51 3	1286.92	2.3 3	M1	Mult.: α(K)exp=0.029 5 (1988Ki04).
288.92 3	883.82	4.7 4		
319.41 3	670.23	27.1 13	M1	Mult.: α(K)exp=0.022 3; α(L)exp=0.0019 3 (1988Ki04).
323.90 5	918.82	4.1 2	E1	Mult.: α(K)exp=0.007 2 (1988Ki04).
326.19 10	1250.92	1.0 2		
333.2 1	1062.96	0.8 2		
x357.1 3		0.5 2		
385.5 1	592.06	1.5 1		
388.20 3	594.896	5.0 3	M1,E2	Mult.: α(K)exp=0.0111 11 (1988Ki04). Mult.: pure M1 in the adopted.
399.88 4	562.78	10.6 4	M1,E2	Mult.: α(K)exp=0.0125 15 (1988Ki04).
406.18 3	562.78	21.2 7	M1,E2	Mult.: α(K)exp=0.0123 14 (1988Ki04).
x422.29 8		1.4 1		
429.17 5	592.06	2.3 1		
439.49 3	790.27	16.5 4	M1,E2	Mult.: α(K)exp=0.0090 16 (1988Ki04).
456.40 5	456.41	1.7 3		
482.31 3	833.10	17.3 11	M1,E2	Mult.: α(K)exp=0.0081 13 (1988Ki04).
521.94 8	1250.92	1.0 3		Iγ: From Iγ(521.94)/Iγ(326.19)=0.96 22 in the adopted gammas and Iγ(326.19)=1.0 2 in 1988Ki04.
522.29 8	728.99	1.59 19		Iγ: from the Iγ(522.29)/Iγ(728.98) in the adopted gammas and Iγ(728.98)=16.7 in 1988Ki04.
523.13 8	729.88	6.0 8	M1,E2	Iγ: from Iγ(523.13)/Iγ(573.29)=0.83 10 in the adopted and Iγ(573.29) in 1988Ki04.
531.44 11	1260.47	1.9 2		
573.29 3	729.88	7.2 4	M1,E2	Mult.: α(K)exp=0.0042 10 (1988Ki04).
x581.17 7		2.7 2	M1,E2	Mult.: α(K)exp=0.0047 12 (1988Ki04).
588.34 3	1388.89	11.6 6	M1,E2	Mult.: α(K)exp=0.0046 11 (1988Ki04).
594.85 3	594.896	11.6 6	M1,(E2)	Mult.: α(K)exp=0.0046 6 (1988Ki04).
x632.47 7		2.6 2		
666.6 1	1261.57	0.8 2		
670.19 13	833.10	1.7 2	M1	Mult.: α(K)exp=0.0036 8 (1988Ki04).
717.99 5	924.72	3.5 2		
727.25 10	883.82	4.4 4		
728.98 3	728.99	16.7 6	E1	Mult.: α(K)exp=0.00100 9 (1988Ki04).
x758.88 3		7.8 3	M1	Mult.: α(K)exp=0.0024 5 (1988Ki04).
765.06 4	1221.48	7.8 3	M1	Mult.: α(K)exp=0.0025 4 (1988Ki04).
x824.18 5		3.6 2		
x836.26 4		8.7 5	M1,(E2)	Mult.: α(K)exp=0.0020 5 (1988Ki04).
856.22 6	1062.96	3.8 3		
918.89 8	918.82	3.0 2		
x930.27 11		2.7 2		
1054.92 10	1261.57	4.0 3		
1062.92 7	1062.96	11.2 8	E2	Mult.: α(K)exp=0.00083 13 (1988Ki04).
1260.51 11	1260.47	2.3 4		
x1264.65 9		7.4 4		

† From 1988Ki04, unless otherwise noted.
‡ From α(K)exp in 1988Ki04, unless otherwise noted.
x γ ray not placed in level scheme.

^{110}Pd(^{7}Li,5nγ) 2012Li51,2011He04,2010He09

2012Li51,2011He04,2010He09: Facility: CIAE HI–13 tandem; Beam: E(^{7}Li)=40–50 MeV; Target: 2.4 mg/cm^2 enriched to 97.2% in ^{110}Pd, 0.4 mg/cm^2 Au backing; Detectors: 12 HPGe detectors with anti–Compton shields, two planar HPGe; Measured: γ, γ–γ, γ–γ(θ) coinc. Eγ, Iγ; Deduced: γ–ray Mult., Jπ, level scheme, excitation function.
Also, from the same collaboration: 2010He23, 2009Li66.

^{112}In Levels

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
0.0	1+[@]	3191.0 *9*	(12−)	4393.1[&] *10*	(16−)[#]
156.61 *3*	4+[@]	3261.3[&] *8*	(14−)[#]	4409.1[i] *11*	(15−)
162.98 *9*	(5)+[@]	3293.1[c] *7*	(12+)	4452.1[e] *21*	(16+)
350.91[a] *9*	(7)+[@]	3296.1[d] *7*	(12+)	4551.1[c] *22*	(16+)
613.92[&] *10*	(8)−[@]	3327.1[f] *8*	(12−)	4551.6[f] *13*	(16−)
623.92 *10*	(7+)[@]	3348.1[h] *8*	(13−)	4587.9[b] *12*	(17+)[#]
669.9[a] *4*	8+[#]	3368.7[b] *8*	(14+)[#]	4677.4 *10*	(16−)
675.79 *10*	(6+)[@]	3378.1[g] *11*	(13−)	4750.7[d] *11*	(16+)
800.8[&] *4*	(9−)[#]	3391.1[e] *12*	(13+)	4758.1[h] *20*	(17−)
821.83 *11*	(5+)[@]	3457.9[j] *17*	(15−)[§]	4823.1[i] *14*	(16−)
1006.93 *11*	(4+)[@]	3523.1[c] *12*	(13+)	4917.1[e] *24*	(17+)
1286.44 *12*	(2,3,4)−[@]	3564.2[f] *9*	(13−)	5062.4 *12*	(17−)
1389.0[&] *5*	(10−)[#]	3581.1[d] *12*	(13+)	5072.8[d] *11*	(17+)
1754.9[a] *4*	(9+)[#]	3605.3[&] *9*	(15−)[#]	5167.1[h] *22*	(18−)
2012.0 *4*	(10−)[#]	3640.9[b] *10*	(15+)[#]	5235.9[j] *22*	(19−)[§]
2070.9[j] *8*	(11−)[§]	3645.1[h] *9*	(14−)	5273.1[i] *17*	(17−)
2113.1[&] *5*	(11−)[#]	3685.1[e] *16*	(14+)	5295.6[b] *13*	(18+)[#]
2115.2[a] *4*	(10+)[#]	3769.3[f] *12*	(14−)	5535.8[d] *12*	(18+)
2375.1 *7*	11−	3853.1[c] *16*	(14+)	5636.1[h] *24*	(19−)
2441.1 *8*		3855.1 *12*	(14−)	5774.1[i] *20*	(18−)
2493.1 *8*	(11−)	3863.1[g] *13*	(14−)	6033.6[b] *14*	(19+)[#]
2652.9[j] *13*	(13−)[§]	3991.1[h] *14*	(15−)	6057.8[d] *16*	(19+)
2665.3[&] *6*	(12−)[#]	4033.9[b] *11*	(16+)[#]	6155.9[j] *24*	(21−)[§]
2756.1[g] *8*	(12−)	4038.1[d] *16*	(14+)	6323.1[i] *22*	(19−)
2802.1[a] *4*	(11+)[#]	4064.1[e] *19*	(15+)	6371[h] *3*	(20−)
2964.1 *6*	(12−)	4104.5[f] *13*	(15−)	6410.8[d] *19*	(20+)
3062.2[b] *5*	(12+)[#]	4166.5[d] *12*	(15+)	6848.8[d] *21*	(21+)
3102.0[&] *7*	(13−)[#]	4170.1[c] *19*	(15+)	6860.1[i] *24*	(20−)
3126.0 *7*	(13−)[#]	4204.1[g] *14*	(15−)	7148[j] *3*	(23−)[§]
3154.1[h] *7*	(12−)	4354.1[h] *17*	(16−)	8328[j] *3*	(25−)[§]
3190.5[b] *7*	(13+)[#]	4390.9[j] *19*	(17−)[§]		

[†] From a least–squares fit to Eγ, unless otherwise noted.
[‡] From 2010He09, unless otherwise noted.
[§] From 2012Li51, based on γ–ray Mult. and the band structure.
[#] From 2011He04, based on γ–ray Mult. and the band structure.
[@] From the adopted levels.
[&] (A): ΔJ=1 band based on 8−; band head configuration=$\pi(1g_{9/2})^{-1}\otimes\nu(1h_{11/2})^{+1}$.
[a] (B): ΔJ=1 band based on 7+; band head configuration=$\pi(1g_{9/2})^{-1}\otimes\nu(1g_{7/2})^{+1}$.
[b] (C): ΔJ=1 band based on (12+); band head configuration=$\pi(1g_{9/2})^{-1}\otimes\nu(1h_{11/2})^{+2}(1g_{7/2})^{+1}$.
[c] (D): ΔJ=1 band based on (12+).
[d] (E): ΔJ=1 band based on (12+).
[e] (F): ΔJ=1 band based on (13+).
[f] (G): ΔJ=1 band based on (12−).
[g] (H): ΔJ=1 band based on (12−).
[h] (I): ΔJ=1 band based on (12−).
[i] (J): ΔJ=1 band based on (15−).
[j] (K): ΔJ=2 band based on (11−); band head configuration=$\pi(1g_{9/2})^{-2}1(g_{7/2})^{+1}\otimes\nu(1h_{11/2})^{+1}$.

γ(^{112}In)

Eγ[†]	E(level)	Iγ[‡]	Mult.[§]	Comments
(6.30[@] *5*)	162.98	100		
51.87[@] *3*	675.79			
102	3293.1			
128.3[#] *5*	3190.5	51 *3*	(M1)	Mult.: DCO=1.03 *10* (2011He04).

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$^{110}Pd(^{7}Li,5n\gamma)$ 2012Li51,2011He04,2010He09 (continued)

$\gamma(^{112}In)$ (continued)

Eγ†	E(level)	Iγ‡	Mult.§	Comments
135.4# 5	3261.3	6.7 8	(M1)	Mult.: DCO=1.20 13 (2011He04).
146.04@ 3	821.83			
156.61@ 3	156.61			
159.3# 5	3261.3	13.6 12	(M1)	Mult.: DCO=1.23 11 (2011He04).
178.3# 5	3368.7	50.1 19	(M1)	Mult.: DCO=1.00 8 (2011He04).
185.10@ 3	1006.93			
186.8# 5	800.8	135 5		
187.93@ 3	350.91			
194	3348.1			
205	3769.3			
230	3523.1			
237	3564.2			
260.0# 5	3062.2	50.0 24	(M1)	Mult.: DCO=1.03 6 (2011He04).
263.01@ 3	613.92			
272.2# 5	3640.9	52.0 19	(M1)	Mult.: DCO=0.97 7 (2011He04).
273.01@ 3	623.92			
279.51@ 3	1286.44			
288	3581.1			
290	2665.3			
294	3685.1			
297	3645.1			
317	4170.1			
319.0# 5	669.9	83 6	M1	Mult.: DCO=0.42 15 (2011He04).
322	5072.8			
326	2441.1			
329	3293.1			
330	3853.1			
332	3296.1			
335	4104.5			
341	4204.1			
344.0# 5	3605.3	14.7 10	(M1)	Mult.: DCO=1.06 8 (2011He04).
346	3991.1			
353	6410.8			
360.1# 5	2115.2	5.3 4	(M1)	Mult.: DCO=1.10 15 (2011He04).
361	2802.1			
363	3327.1			
	4354.1			
379	4064.1			
381	4551.1			
385	5062.4			
388	4452.1			
393.0# 5	4033.9	38 5	(M1)	Mult.: DCO=0.90 10 (2011He04).
404	4758.1			
409	5167.1			
414	4823.1			
427	3391.1			
436.7# 5	3102.0	25 3	(M1)	Mult.: DCO=1.05 10 (2011He04).
438	6848.8			
447	4551.6			
450	5273.1			
457	4038.1			
460.7# 5	3126.0	22.1 24	(M1)	Mult.: DCO=0.98 7 (2011He04).
463	5535.8			
465	4917.1			
469	5636.1			
477	3855.1			
485	3863.1			
491	3293.1			
494	3296.1			
501	5774.1			
519	3645.1			
521	5072.8			
522	6057.8			

Continued on next page (footnotes at end of table)

$^{110}Pd(^{7}Li,5n\gamma)$ 2012Li51,2011He04,2010He09 (continued)

$\gamma(^{112}In)$ (continued)

Eγ[†]	E(level)	Iγ[‡]	Mult.[§]	Comments
537	6860.1			
549	6323.1			
552.1[#] *5*	2665.3	41 *6*	(M1)	Mult.: DCO=0.98 *7* (2011He04).
554	4409.1			
554.0[#] *5*	4587.9	8.0 *4*	(M1)	Mult.: DCO=0.80 *11* (2011He04).
582[&] *1*	2652.9		E2[&]	Mult.: DCO=1.52 *6* (2012Li51).
588.2[#] *5*	1389.0	149 *9*	(M1)	Mult.: DCO=0.62 *10* (2011He04).
619	4823.1			
622	3378.1			
643	2756.1			
661	3154.1			
682[&]	2070.9		(M1)[&]	Mult.: DCO=1.18 *5* (2012Li51).
683	3348.1			
686.8[#] *5*	2802.1	36.5 *14*	(M1)	Mult.: DCO=0.92 *5* (2011He04).
707.7[#] *5*	5295.6	9.5 *10*	(M1)	Iγ: uncertainty quoted in 2011He04 is 0.1, which seems unrealistically small. The evaluators assign 1.0. Mult.: DCO=0.88 *16* (2011He04).
724.1[#] *5*	2113.1	100	(M1)	Mult.: DCO=0.70 *14* (2011He04).
735	6371			
738.0[#] *5*	6033.6	1.0 *2*	(M1)	Mult.: DCO=0.86 *18* (2011He04).
764	4409.1			
779	3154.1			
787.8[#] *5*	4393.1	9.6 *8*	(M1)	Mult.: DCO=0.54 *13* (2011He04).
790.0[#] *5*	2802.1	7.0 *5*	(E1)	Mult.: DCO=0.92 *18* (2011He04).
800	3293.1			
805[&] *1*	3457.9		E2[&]	Mult.: DCO=1.86 *13* (2012Li51).
808	3564.2			
845[&] *1*	5235.9		(E2)[&]	Mult.: DCO=1.29 *19* (2011Li51).
920[&] *1*	6155.9		E2[&]	Mult.: DCO=2.21 *41* (2012Li51).
933[&] *1*	4390.9		E2[&]	Mult.: DCO=2.01 *11* (2012Li51).
947.1[#] *5*	3062.2	5.9 *4*	(E2)	Mult.: DCO=1.32 *14* (2011He04).
949.2[#] *5*	3062.2			
952	2964.1			
973	3348.1			
976	4166.5			
986	2375.1			
992[&] *1*	7148		[E2][&]	
1041	3154.1			
1047.4[#] *5*	2802.1	8.8 *7*	(E2)	Mult.: DCO=1.69 *14* (2011He04).
1072	4677.4			
1084.8[#] *5*	1754.9	13.0 *10*	(M1)	Mult.: DCO=0.75 *11* (2011He04).
1104	2493.1			
1180[&] *1*	8328		[E2][&]	
1181	3296.1			
1183	3296.1			
1214	3327.1			
1270[&]	2070.9		(E2)[&]	Mult.: DCO=1.28 *25* (2012Li51).
1276.4[#] *5*	2665.3	18.4 *21*	(E2)	Mult.: DCO=1.46 *11* (2011He04).
1312.2[#] *5*	2113.1	36 *4*	(E2)	Mult.: DCO=1.7 *4* (2011He04).
1367	2756.1			
1382	4750.7			
1398.0[#] *5*	2012.0	19 *3*	(E2)	Mult.: DCO=1.7 *4* (2011He04).
1404.1[#] *5*	1754.9	32 *3*	(E2)	Mult.: DCO=1.60 *7* (2011He04).
1412.9[#] *5*	2802.1	1.6 *2*		
1416	4677.4			
1432	5072.8			
1445.4[#] *5*	2115.2	65 *4*	(E2)	Mult.: DCO=1.50 *4* (2011He04).
1457	5062.4			
1502	5535.8			
1575	2964.1			
1765	3154.1			
1802	3191.0			

Footnotes continued on next page

$^{110}Pd(^7Li,5n\gamma)$ 2012Li51,2011He04,2010He09 (continued)

$\gamma(^{112}In)$ (continued)

† From 2010He09, unless otherwise noted.
‡ From 2011He04, unless otherwise noted.
§ From 2011He04, unless otherwise noted; DCO=1.0 or 1.50 for stretched dipole and quadrupole transitions, respectively. Although, no information on the gating transition is given by the authors.
\# From 2011He04; ΔEγ not given by the authors, but estimated by the evaluators.
@ From the adopted gammas.
& From 2012Li51.

$^{110}Cd(\alpha,np\gamma)$ 1973FrYM,1972BrYL

Beam: α; Target: ^{110}Cd; Measured: γ, γ(t), ce; Deduced: γ-ray mult., ^{112}In level scheme, $T_{1/2}$.

^{112}In Levels

Wrongly placed γ-rays in 1973FrYM. Level scheme corrected by the evaluators to account for the adopted decay patterns.

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	1+		
156.61 *3*	4+		
162.98 *9*	(5)+		
206.6 *10*	(2)+		
350.7 *4*	(7)+	0.69 μs *5*	$T_{1/2}$: 2.7 μs *2* in 1972BrYL is inconsistent with the adopted half-life.
613.6 *11*	(8)−	2.81 μs *3*	$T_{1/2}$: 1.6 μs *2* in 1972BrYL is inconsistent with the adopted half-life.
624.2 *11*	(7+)		

† From a least-squares fit to Eγ; levels energies in 1973FrYM and 1972BrYL corrected by the evaluators.
‡ From the adopted levels.

$\gamma(^{112}In)$

Eγ†	E(level)	Iγ†	Mult.†	Comments
(6.30 *5*)	162.98			Eγ: from the adopted gammas.
156.61 *3*	156.61			Eγ: from the adopted gammas.
187.7 *3*	350.7	100	E2	Mult.: α(K)exp(187.7γ)/α(K)exp(155.5γ)=0.166 *21* (1973FrYM).
206.6	206.6	8.6 *9*		
262.9	613.6	203 *10*	M2	Mult.: α(K)exp(262.9γ)/α(K)exp(155.5γ)=0.158 *12* (1973FrYM).
273.5	624.2	14 *2*		

† From 1973FrYM.

$^{110}Cd(\alpha,d)$ 1978SaZL,1978SaZM

E(α)=35.6 MeV; Measured: σ(θ); Deduced: ^{112}In levels.

^{112}In Levels

E(level)†	E(level)†	E(level)†
0.0	680	1270
157	730	1345
354	790	1395
420	920	1470
560	1005	1590
620	1060	1800

† ΔE are not given by the authors.

$^{111}Cd(^3He,d)$ 1978EmZT

Beam: E(^{3}He)=33.6 MeV; Target: 50 μg/cm^2, enriched to 96.5% in ^{111}Cd and evaporated onto 40 μg/cm^2 carbon foil;
Detectors: Colorado energy–loss spectrometer, FWHM=18 keV; Measured: σ(θ); Deduced: ^{112}In level scheme, L, S, DWBA.
Jπ(^{111}Cd)=1/2+.

^{112}In Levels

E(level)†#	L‡	(2J+1)C^{2}S§	Comments
0.0			
157	4	7.62,3.88	E(level): large (2J+1)C^{2}S suggests possible doublet structure for this level.
725	2	0.20,0.15	
915	1	0.43,0.21	
955	2	0.24,0.17	
1056	4	1.44,0.74	
1212	1	0.21,0.10	
1338	0	0.56,0.56	
1398	2	0.27,0.20	
1435	2	2.43,1.78	
1473	2	1.51,1.07	
1488	2,0+2		S=0.56,0.41 for L=2; S=0.05+0.45, 0.05+0.033 for L=0+2.
1529	2	0.33,0.24	
1608	0	0.18	
1631	0+2,0+4		S=0.04+0.11, 0.04+0.09 for L=0+2, 0.04+1.05, 0.04+0.62 for L=0+4.
1678	2	0.67,0.50	
1708	2	0.45,0.33	
1741	2	0.13,0.10	
1777	2	0.18,0.13	
1872	2	0.15,0.11	
1955	2	0.44,0.33	
2067	2	0.81,0.60	
2172	2	0.46,0.34	
2234	0+2		S=0.29+1.13, 0.29+0.93.

† From 1978EmZT.
‡ From 1978EmZT, based on DWBA.
§ Given for J=L–1/2 and J=L+1/2, respectively.
# ΔE≈5 keV estimated by the evaluators.

^{112}Cd(p,nγ) 1988Ki04,1976Io04,1980Ad04

1988Ki04: Facility: Jyvaskyla cyclotron; E(p)=4.8 MeV; Target: 1.6 mg/cm^2; Detectors: two Ge(Li), one Si(Li), superconducting solenoid magnet; Measured: Eγ at θ=125° with respect to the beam axis, Iγ, Ice, E(ce); Deduced: ^{112}In level scheme, α(K)exp, α(L)exp, Jπ, α, γ–ray Mult.; Also from the same collaboration: 1987KiZX, 1986TiZZ.
1976Io04, 1976Io05: Facility: Bucharest Tandem accelerator and cyclotron; Beam: E(p)=5.7–11 MeV; Target: Isotopically enriched in ^{112}Cd; Detectors: NaI(Tl), Ge(Li), Si(Li); Measured: Eγ, Iγ(θ,H,t), γ(t), γ–γ(t); Deduced: ^{112}In level scheme, Jπ, mult, g–factor, $T_{1/2}$.
1983Ko12, 1980Ad04: Facility: Tokyo Institute of Technology, 4 MV Van de Graaff; Beam: E(p)=3.75–4.75 MeV; Target: self–supported targets, 1.9 mg/cm^2 and 1.2 mg/cm^2 enriched to 97% in ^{112}Cd; Detectors: LEPS, two Ge(Li), Compton polarimeter, consisting of two HPGe detectors; Measured: γ, γ–γ coinc., γ–γ(θ), Eγ, Iγ; Deduced: ^{112}In level scheme, Jπ, Q(p,n), linear polarization (p_{exp}), DCO coeff. A_2 and A_4, δ, $T_{1/2}$.
Others: 1979EmZX, 1978EmZT, 1978SaZM, 1973FrYM, 1972BrYL.

^{112}In Levels

E(level)†	Jπ‡	$T_{1/2}$§	Comments
0.0#	1+	14.88 min *15*	$T_{1/2}$: From adopted levels.
156.56 *6*	4+	20.67 min *8*	$T_{1/2}$: From adopted levels. configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(3s_{1/2})^{+1}$.
162.91 *7*	(5)+		
206.70# *4*	2+		
350.84 *10*	7+	0.69 μs *5*	E(level): 343.3 in 1976Io04. Jπ: 6+ in 1976Io04. g: +0.675 *6* from DPAD in 1976Io04.

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$^{112}Cd(p,n\gamma)$ 1988Ki04,1976Io04,1980Ad04 (continued)

^{112}In Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$§	Comments
456.44# *4*	3+		
562.73 *8*	5+		
592.11# *7*	4+		
594.89@ *5*	2+		
613.78& *13*	(8)−	2.81 μs *3*	E(level): 606.0 in 1976Io04. $T_{1/2}$: 2.81 μs *6* in 1976Io05. g: +0.385 *4* from DPAD in 1976Io04.
624.45& *11*	7(−)		
676.32& *11*	(6)−		
728.95 *5*	(1)−,2−		Jπ: 1+,2 in 1983Ko12.
729.83 *5*	3+		configuration: $\pi(1g_{9/2})^{-1}\otimes\nu(2d_{3/2})^{+1}$.
795.27# *11*	5+		Jπ: 5(−) in 1983Ko12.
822.30& *11*	(5−)		
883.71@ *6*	3+		
918.83 *5*	(2)−		Jπ: 1−,2+ in 1983Ko12.
924.65 *5*	(3)−		
928.65 *6*	(0)−		
1007.44& *11*	(4−)		
1037.78 *8*	(0)−		
1062.87 *5*	1+,(2)+		Jπ: 1−,2+ in 1983Ko12.
1150.34 *9*	≥3		
1212.15 *10*	≤4−		
1212.23 *6*	≤3		
1221.61 *9*	(3,4)+		
1250.85 *7*	(2,3)+		
1260.40 *9*	≤3−		
1261.47 *7*	≤4+		
1279.67 *4*	(1,2,3)+		
1286.29 *7*	≤3−		
1286.93& *13*	(3−)		

† From a least-squares fit to Eγ.
‡ From 1988Ki04, unless otherwise noted.
§ From 1976Io04, unless otherwise noted.
\# Member of the $\pi(1g_{9/2})^{-1}\otimes\nu(1g_{7/2})^{+1}$ split multiplet.
@ Member of the $\pi(1g_{9/2})^{-1}\otimes\nu(2d_{5/2})^{+1}$ split multiplet.
& Member of the $\pi(1g_{9/2})^{-1}\otimes\nu(1h_{11/2})^{+1}$ split multiplet.

$\gamma(^{112}In)$

Eγ†	E(level)	Iγ†	Mult.‡	δ§	Comments
(6.30# *5*)	162.91	100			
51.87# *3*	676.32	0.94 *12*			
x99.69 *8*		0.35 *6*			
135.63 *8*	592.11	4.3 *1*	M1		Mult.: α(K)exp=0.20 *4* (1988Ki04). Mult.: A_2=−0.287 *52*; A_4=0.005 *66* (1983Ko12). Mult.: possible E2 admixture with δ=−0.01 *10* (1983Ko12).
138.37 *8*	594.89	0.36 *3*			
x142.81 *8*		0.34 *3*			
145.99 *8*	822.30	2.95 *10*	M1		
149.46 *8*	1212.23	0.37 *3*			
156.57 *8*	156.56	4.2 *2*	M3		Mult.: α(K)exp=5.4 *5*; α(L)exp=1.36 *12* (1988Ki04).
185.15 *8*	1007.44	2.4 *1*	M1		Mult.: α(K)exp=0.07 *1* (1988Ki04).
187.95 *8*	350.84	3.3 *2*	E2		Mult.: α(K)exp=0.11 *1* (1988Ki04). I(187.8γ)/I(262.7γ)=1.32 *4* (1976Io04). 187.8γ decays to 162–keV level and not to 155.5–keV level as stated by 1976Io04.
189.86 *8*	918.83	1.8 *1*			
195.73 *8*	924.65	4.0 *2*	M1		Mult.: α(K)exp=0.073 *6* (1988Ki04).
199.73 *8*	928.65	0.14 *4*			
203.16 *8*	795.27	0.89 *5*	M1(+E2)	+0.01 *11*	Mult.: A_2=−0.238 *69*; A_4=0.033 *91* (1983Ko12).

Continued on next page (footnotes at end of table)

$^{112}Cd(p,n\gamma)$ 1988Ki04,1976Io04,1980Ad04 (continued)

$\gamma(^{112}In)$ (continued)

Eγ†	E(level)	Iγ†	Mult.‡	δ§	Comments
206.71 *8*	206.70	100 *4*	M1		Mult.: α(K)exp=0.072 *6*; α(L)exp=0.0075 *6*; α(M)exp=0.0013 *1* (1988Ki04). Mult.: A_2=−0.130 *4*; A_4=0.022 *6* (1983Ko12). δ: possible E2 admixture with δ=−0.03 *12* or −0.05 *5* (1983Ko12).
214.18 *8*	1221.61	0.56 *4*			
223.51 *8*	1286.29	1.40 *8*	E1		Mult.: α(K)exp=0.019 *5* (1988Ki04).
249.67 *8*	456.44	25.2 *4*	M1		Mult.: α(K)exp=0.041 *3*; α(L)exp=0.0054 *10*; α(M)exp=0.0013 *3* (1988Ki04). Mult.: A_2=−0.203 *9*; A_4=−0.007 *11* (1983Ko12).
262.94 *8*	613.78	2.8 *1*	E1+M2	+0.09 *4*	Mult.: α(K)exp=0.014 *3* (1988Ki04). δ: from PAC data in 1987Iw04.
273.49 *8*	729.83	1.16 *6*			
273.62 *8*	624.45	1.16 *6*			
279.49 *8*	1286.93	0.78 *4*	M1		Mult.: from the adopted gammas.
283.56 *8*	1212.23	0.37 *4*			
287.54 *8*	1212.23	1.56 *6*			
288.81 *8*	883.71	6.3 *2*	M1+E2	+0.05 *3*	Mult.: α(K)exp=0.024 *5* (1988Ki04). Mult.: A_2=−0.171 *14*; A_4=0.006 *18* (1983Ko12). Mult.: p_{exp}=−0.35 *6* (1983Ko12).
291.5 *2*	883.71	0.2 *1*			
293.32 *8*	1212.15	2.4 *1*	E2,M1		Mult.: α(K)exp=0.030 *5* (1988Ki04).
323.87 *8*	918.83	8.2 *4*	E1		Mult.: α(K)exp=0.006 *2* (1988Ki04).
326.15 *8*	1250.85	2.0 *1*	E1		Mult.: α(K)exp≤0.012 (1988Ki04).
333.11 *8*	1062.87	0.92 *6*			
367.37 *8*	1286.29	1.12 *6*			
385.5 *2*	592.11	0.16 *5*			
388.16 *8*	594.89	11.4 *4*	M1		Mult.: α(K)exp=0.0127 *12* (1988Ki04). Mult.: A_2=0.156 *25*, A_4=−0.020 *30* (1983Ko12) or A_2=0.134 *10*, A_4=0.006 *13* (1983Ko12). Mult.: possible E2 admixture with δ=−0.03 *12* or −0.05 *5* (1983Ko12).
399.84 *8*	562.73	0.60 *5*	M1,E2		
406.15 *8*	562.73	1.29 *6*	M1,E2		
421.39 *8*	1150.34	0.52 *5*			
427.29 *8*	883.71	0.65 *6*			
429.2 *1*	592.11	0.5 *1*			
456.45 *8*	456.44	0.39 *7*			
468.15 *8*	924.65	0.85 *6*			
483.25 *8*	1212.23	1.04 *7*			
521.94 *8*	1250.85	11.3 *9*			
522.29 *8*	728.95	11.3 *9*			
523.13 *8*	729.83	6.1 *3*			
531.45 *8*	1260.40	1.2 *2*	M1,E2		Mult.: α(K)exp=0.006 *2*.
573.25 *8*	729.83	63 *6*	M1+E2	+0.10 *5*	Mult.: α(K)exp=0.0039 *15* (1988Ki04). Mult.: A_2=−0.154 *19*; A_4=0.056 *25* (1983Ko12). Mult.: p_{exp}=−0.10 *10* (1983Ko12).
594.87 *8*	594.89	37.4 *17*	M1+E2	+0.10 *3*	Mult.: α(K)exp=0.0045 *4* (1988Ki04). Mult.: A_2=−0.082 *11*, A_4=0.032 *14* (1983Ko12) or A_2=−0.069 *5*, A_4=0.042 *6* (1983Ko12). Mult.: p_{exp}=−0.19 *4* (1983Ko12). δ: Also: 0.09 (1983Ko12).
666.5 *1*	1261.47	0.47 *7*			
717.90 *8*	924.65	7.8 *3*	E1		Mult.: α(K)exp=0.009 *1* (1988Ki04). Mult.: A_2=0.159 *19*; A_4=0.009 *25* (1983Ko12). Mult.: p_{exp}=−0.24 *11* (1983Ko12).
727.16 *8*	883.71	4.0 *2*			
728.96 *8*	728.95	28.1 *10*	E1+M2	+0.13 *+5−7*	Mult.: α(K)exp=0.00099 *15* (1988Ki04). Mult.: A_2=−0.092 *18*, A_4=0.004 *23* (1983Ko12) or A_2=−0.079 *7*, A_4=0.010 *9* (1983Ko12). Mult.: p_{exp}=0.21 *7* (1983Ko12); Also: 0.11 *3* (1983Ko12). δ: Also: 0.11 *2* (1983Ko12).
765.15 *8*	1221.61	1.6 *1*	M1		Mult.: from the adopted gammas.

Continued on next page (footnotes at end of table)

^{112}Cd(p,nγ) 1988Ki04,1976Io04,1980Ad04 (continued)

γ(^{112}In) (continued)

Eγ†	E(level)	Iγ†	Mult.‡	δ§	Comments
x774.5 *1*		0.34 *6*			
823.22 *8*	1279.67	1.4 *2*			
856.21 *8*	1062.87	3.6 *2*	M1		Mult.: α(K)exp=0.002 *4* (1988Ki04). Mult.: A_2=0.148 *67*, A_4=−0.062 *82* (1983Ko12); Possible E2 admixture with δ=0.0 −3+95 (1983Ko12).
918.81 *8*	918.83	7.7 *2*	E1		Mult.: α(K)exp=0.00063 *7* (1988Ki04). Mult.: A_2=0.086 *20*; A_4=0.029 *27* (1983Ko12). Mult.: p_{exp}=−0.20 *10* (1983Ko12). Mult.: possible M2 admixture with δ=0.00 *12* (1983Ko12).
928.59 *8*	928.65	7.1 *2*	E1		Mult.: α(K)exp=0.00057 *6* (1988Ki04). Mult.: A_2=0.016 *18*; A_4=0.028 *24* (1983Ko12). Mult.: p_{exp}=−0.21 *9* (1983Ko12).
1037.77 *8*	1037.78	5.9 *2*	E1		Mult.: α(K)exp=0.00044 *6* (1988Ki04).
1054.82 *8*	1261.47	1.7 *1*	M1,E2		Mult.: α(K)exp=0.0010 *2* (1988Ki04).
1062.94 *8*	1062.87	20.4 *8*	M1+E2	+0.16 *5*	Mult.: α(K)exp=0.00088 *12* (1988Ki04). Mult.: A_2=−0.036 *14*; A_4=0.023 *19* (1983Ko12). Mult.: p_{exp}=−0.32 *7* (1983Ko12).
1073.01 *8*	1279.67	1.6 *1*	M1,E2		Mult.: α(K)exp=0.0011 *2* (1988Ki04).
x1131.7 *1*		2.3 *3*			
x1138.62 *8*		1.1 *2*			
x1191.31 *8*		1.1 *2*			
1260.53@ *5*	1260.40				Eγ: from 1983Ko12. Not observed by 1988Ki04.
1279.65 *5*	1279.67				Eγ: from 1983Ko12. Not observed by 1988Ki04.

† From 1988Ki04, unless otherwise noted.
‡ Based on α(K)exp in 1988Ki04 and A_2, and A_4 in 1980Ko12.
§ From 1983Ko12, unless otherwise noted. Note: Rose and Brink phase conversion (PC) was used by the authors. Here, δ correspond to the Steffen's PC, according to the ENSDF policy.
\# From the adopted gammas.
@ Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{112}Cd(d,2nγ) 1973FrYM,1972BrYL,1976Io02

1973FrYM, 1972BrYL: Beam: pulsed, E(d) not given; Measured: γ, γ(t), ce; Deduced: ^{112}In level scheme, Jπ.
1976Io02: Facility: NIPNE U–120 cyclotron; Beam: E(d)=12 MeV, pulsed; Target: polycrystalline metallic target enriched in ^{112}Cd; Detectors: two Na(I); Deduced: ^{112}In level scheme, Q from DPAD analysis, conf.; Also, from the same collaboration: 1993Io02.

^{112}In Levels

Wrongly placed γ–rays in 1973FrYM. Level scheme corrected by the evaluators to account for the adopted decay patterns.

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	1+	14.88 min *15*	
155.5 *10*	4+	20.67 min *8*	
161.9 *10*	(5)+		
206.6 *10*	(2)+		
349.6 *15*	(7)+	0.69 μs *5*	$T_{1/2}$: 2.1 μs 2 from 188γ(t) in 1972BrYL and 1.48 μs from 187γ(t) in 1973FrYM differ significantly from the adopted value. Q: 1.03 *3* from TDPAD in 1993Io02.
456.2 *15*	(3)+		
591.8 *18*	(4)+		
612.5 *18*	(8)−	2.81 μs *3*	$T_{1/2}$: 1.6 μs 2 from 263γ(t) in 1972BrYL and 1.25 μs from 263γ(t) in 1973FrYM differ significantly from the adopted value. Q: 0.093 *6* from DPAD analysis in 1976Io02. configuration: $(\pi g_{9/2})^{-1}\otimes(\nu h_{11/2})^{n}$ (1976Io02).
623.1 *18*	(7+)		
674.9 *18*	(6+)		

Continued on next page (footnotes at end of table)

^{112}Cd(d,2nγ) 1973FrYM,1972BrYL,1976Io02 (continued)

^{112}In Levels (continued)

E(level)†	Jπ‡
820.8 *20*	(5+)
1006.3 *23*	(4+)
1285.4 *25*	(2,3,4)−

† From a least–squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}In)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
(6.30 *5*)	161.9			Eγ: From the adopted gammas.
(51.87 *3*)	674.9			Eγ: From the adopted gammas.
135.6	591.8	15 *2*		
145.9	820.8	19 *2*		
155.5	155.5			
185.5	1006.3	9.2 *9*		
187.7	349.6	100	E2	Mult.: α(K)exp(187.7γ)/α(K)exp(155.5γ)=0.166 *21* (1973FrYM).
206.6	206.6	75 *4*		
249.6	456.2	34 *4*		
262.9	612.5	55 *6*	M2	Mult.: α(K)exp(262.9γ)/α(K)exp(155.5γ)=0.158 *12* (1973FrYM).
273.5	623.1	7.5 *8*		
279.1	1285.4	2.5 *3*		

† From 1973FrYM.
‡ From 1973FrYM, based on α(K)exp measurements.

^{113}In(γ,xn) 2010Ra01,1975Ku10

2010Ra01: Facility: Pohlang Accelerator Lab Linac; Beam: E(γ)=40–70 MeV from pulsed beam of electrons impinging 0.1 mm thick W target with an area of 100 mm x 100 mm; Sample: high–purity ^{nat}In; Detectors: one HPGe; Measured: Eγ, Iγ, activation; Deduced: Isomeric ratio (IR).
1975Ku10: Facility: Allis–Chalmers betatron at Milwaukee School of Engineering; Beam: Bremsstrahlung from E(e)=25 MeV; Target: In foils, placed 50 cm after the Pt target at the betatron; Detectors: one Ge(Li); Measured: γ, Eγ, γ(t); Deduced: IT, Isomeric ratio (IR), $T_{1/2}$.
Others: 2008Ma25, 2008Zh29, 1998Ko24, 1993PaZS, 1983Vi02.

^{112}In Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	1+	14.88 min *15*	
156.6	4+	20.67 min *8*	IR=Y_m/Y_g=3.9 *3*, 4.5 *3* and 4.9 for E(γ)=50, 60, and 70 MeV in 2010Ra01, respectively. Here Y_m and Y_g are the isomeric and the ground state yields, respectively. Others: 0.77 *1* for E=16 MeV in 2008Ma25.

† From Eγ.
‡ From the adopted levels.

γ(^{112}In)

Eγ†	E(level)
156.6	156.6

† From 2010Ra01.

^{113}In(p,d) 1978EmZT

1978EmZT: Beam: E(p)=27.3 MeV; Target: 140 μg/cm^2 enriched to 96.4% in ^{113}In and evaporated on 40 μg/cm^{12} carbon foil; Detectors: Colorado ΔE spectrometer, FWHM=12 keV; Measured: σ(E,θ); Deduced: level scheme, L, S from DWUCK4.
Jπ(^{113}In)=9/2+.

^{112}In Levels

E(level)†	L‡	C^{2}S§	Comments
0.0	4	0.03,0.05	configuration: $(\pi 1g_{9/2})^{-1}\otimes(\nu 1g_{7/2})^{-1}$.
157	0	0.39	Unresolved doublet with Jπ=4+,5+ (1978EmZT). configuration: $(\pi 1g_{9/2})^{-1}\otimes(\nu 3s_{1/2})^{-1}$.
206	2+4		C^{2}S: 0.03 (L=2), 0.10 or 0.15 (L=4).
356	2	0.54,0.63	
456	2+4		C^{2}S: 0.06 (L=2), 0.20 or 0.28 (L=4).
563	2	0.11,0.13	
595	2(+4)		C^{2}S: 0.295 or 0.366 (L=2), 0.407 or 0.581 (L=4).
622	4	0.27,0.39	
672	4	0.48,0.65	
794	2(+4)	0.04,0.06	
832	2+4		C^{2}S: 0.39 or 0.49 (L=2), 0.47 or 0.69 (L=4).
886	2	0.31,0.40	
923	0+2		C^{2}S: 0.016 (L=0), 0.07 or 0.09 (L=2).
1003	2	0.14,0.18	
1142	2(+0)		C^{2}S: 0.015 (L=0), 0.42 or 0.52 (L=2).
1213	2(+0)		E(level): possible doublet. C^{2}S: 0.012 (L=0), 0.76 or 0.95 (L=2).
1249	0+2		C^{2}S: 0.031 (L=0), 0.26 or 0.32 (L=2).
1340			
1374			
1401			
1438			
1531			
1554			
1593			
1676			
1738			
1783			

† From 1978EmZT.
‡ From 1978EmZT, based on DWUCK4 analysis of the dσ/dΩ distributions.
§ Given for two possible values: J=L+1/2 and J=L–1/2. $C^2S=(1/N)(2J+1)\sigma_{exp}/\sigma_{DWBA}$, N=2.29.

^{113}In(d,t) 1967Hj03

Facility: University of Pittsburgh cyclotron; Beam: E(d)=15 MeV; Target: 0.55 mg/cm^2 thick, enriched to 96% in ^{113}In; Detectors: 60° magnetic wedge spectrograph, photographic plates; Measured: dσ/dΩ at 45°; Deduced: ^{112}In level scheme, DWBA, L, S, Jπ, reaction Q – value.
Jπ(^{113}In)=9/2+.

^{112}In Levels

E(level)†	L‡
0.0	(4)#
147 *15*	0
339 *15*	(2)#
447§ *15*	(2)#
525?	
591 *15*	(2+4)#
648 *15*	(2)#
711?	
742 *15*	(2)#
866	(2)#
963 *15*	(2)#
996 *15*	(2)#
1047?	
1117 *15*	(2)#
1202 *15*	(2)#
1322 *15*	(2)#

† From 1967Hj03. ΔE≈15 keV for well resolved peaks.
‡ From 1967Hj03, based on dσ/dΩ and DWBA analysis.
§ Possible doublet.
# Discrepant angular distributions data. All curves are alike in 1967Hj03.

Adopted Levels, Gammas

Q(β⁻)=–7057 *18*; S(n)=–10788 *5*; S(p)=–7554 *4*; Q(α)=–1828.3 *12* 2012Wa38.

^{112}Sn Levels

Cross Reference (XREF) Flags

A ^{112}In β⁻ Decay	G ^{103}Rh(^{12}C,p2nγ)	M ^{112}Sn(p,p')
B ^{112}Sb ε Decay	H ^{100}Mo(^{16}O,4nγ),^{98}Mo(^{16}O,2nγ)	N ^{114}Sn(p,t)
C Coulomb Excitation	I ^{100}Mo(^{20}Ne,α4nγ)	O Others: ^{110}Cd(^{3}He,n) ^{112}Sn(d,d') ^{112}Sn(α,α')
D ^{112}Sn(γ,γ')	J ^{110}Cd(^{3}He,nγ),^{112}Cd(^{3}He,3nγ)	
E ^{112}Sn(n,n'γ)	K ^{113}In(p,2nγ)	
F ^{110}Cd(α,2nγ)	L ^{112}Sn(p,p'γ)	

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
0.0§	0+	ABCDEFGHIJKLMNO	stable	
1256.69§ *4*	2+	BCDEFGHIJKLMNO	0.376 ps *5*	XREF: K(1258)O(1250)O(1260). Jπ: L(p,t)=2; 1256.68γ E2 to 0+. $T_{1/2}$: from B(E2)↑ in Coulomb excitation. Others: 0.451 ps *28* from DSAM in 2011Ju01 and 0.37 ps *+7–6* in from DSAM in 2007Or04 (note that the value was initially reported as 0.52 ps *+9–6*, but it was retracted by the authors. B(E2)↑: 0.240 *3*, weighted average of 0.242 *8* (2011Ku05,2010Ku07), 0.240 *20* (2007Va22), 0.229 *5* (1975Gr30), and 0.256 *6* (1970St20). Other: 0.240 *14* (1987Ra01), weighted average of the data in 1975Gr30 and 1970St20. β_2=0.143 *5* (for r_0=1.26 fm) (1980Bl07). Other: 0.152 *10* (1968Ma34). μ: +0.21 *7* from g–factor=+0.104 *35* in 2011Wa15. Other: +0.7 *3* in 1980Ha19. Q: –0.09 *10* in 1975Gr30.
2150.87 *5*	2+	BC E LMN	1.4 ps *4*	Jπ: L(p,p')=2; 2150.9γ E2 to 0+ and 894.17γ M1+E2 to 2+. $T_{1/2}$: from B(E2)↑=0.00065 *20* in Coulomb excitation (1981Jo03).
2190.81 *6*	0+	C E H LMNO	≥2.7 ps	XREF: H(2186.9)N(2192)O(2200). Jπ: L(p,t)=0,L(^{3}He,n)=0; 2190.9 E0 transition to 0+, 934.12γ E2 to 2+. $T_{1/2}$: From B(E2)↑≤0.029.
2247.39§ *6*	4+	BC EF HIJKLMNO	3.3 ps *5*	XREF: K(2251.0)N(2248)O(2260). Jπ: L(p,t)=4; L(p,p')=4; 990.69γ E2 to 2+. $T_{1/2}$: from B(E2)(2+ to 4+)=0.032 *5* in Coulomb excitation (1981Jo03). μ: +1.5 *7* from g–factor=+0.38 *18* in 2011Wa15.
2354.21 *6*	3–	BC EF H LMNO	0.215 ps *14*	XREF: B(2355.0)N(2355)O(2360)O(2350). Jπ: L(p,p')=3; L(p,t)=3; L(α,α')=3; 1097.38γ E1 to 2+. $T_{1/2}$: From DSAM in 2011Ju01; Other: 0.35 *+14–8* ps from DSAM in ^{112}Sn(n,n'γ) (2005Ku28). β_3=0.146 *5* (for r_0=1.26 fm) (1980Bl01). Other: 0.203 *15* (1968Ma34). B(E3)=0.087 *12* (1981Jo03) in Coulomb excitation (1981Jo03) and 0.050 *10* in ^{112}Sn(α,α') (1970Br07). μ: –1.4 *28* from g–factor=–0.48 *92* in 2011Wa15.
2476.16 *11*	2+	BC E H MNO	>2.4 ps	XREF: H(2474.8)M(2475)O(2500). Jπ: L(p,t)=2; 2475.8γ E2 to 0+.
2520.70 *7*	4+	BC EFGHI MNO	0.42 ps *14*	XREF: I(2520.12)O(2530). Jπ: L(p,t)=4; 1264.07γ E2 to 2+. $T_{1/2}$: from DSAM in ^{103}Rh(^{12}C,p2nγ) (1990ViZW). Other: >0.8 ps in ^{112}Sn(n,n'γ) (2005Ku28).

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Adopted Levels, Gammas (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
2549.22 *14*	6+	EF HIJK MN	13.73 ns *8*	XREF: K(2553.0)M(2550). Jπ: L(p,t)=6; 301.84γ E2 to 4+. $T_{1/2}$: weighted average of of 13.9 ns *2* (1980Va13), 14.0 ns *4* (1969Ya05), 13.2 ns *4* (1981Go17) and 13.7 ns *1* (1981Va15) in ^{110}Cd(α,2nγ) and 12.1 ns *15* (1989An14, 1988Pe17) and 13.6 ns *4* (1989An14) in ^{110}Cd(^{3}He,nγ),^{112}Cd(^{3}He,3nγ). Other >0.5 ps from DSAM in ^{112}Sn(n,n'γ) (2005Ku28). μ: +0.53 *3* (1983Le18), +0.61 *5* (1981Go17), and +0.2 *2* (1981Va15). Q: 0.29 *6* (1975Vi03). configuration: most likely a mixture between $(\nu g_{7/2}^{-1},\nu d_{5/2}^{-1})$ and $(\nu g_{7/2})^{-2}$.
2556.6 *3*	(2+)	B		Jπ: 2556.6γ to 0+; direct population in ^{112}Sb ε decay (Jπ=(3+)).
2617.62 *18*	0+	E MN	>0.4 ps	Jπ: L(p,t)=0; 1360.92γ E2 to 2+. $T_{1/2}$: Other: >0.8 ps from B(E2)(0+ –>2+)<0.016 (1981Ba05).
2721.06 *14*	2+	B E MN	0.8 ps *+10–3*	XREF: M(2723). Jπ: L(p,t)=2; L(p,p')=2; 2721.6γ E2 to 0+.
2756.02 *9*	3+	B E M	>0.8 ps	XREF: M(2760). Jπ: 1499.5γ M1(+E2) to 2+, 508.8γ M1+E2 to 4+.
2765.2 *3*	0+ to 4+	E	>1.0 ps	
2783.66 *14*	4+	B EFGHI MNO	0.32 ps *7*	XREF: B(2784.6)M(2786)O(2800). Jπ: L(p,t)=4; L(p,p')=4; 1527.2γ E2 to 2+. $T_{1/2}$: wt. average of 0.35 ps *14* in ^{103}Rh(^{12}C,p2nγ) (1990ViZW) and 0.31 ps *+10–6* in ^{112}Sn(n,n'γ) (2005Ku28).
2860 *2*		M		
2913.07 *21*	4+	B E M	>0.6 ps	XREF: M(2915). Jπ: L(p,p')=4; 1656.3γ E2 to 2+.
2917.39 *10*	2+,3,4+	B E	>1.1 ps	XREF: B(2918.0). Jπ: 669.9γ to 4+, 767.0γ to 2+.
2926.82 *18*	6+	EF HI MN	>0.22 ps	XREF: M(2928). Jπ: L(p,t)=6; 378.6γ M1 to 6+.
2945.70 *13*	4+	B EF HI M	>1.1 ps	XREF: M(2947). Jπ: L(p,p')=4; 1688.7γ E2 to 2+.
2966.63 *8*	2+	B E MN	0.5 ps *+8–2*	XREF: M(2969)N(2966). Jπ: L(p,t)=2; 612.4γ E1 to 3–; 1709.9γ M1(+E2) to 2+ and 2966.6γ E2 to 0+.
2969.31 *6*		E O	0.29 ps *+21–9*	XREF: O(2970).
2986.4 *3*	0+	E MN	>1.7 ps	XREF: M(2989)N(2988). Jπ: L(p,t)=0; 1729.7γ E2 to 2+.
3078.53 *13*	(2,3)+	B E	>1.2 ps	Jπ: 927.7γ M1+E2 to 2+; 1821.8γ M1+E2 to 2+, and 831.1γ to 4+.
3092.21 *10*	2+	B E M	0.25 ps *+8–5*	XREF: B(3093.3)M(3095). Jπ: L(p,p')=2; 3092.1γ E2 to 0+.
3113.54 *15*	0+ to 4+	E M		XREF: M(3118). Jπ: 962.67γ to 2+.
3133.42 *11*	5–	E H MN	>1.0 ps	XREF: H(3136.5)M(3137)N(3132). Jπ: L(p,p')=5; L(p,t)=5; 779.3γ E2 to 3–; 886.0γ E1 to 4+.
3141.1 *4*		E		
3149.28 *21*	4+	B E M O	0.6 ps *+10–2*	XREF: M(3152)O(3150). Jπ: L(p,p')=4; 1892.2γ E2 to 2+.
3248.69 *10*	2+	B E MN	>1.1 ps	XREF: M(3253). Jπ: L(p,t)=2; 3248.1γ E2 to 0+.
3272.31 *16*	4+	E MN	0.30 ps *+21–10*	XREF: M(3278)N(3275). Jπ: L(p,p')=4; L(p,t)=4; 2016.1γ E2 to 2+.
3283.60 *21*	2+	E n		XREF: n(3286). Jπ: L(p,t)=2; 1036.2γ to 4+.

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Adopted Levels, Gammas (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
3286.18 *15*	(2)+	B E n	0.22 ps *+15−7*	XREF: n(3286). Jπ: 2029.4γ M1(+E2) to 2+ and 3286.2γ to 0+; direct population in ^{112}Sb ε decay (Jπ=(3+)).
3288.0 *3*	(1,2+)	E M		XREF: M(3292). Jπ: 1097.2γ to 0+.
3338.3 *3*	2+	E N	>0.3 ps	XREF: N(3345). Jπ: 2081.6γ M1+E2 to 2+; L(p,t)=2.
3353.1 *4*	2+	E	>1.4 ps	Jπ: 2096.4γ M1+E2 to 2+ and 3353.0γ E2 γ to 0+.
3354.38 *15*	(7)−	F HI K M		XREF: H(3355.0)K(3360)M(3360). Jπ: 805.11γ E1 to 6+; yrast state, but 5− and 6− cannot unambiguously be excluded. configuration: possible $\nu d_{3/2}h_{11/2}$ configuration.
3378.9 *3*	0+ to 4+	E		Jπ: 1228.0γ to 2+.
3384.30 *22*	(3)−	B E M	0.18 ps *+8−5*	XREF: M(3387). Jπ: 2127.50γ E1 to 2+, but 1− and 2− cannot unambiguously be excluded.
3397.20 *12*	2−,3−	E	0.23 ps *+10−6*	Jπ: 1042.95γ M1+E2 to 3− and 1246.6γ to 2+.
3400 *3*	4+	MN		XREF: M(3402). Jπ: L(p,t)=4.
3413.93# *12*	6+#	EFGHI N	0.6 ps *3*	Jπ: L(p,t)=4,6; 1166.9γ E2 to 4+; member of ΔJ=2 sequence. $T_{1/2}$: From DSAM in ^{103}Rh(^{12}C,p2nγ) (1990ViZW).
3417.41 *11*	4+	B E M O	>0.4 ps	XREF: M(3424)O(3430). Jπ: L(p,p')=4; 2160.7γ E2 to 2+.
3430.65 *22*	(8)−	FGHI	0.61 ns *3*	Jπ: 76.3γ M1+E2 to (7)−; no transitions to the 6+ states. $T_{1/2}$: weighed average of 0.58 ns *6* from γγ(t) in ^{110}Cd(α,2nγ) (1980Va13) and 0.62 ns *4* from recoil distance method in ^{100}Mo(^{16}O,4nγ) (1986Ka25).
3433.9 *5*	(1−)	DE M	1.9 fs *+11−10*	XREF: D(3434)M(3440). Jπ: 3433.3γ (E1) to 0+ ; B(E1)=11.5×10^{-5} *11* (2014Oz03), 10.7×10^{-5} *12* (2006Py01).
3445 *3*	4+	N		
3456.31 *20*	2+,3+	B E	>0.7 ps	Jπ: 2199.6γ M1+E2 to 2+; direct population in ^{112}Sb ε decay (Jπ=(3+)).
3471.7 *3*	4+	E MN	>0.23 ps	XREF: M(3477)N(3481). Jπ: L(p,t)=4; 951.0γ to 4+.
3494.00 *21*	2+ to 6+	E		Jπ: 1246.6γ to 4+.
3499.21 *16*	5−	E MN	0.04 ps *+4−2*	XREF: M(3502)N(3510). Jπ: L(p,t)=5; 979.3γ to 4+, 1144.2γ to 3−.
3520.45 *20*	1 to 4+	E M		XREF: M(3522).
3524.54 *18*	2+	B E	>0.12 ps	Jπ: 1277.7γ E2 to 4+; 3524.2γ E2 to 0+.
3530.15 *14*	2+,3,4+	B E M		XREF: M(3532). Jπ: 380.8γ to 4+, 1379.6γ to 2+.
3553.7 *3*	(3)−	B E N	0.17 ps *+11−6*	Jπ: L(p,t)=3; 2297.0γ to 2+.
3557.29 *12*		E M	>0.3 ps	XREF: M(3558).
3570	(0)+	O		Jπ: L(^{3}He,n)=0.
3580 *5*	(4)+	M		Jπ: L(p,p')=4.
3586 *3*	(2)+	N		Jπ: L(p,t)=2.
3604.90 *12*		E		
3610.97 *11*		E M	0.8 ps *+4−2*	XREF: M(3611).
3624 *3*	(2+,4+)	MN		Jπ: L(p,p')=(2) in 1980Bl01 supports (2+), while L(p,t)=4 in (2012Gu10) supports 4(+).
3631.03 *24*		E		
3654.34 *15*	2+	E MN		XREF: N(3663). Jπ: L(p,p')=2; 2397.6γ M1+E2 to 2+.
3693.68 *22*	(9)−	FGHI M	47 ps *7*	XREF: M(3695). Jπ: 263.03γ M1+E2 to (8)−. $T_{1/2}$: From recoil-distance measurements in ^{100}Mo(^{16}O,4nγ) (1986Ka25); Other: 0.69 ps *14* in ^{103}Rh(^{12}C,p2nγ) (1990ViZW).
3726.22 *21*		E MN		XREF: M(3737)N(3715).
3754.4 *3*		E M		XREF: M(3756).

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Adopted Levels, Gammas (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
3782.9 3		E MN		XREF: M(3773)N(3776).
3813.78 10	(2+,3+,4+)	B MN		XREF: M(3815)N(3818). Jπ: 1566.4γ to 4+; direct population in ^{112}Sb ε decay (Jπ=(3+)).
3832 7		M		
3857 7		M		
3877 7		MN		XREF: N(3874).
3914 7		MN		XREF: N(3930).
3988 7		M		
4031 7		MN		XREF: N(4048).
4054 7		M		
4077.59# 14	8+#	FGHI MN	1.0 ps 4	XREF: M(4078)N(4091). Jπ: 663.66γ E2 to 6+; band member. $T_{1/2}$: from DSAM in ^{103}Rh(^{12}C,p2nγ) (1990ViZW).
4105 7		M		
4141.3 5	(1−)	D M		XREF: M(4138). Jπ: 4141.2γ (E1) to 0+. B(E1)=0.7×10^{-5} 2 (2014Oz03).
4151 7		M		
4162.3 5	(1−)	D N		XREF: N(4164). Jπ: 4162.2γ (E1) to 0+. B(E1)=1.8×10^{-5} 2 (2014Oz03).
4171 7	4(+)	M		Jπ: L(p,p')=4.
4193 7		M		
4222 7		M		
4239 7		MN		XREF: N(4241).
4279 7		MN		XREF: N(4287).
4330.4 5	(1−)	D MN		XREF: M(4325)N(4316). Jπ: 4330.3γ (E1) to 0+. B(E1)=0.5×10^{-5} 1 (2014Oz03).
4364 7		MN		XREF: N(4363).
4402 7		M		
4437 7		M		
4461 7		MN		XREF: N(4455).
4502 7		MN		XREF: N(4486).
4544 7		M		
4582.61 25	(10)−	FGHI MN	0.24 ps 7	XREF: M(4571)N(4576). Jπ: 1151.94γ E2 to (8)−. $T_{1/2}$: from DSAM in ^{103}Rh(^{12}C,p2nγ) (1990ViZW). Other: <21 ps from RDDS in ^{100}Mo(^{16}O,4nγ) (1986Ka25).
4610 7		MN		XREF: N(4629).
4681.0 3	(10+)	HI M		XREF: H(4680.2)M(4685). Jπ: 603.1γ to 8+, 987.4γ to (9)−.
4726.5 5	(1−)	D MN		XREF: M(4738)N(4724). Jπ: 4726.4γ (E1) to 0+. B(E1)=0.3×10^{-5} 1 (2014Oz03).
4757 7		MN		XREF: N(4740).
4794 7		M		
4819.37# 22	10+#	FGHI M	0.14 ps 7	XREF: M(4825). Jπ: 741.8γ E2 to 8+; band member. $T_{1/2}$: from DSAM in ^{103}Rh(^{12}C,p2nγ) (1990ViZW).
4837.4 5	(1−)	D		Jπ: 4837.3γ (E1) to 0+. B(E1)=0.7×10^{-5} 1 (2014Oz03).
4850 7		M		
4887 7		M		
4928.9 4	(11)−	F HI M	<21 ps	Jπ: 1235.3γ E2 to (9)−, 345.9γ M1+E2 to (10)−. $T_{1/2}$: from recoil distance method in ^{100}Mo(^{16}O,4nγ) (1986Ka25).
4957 7		M		
5057.1 5	(1−)	D M		XREF: M(5059). Jπ: 5057.0γ (E1) to 0+. B(E1)=3.0×10^{-5} 3 (2014Oz03).
5089 7		M		

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Adopted Levels, Gammas (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
5128.2 *5*	(1−)	D M		XREF: M(5116). Jπ: 5128.1γ (E1) to 0+. B(E1)=4.2×10^{-5} *4*.
5144 *7*		M		
5181 *7*		M		
5246.2 *5*	(1−)	D		Jπ: 5246.1γ (E1) to 0+. B(E1)=3.3×10^{-5} *3* (2014Oz03).
5270 *7*		M		
5355 *7*		M		
5480.5 *5*	(1−)	D		Jπ: 5480.4γ (E1) to 0+. B(E1)=1.2×10^{-5} *2* (2014Oz03).
5502.6 *5*	(1−)	D		Jπ: 5502.5γ (E1) to 0+. B(E1)=1.5×10^{-5} *2* (2014Oz03).
5564.3@ *3*	12+	FGHI	0.66 ps *14*	Jπ: 745.0γ E2 to 10+; band member. $T_{1/2}$: from DSAM in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). Other: <0.14 ps in ^{103}Rh(^{12}C,p2nγ) (1990ViZW).
5593.7 *5*	(1−)	D		Jπ: 5593.6γ (E1) to 0+. B(E1)=0.7×10^{-5} *1* (2014Oz03).
5617.6 *5*	(1−)	D		Jπ: 5617.4γ (E1) to 0+. B(E1)=0.6×10^{-5} *1* (2014Oz03).
5649.1 *5*	(1−)	D		Jπ: 5648.9γ (E1) to 0+. B(E1)=0.7×10^{-5} *1* (2014Oz03).
5666.4 *5*	(1−)	D		Jπ: 5666.2γ (E1) to 0+. B(E1)=0.4×10^{-5} *1* (2014Oz03).
5684.59 *24*	12+	F HI		Jπ: 865.2γ E2 to 10+.
5699.9 *5*	(1−)	D		Jπ: 5699.7γ (E1) to 0+. B(E1)=0.5×10^{-5} *1* (2014Oz03).
5748.6 *5*	(1−)	D		Jπ: 5748.4γ (E1) to 0+. B(E1)=1.0×10^{-5} *1* (2014Oz03).
5812.7 *5*	(1−)	D		Jπ: 5812.5γ (E1) to 0+. B(E1)=0.5×10^{-5} *1* (2014Oz03).
5860.7 *5*	(1−)	D		Jπ: 5860.5γ (E1) to 0+. B(E1)=2.3×10^{-5} *4* (2014Oz03).
5884.0 *5*	(1−)	D		Jπ: 5883.8γ (E1) to 0+. B(E1)=1.4×10^{-5} *2* (2014Oz03).
5924.1 *5*	(1−)	D		Jπ: 5923.9γ (E1) to 0+. B(E1)=1.5×10^{-5} *2* (2014Oz03).
5976.6 *5*	(1−)	D		Jπ: 5976.4γ (E1) to 0+. B(E1)=1.7×10^{-5} *2* (2014Oz03).
6005.0 *10*	(1−)	D		Jπ: 6004.8γ (E1) to 0+. B(E1)=3.2×10^{-5} *3* (2014Oz03).
6059.8 *10*	(1−)	D		Jπ: 6059.6γ (E1) to 0+. B(E1)=6.1×10^{-5} *6* (2014Oz03).
6080.9 *10*	(1−)	D		Jπ: 6080.7γ (E1) to 0+. B(E1)=0.9×10^{-5} *2* (2014Oz03).
6096.9 *10*	(1−)	D		Jπ: 6096.7γ (E1) to 0+. B(E1)=3.6×10^{-5} *2* (2014Oz03).
6129.0 *10*	(1−)	D		Jπ: 6128.8γ (E1) to 0+. B(E1)=1.4×10^{-5} *2* (2014Oz03).
6150.4 *10*	(1−)	D		Jπ: 6150.2γ (E1) to 0+. B(E1)=3.4×10^{-5} *3* (2014Oz03).
6168.3 *10*	(1−)	D		Jπ: 6168.1γ (E1) to 0+. B(E1)=1.2×10^{-5} *2* (2014Oz03).
6198.7 *10*	(1−)	D		Jπ: 6198.5γ (E1) to 0+. B(E1)=2.2×10^{-5} *2* (2014Oz03).
6224.3 *10*	(1−)	D		Jπ: 6224.1γ (E1) to 0+. B(E1)=3.7×10^{-5} *3* (2014Oz03).
6246.4 *10*	(1−)	D		Jπ: 6246.2γ (E1) to 0+. B(E1)=1.8×10^{-5} *2* (2014Oz03).
6259.1 *10*	(1−)	D		Jπ: 6259.1γ (E1) to 0+. B(E1)=1.5×10^{-5} *2* (2014Oz03).
6272.6 *10*	(1−)	D		Jπ: 6272.4γ (E1) to 0+. B(E1)=2.5×10^{-5} *3* (2014Oz03).

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Adopted Levels, Gammas (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
6313.3 *10*	(1−)	D		Jπ: 6313.1γ (E1) to 0+. B(E1)=2.9×10^{-5} *3* (2014Oz03).
6348.7 *10*	(1−)	D		Jπ: 6348.5γ (E1) to 0+. B(E1)=1.5×10^{-5} *2* (2014Oz03).
6362.9@ *3*	14+	HI	1.2 ps *3*	Jπ: 798.6γ E2 to 12+; band member. $T_{1/2}$: from DSAM in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
6388.1 *10*	(1−)	D		Jπ: 6387.9γ (E1) to 0+. B(E1)=7.3×10^{-5} *5* (2014Oz03), 5.17×10^{-5} *2* (2008BoZK).
6398.3& *5*	(13−)	HI		XREF: H(6399.5). Jπ: 1469.4γ to (11)−; band member.
6404.1 *10*	(1−)	D		Jπ: 6403.9γ (E1) to 0+. B(E1)=18.4×10^{-5} *13* (2014Oz03), B(E1)=8.47×10^{-5} *3* (2008BoZK).
6428.6 *10*	(1−)	D		Jπ: 6428.4γ (E1) to 0+. B(E1)=1.2×10^{-5} *2* (2014Oz03), B(E1)=4.89×10^{-5} *2* (2008BoZK).
6450.0 *10*	(1−)	D		Jπ: 6449.8γ (E1) to 0+. B(E1)=1.2×10^{-5} *2* (2014Oz03).
6476.3 *15*	(1−)	D		Jπ: 6476.1γ (E1) to 0+. B(E1)=7.46×10^{-5} *4* (2008BoZK).
6520.7 *10*	(1−)	D		Jπ: 6520.5γ (E1) to 0+. B(E1)=3.2×10^{-5} *3* (2014Oz03).
6550.1 *10*	(1−)	D		Jπ: 6549.9γ (E1) to 0+. B(E1)=0.6×10^{-5} *1* (2014Oz03).
6601.0 *10*	(1−)	D		Jπ: 6600.8γ (E1) to 0+. B(E1)=1.7×10^{-5} *2* (2014Oz03).
6679.9 *10*	(1−)	D		Jπ: 6679.7γ (E1) to 0+. B(E1)=0.7×10^{-5} *1* (2014Oz03).
6706.7 *10*	(1−)	D		Jπ: 6706.5γ (E1) to 0+. B(E1)=1.8×10^{-5} *2* (2014Oz03).
6715.0 *10*	(1−)	D		Jπ: 6714.8γ (E1) to 0+. B(E1)=1.5×10^{-5} *6* (2014Oz03), 3.03×10^{-5} *1* (2008BoZK).
6731.9 *10*	(1−)	D		Jπ: 6731.7γ (E1) to 0+. B(E1)=2.7×10^{-5} *5* (2014Oz03), 2.66×10^{-5} *1* (2008BoZK).
6795.5 *10*	(1−)	D		Jπ: 6795.3γ (E1) to 0+. B(E1)=1.7×10^{-5} *2* (2014Oz03), 2.01×10^{-5} *1* (2008BoZK).
6818.7 *10*	(1−)	D		Jπ: 6818.5γ (E1) to 0+. B(E1)=1.3×10^{-5} *2* (2014Oz03), 3.16×10^{-5} *1* (2008BoZK).
6824.2 *10*	(1−)	D		Jπ: 6824.0γ (E1) to 0+. B(E1)=1.7×10^{-5} *3* (2014Oz03).
6855.9 *10*	(1−)	D		Jπ: 6855.7γ (E1) to 0+. B(E1)=1.5×10^{-5} *2* (2014Oz03).
6871.2 *10*	(1−)	D		Jπ: 6871.0γ (E1) to 0+. B(E1)=1.7×10^{-5} *2* (2014Oz03).
6941.2 *10*	(1−)	D		Jπ: 6941.0γ (E1) to 0+. B(E1)=3.1×10^{-5} *3* (2014Oz03).
6961.5 *10*	(1−)	D		Jπ: 6961.3γ (E1) to 0+. B(E1)=3.1×10^{-5} *5* (2014Oz03).
6982.7 *10*	(1−)	D		Jπ: 6982.5γ (E1) to 0+. B(E1)=2.1×10^{-5} *3* (2014Oz03).
7009.8 *10*	(1−)	D		Jπ: 7009.6γ (E1) to 0+. B(E1)=0.5×10^{-5} *1* (2014Oz03).
7018.7 *10*	(1−)	D		Jπ: 7018.5γ (E1) to 0+. B(E1)=0.7×10^{-5} *1* (2014Oz03).
7025.8 *10*	(1−)	D		Jπ: 7025.6γ (E1) to 0+. B(E1)=0.7×10^{-5} *1* (2014Oz03).
7043.1 *10*	(1−)	D		Jπ: 7042.9γ (E1) to 0+. B(E1)=2.0×10^{-5} *3* (2014Oz03).
7092.8 *10*	(1−)	D		Jπ: 7092.6γ (E1) to 0+. B(E1)=4.2×10^{-5} *4* (2014Oz03).
7167.2 *10*	(1−)	D		Jπ: 7167.0γ (E1) to 0+. B(E1)=2.8×10^{-5} *3* (2014Oz03).

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Adopted Levels, Gammas (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
7198.2 *10*	(1−)	D		Jπ: 7198.0γ (E1) to 0+. B(E1)=4.4×10^{-5} *6* (2014Oz03), 2.66×10^{-5} *1* (2008BoZK).
7207.1& *5*	(15−)	HI		XREF: H(7208.5). Jπ: 808.8γ to (13−); band member.
7208.1 *10*	1−	D		Jπ: 7207.9γ (E1) to 0+. B(E1)=1.18×10^{-5} *1* (2008BoZK).
7214.2@ *3*	16+	HI	0.55 ps *10*	XREF: H(7213.0). Jπ: 851.3γ E2 to 14+; band member. $T_{1/2}$: from DSAM in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
7217.8 *11*	(1−)	D		Jπ: 7217.6γ (E1) to 0+. B(E1)=1.89×10^{-5} *1* (2008BoZK).
7228.1 *10*	(1−)	D		Jπ: 7227.8γ (E1) to 0+. B(E1)=1.2×10^{-5} *2* (2014Oz03), 2.01×10^{-5} *1* (2008BoZK).
7248.4 *14*	(1−)	D		Jπ: 7248.1γ (E1) to 0+. B(E1)=2.01×10^{-5} *1* (2008BoZK).
7311.1 *10*	(1−)	D		Jπ: 7310.8γ (E1) to 0+. B(E1)=1.0×10^{-5} *2* (2014Oz03).
7389.9 *10*	(1−)	D		Jπ: 7389.6γ (E1) to 0+. B(E1)=1.3×10^{-5} *2* (2014Oz03).
7438.6 *10*	(1−)	D		Jπ: 7438.3γ (E1) to 0+. B(E1)=1.9×10^{-5} *3* (2014Oz03).
7444.1 *10*	(1−)	D		Jπ: 7443.8γ (E1) to 0+. B(E1)=1.6×10^{-5} *3* (2014Oz03).
7468.3 *10*	(1−)	D		Jπ: 7468.0γ (E1) to 0+. B(E1)=1.3×10^{-5} *3* (2014Oz03).
7531.3 *10*	(1−)	D		Jπ: 7531.0γ (E1) to 0+. B(E1)=2.9×10^{-5} *4* (2014Oz03).
7537.2 *10*	(1−)	D		Jπ: 7536.9γ (E1) to 0+. B(E1)=5.2×10^{-5} *6* (2014Oz03).
7559.1 *10*	(1−)	D		Jπ: 7558.8γ (E1) to 0+. B(E1)=2.1×10^{-5} *3* (2014Oz03).
7594.5 *10*	(1−)	D		Jπ: 7594.2γ (E1) to 0+. B(E1)=1.3×10^{-5} *2* (2014Oz03).
7615.3 *10*	(1−)	D		Jπ: 7615.0γ (E1) to 0+. B(E1)=1.7×10^{-5} *3* (2014Oz03).
7859.5 *10*	(1−)	D		Jπ: 7859.2γ (E1) to 0+. B(E1)=1.2×10^{-5} *2* (2014Oz03).
7904.7 *10*	(1−)	D		Jπ: 7904.4γ (E1) to 0+. B(E1)=1.1×10^{-5} *2* (2014Oz03).
7936.7 *10*	(1−)	D		Jπ: 7936.4γ (E1) to 0+. B(E1)=1.6×10^{-5} *2* (2014Oz03).
7988.2 *10*	(1−)	D		Jπ: 7987.9γ (E1) to 0+. B(E1)=3.4×10^{-5} *3* (2014Oz03).
8020.7 *10*	(1−)	D		Jπ: 8020.4γ (E1) to 0+. B(E1)=2.3×10^{-5} *4* (2014Oz03).
8051.6 *10*	(1−)	D		Jπ: 8051.3γ (E1) to 0+. B(E1)=2.2×10^{-5} *3* (2014Oz03).
8069.6 *10*	(1−)	D		Jπ: 8069.3γ (E1) to 0+. B(E1)=2.6×10^{-5} *4* (2014Oz03).
8083.0& *5*	(17−)	HI		XREF: H(8089.0). Jπ: 875.9γ to (15−); band member.
8147.1@ *4*	18+	HI	0.34 ps *+8−10*	XREF: H(8145.0). Jπ: 932.9γ E2 to 16+; band member. $T_{1/2}$: from DSAM in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
8194.5 *10*	(1−)	D		Jπ: 8194.2γ (E1) to 0+. B(E1)=2.7×10^{-5} *4* (2014Oz03).
8218.2 *10*	(1−)	D		Jπ: 8217.9γ (E1) to 0+. B(E1)=1.4×10^{-5} *2* (2014Oz03).
8253.6 *10*	(1−)	D		Jπ: 8253.3γ (E1) to 0+. B(E1)=0.9×10^{-5} *2* (2014Oz03).
8448.6 *10*	(1−)	D		Jπ: 8448.3γ (E1) to 0+. B(E1)=0.7×10^{-5} *2* (2014Oz03).

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Adopted Levels, Gammas (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ	XREF	$T_{1/2}$‡	Comments
8568.9 *10*	(1–)	D		Jπ: 8568.5γ (E1) to 0+. B(E1)=0.8×10^{-5} *2* (2014Oz03).
8600.4 *10*	(1–)	D		Jπ: 8600.0γ (E1) to 0+. B(E1)=0.5×10^{-5} *2* (2014Oz03).
8750.2 *10*	(1–)	D		Jπ: 8749.8γ (E1) to 0+. B(E1)=1.1×10^{-5} *2* (2014Oz03).
8823.4 *10*	(1–)	D		Jπ: 8823.0γ (E1) to 0+. B(E1)=1.2×10^{-5} *3* (2014Oz03).
9045.2& *6*	(19–)	HI		XREF: H(9051). Jπ: 962.2γ to (17–); band member.
9050.5 *10*	(1–)	D		Jπ: 9050.1γ (E1) to 0+. B(E1)=1.6×10^{-5} *4* (2014Oz03).
9095.3 *10*	(1–)	D		Jπ: 9094.9γ (E1) to 0+. B(E1)=1.0×10^{-5} *2* (2014Oz03).
9150.1 *10*	(1–)	D		Jπ: 9149.7γ (E1) to 0+. B(E1)=0.9×10^{-5} *3* (2014Oz03).
9186.6@ *4*	20+	HI	0.22 ps *6*	XREF: H(9184). Jπ: 1039.5γ E2 to 18+; band member. $T_{1/2}$: from DSAM in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
9329.8 *10*	(1–)	D		Jπ: 9329.4γ (E1) to 0+. B(E1)=2.1×10^{-5} *5* (2014Oz03).
10076.2& *12*	(21–)	HI		XREF: H(10082). Jπ: 1031.0γ to (19–); band member.
10335.7@ *5*	22+	HI	0.14 ps *4*	XREF: H(10332). Jπ: 1149.1γ E2 to 20+; band member. $T_{1/2}$: from DSAM in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
11570.6@ *7*	(24+)	I	<0.35 ps	Jπ: 1234.9γ to 22+; band member. $T_{1/2}$: from DSAM in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
12965.1?@ *13*	(26+)	I		Jπ: 1395.0γ to (24+); band member.

† From a least–squares fit to Eγ.
‡ From DSAM in ^{112}Sn(n,n'γ) (2005Ku28), unless otherwise noted.
§ Ground state band.
# Probable member of the ΔJ=2 sequence; configuration=$\pi g_{9/2}^{-2}\otimes\pi g_{7/2}^{2}$.
@ (A): Probable member of a ΔJ=2 band on the 5564.3 (Jπ=12+) state; configuration=$\pi[g_{9/2}^{-2}g_{7/2}^{2}]\otimes\nu h_{11/2}^{2}$.
& (B): Probable member of a ΔJ=2 band on the 6398.3 (Jπ=13–) state; configuration=$\pi[g_{9/21}h_{11/2}]\otimes\nu h_{11/2}^{2}$.

γ(^{112}Sn)

E(level)	Eγ†	Iγ†	Mult.§	δ‡§b	α	Comments
1256.69	1256.68 *4*	100	E2		8.05×10^{-4}	Mult.: α(K)exp=0.00060 *8* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.64 *8* and A_4=–0.82 *8* in Coulomb excitation (2011Wa15); Alternatively, A_2=0.90 *6* and A_4=–0.71 *6* in Coulomb excitation (2011Wa15). A_2=0.243 *5* and A_4=–0.048 *9* in ^{110}Cd(α,2nγ) (1979Br07); DCO=1.01 *6* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pγ=0.39 in ^{110}Cd(α,2nγ) (1979Br07) and +0.05 *2* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=14.96 *20*.
2150.87	894.17 *4*	100 *1*	M1+E2	–0.28 *6*	0.00199	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)=0.017 *5*; B(E2)(W.u.)=1.4 *7*.
	2150.9 *4*	16.7# *11*	E2		6.53×10^{-4}	Mult.: from γ(θ) in 2005Ku28. B(E2)(W.u.)=0.039 *12*.
2190.81	934.12 *4*	100	E2		1.50×10^{-3}	Eγ: 928 in ^{100}Mo(^{16}O,4nγ),^{98}Mo(^{16}O,2nγ) (1988Ha20). Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<9.2.

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Sn)$ (continued)

E(level)	Eγ†	Iγ†	Mult.§	δ‡§b	α	Comments
2190.81	2190.9 5		E0			I(γ+ce): 0.1455 21. Eγ,Mult.: from ce measurements in ^{112}Sn(p,p'γ) (1981Ba05). I(γ+ce): from Ice(K)(2190.9γ)/Ice(K)(934.12γ)= 0.55 10 in ^{112}Sn(p,p'γ) (1981Ba05), α(K)(934.12γ)=0.001301 19, Iγ(934.12γ)=100 and Ω_K/Ω_T=0.8942 (2008Ki07).
2247.39	990.69 4	100	E2		1.31×10^{-3}	Eγ: 993 in ^{113}In(p,2nγ) (1969Ya05). Mult.: α(K)exp=0.0014 in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.236 5 and A_4=−0.050 9 in ^{110}Cd(α,2nγ) (1979Br07); DCO=1.03 5 in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pγ=+0.07 3 in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45) and Pγ=0.37 in ^{110}Cd(α,2nγ) (1979Br07). B(E2)(W.u.)=5.6 9.
2354.21	203.2 2		[E1]		0.0246	
	1097.38 7	100	E1		4.59×10^{-4}	Mult.: A_2=−0.21 3 and A_4=0.03 4 in ^{110}Cd(α,2nγ) (1980Va13); Pγ=0.34 9 in ^{110}Cd(α,2nγ) (1980Va13); α(K)exp<0.0005 in ^{110}Cd(α,2nγ) (1980Va13). B(E1)(W.u.)=0.00102 7.
2476.16	286					Eγ: from ^{98}Mo(^{16}O,2nγ) (2003Wo15).
	1219.34 13	20.5 24	M1+E2	−0.54 7	9.77×10^{-4} 16	Mult.,δ: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)<0.00071; B(E2)(W.u.)<0.13.
	2475.8 3	100.0 24	E2		7.48×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<0.066.
2520.70	1264.07 7	100	E2		7.96×10^{-4}	Mult.: α(K)exp=0.0007 2 in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.218 11 and A_4=−0.07 2 in ^{110}Cd(α,2nγ) (1979Br07); Pγ=0.53 8 in ^{110}Cd(α,2nγ) (1979Br07). B(E2)(W.u.)=13 5.
2549.22	301.84 13	100	E2		0.0348	Mult.: α(K)exp=0.033 5 in ^{110}Cd(α,2nγ) (1980Va13); Also, A_2=0.220 4 and A_4=−0.04 1 in ^{110}Cd(α,2nγ)(1980Va13); DCO=1.11 6 in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45) and Pγ=0.31 6 in ^{110}Cd(α,2nγ) (1980Va13) and +0.06 3 in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=0.496 3.
2556.6	2556.6# 3	100#				
2617.62	1360.92 17	100	E2		7.08×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<9.4.
2721.06	1464.22 15	100# 4	M1+E2	0.17 10	7.38×10^{-4}	Mult.,δ: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)=0.007 +3−7; B(E2)(W.u.)=0.08 +10−8.
	2721.6 3	15.9# 13	E2		8.28×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)=0.020 +8−20.
2756.02	234.8# 3	5.9# 6	[M1+E2]		0.0542	
	279.5# 2	4.0# 4	[M1+E2]		0.0343	
	401.3# 5	2.6# 6	[E1]		0.00406	B(E1)(W.u.)<0.00011.
	508.8c 3		M1+E2	0.2 1	0.00757	Eγ: 508.8γ seen in ^{112}Sn(n,n'γ) (2005Ku28) and Iγ(509)/Iγ(1499)=100/18.
	605.1# 2	21.2# 13	[M1+E2]		0.00500	
	1499.5# 1	100# 3	M1(+E2)	≤0.08	7.18×10^{-4}	Mult.,δ: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<0.014?

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Adopted Levels, Gammas (continued)

γ(^{112}Sn) (continued)

E(level)	Eγ†	Iγ†	Mult.§	δ‡§b	α	Comments
2765.2	1508.5 *3*	100				
2783.66	536					Eγ: from ^{98}Mo(^{16}O,2nγ) (2003Wo15).
	1527.2 *2*	100	E2		6.25×10^{-4}	Mult.: A_2=−0.09 *3* and A_4=0.7 *2* in ^{110}Cd(α,2nγ) (1979Br07). B(E2)(W.u.)=6.6 *15*.
2913.07	392.8 *5*	12 *3*	[M1]		0.01440	Iγ: Iγ(392.3)/Iγ(1656.7)=12.32% in ^{112}Sb ε decay (1976Wi10,1975WiZX). B(M1)(W.u.)<0.049.
	665.6 *3*	100 *3*	[M1]		0.00399	Eγ: not observed in ^{112}Sb ε decay (1976Wi10,1975WiZX). B(M1)(W.u.)<0.084.
	1656.3 *4*	35 *3*	E2		5.99×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<0.56.
2917.39	669.9 *1*	100# *15*				
	767.0 *2*	11.8# *8*				
2926.82	378.6 *3*	100	M1		0.01579	Mult.: α(K)exp=0.017 *3* in ^{110}Cd(α,2nγ) (1980Va13); A_2=0.365 *8* and A_4=0.00 *2* in ^{110}Cd(α,2nγ) (1980Va13); Pγ=0.67 *5* in ^{110}Cd(α,2nγ) (1980Va13). B(M1)(W.u.)<1.8.
2945.70	470					Eγ: from ^{98}Mo(^{16}O,2nγ) (2003Wo15).
	794.5 *2*		E2		0.00219	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28).
	1688.7 *3*	100	E2		5.96×10^{-4}	Mult.: A_2=0.22 *3* and A_4=0.5 *2* in ^{110}Cd(α,2nγ) (1979Br07). B(E2)(W.u.)<1.2.
2966.63	612.4 *1*	28# *2*	E1		1.50×10^{-3}	Iγ: 12 *3* in ^{112}Sn(n,n'γ) (2005Ku28). Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E1)(W.u.)=0.00039 *+16−39*.
	1709.9 *4*	100# *4*	M1(+E2)	≤0.7	6.36×10^{-4} *12*	Iγ: 37 *9* in ^{112}Sn(n,n'γ) (2005Ku28). Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)>0.0033?; B(E2)(W.u.)<0.44?
	2966.6 *1*	53# *4*	E2			Iγ: 100 *12* in ^{112}Sn(n,n'γ) (2005Ku28). Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)=0.045 *+19−45*.
2969.31	818.43 *6*					
	1712.61 *6*	100				
2986.4	1729.7 *3*	100	E2		5.94×10^{-4}	B(E2)(W.u.)<0.67.
3078.53	557.8 *3*	12.0# *8*				
	831.1 *4*	8.8# *19*				
	927.7 *2*	97# *3*	M1+E2	0.60 *+1−2*	0.00176 *3*	Iγ: 100.0 19 in ^{112}Sn(n,n'γ) (2005Ku28). Mult.,δ: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)<0.0076; B(E2)(W.u.)<2.6.
	1821.8 *2*	100# *4*	M1+E2	−1.3 *+3−5*	6.11×10^{-4} *10*	Iγ: 88.7 *19* in ^{112}Sn(n,n'γ) (2005Ku28). Mult.,δ: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)<0.00067; B(E2)(W.u.)<0.25.
3092.21	1836.0 *3*	100# *3*	M1+E2	−1.5 *10*	6.09×10^{-4} *20*	Mult.,δ: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)=0.003 *4*; B(E2)(W.u.)=1.9 *+9−10*.
	3092.1 *1*	26.2# *19*	E2		9.54×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)=0.052 *+12−17*.
3113.54	962.67 *14*	100				
3133.42	779.3 *2*	16.3 *12*	E2		0.00229	Eγ: 782 in ^{98}Mo(^{16}O,2nγ) (2003Wo15). Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<8.6.

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Adopted Levels, Gammas (continued)

γ(^{112}Sn) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[§]	δ[‡§b]	α	Comments
3133.42	886.0 *1*	100.0 *12*	E1		6.91×10^{-4}	Mult.,δ: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E1)(W.u.)<0.00036.
3141.1	990.2 *4*	100				
3149.28	901.8 *6*	24[#] *7*	[M1+E2]		0.00197	
	1892.2 *5*	100[#] *3*	E2		6.03×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)=1.0 *+4–10*.
3248.69	772.44 *24*	25.9[#] *19*	[M1+E2]		0.00282	
	894.2 *2*	27[#] *19*	[E1]		6.79×10^{-4}	B(E1)(W.u.)<5.7×10^{-5}.
	1097.4 *2*		[M1+E2]		1.27×10^{-3}	
	1992.25 *12*	22.9[#] *13*	M1+E2		6.41×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28).
	3248.8 *8*	100.0 *21*	E2		1.01×10^{-3}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<0.025.
3272.31	1121.39 *15*	27 *9*	E2		1.00×10^{-3}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)=7 *+4–6*.
	2016.1 *5*	100 *9*	E2		6.24×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)=1.4 *+5–10*.
3283.60	1036.2 *2*	100				
3286.18	2029.4 *2*	84 *5*	M1(+E2)	≤0.4	6.45×10^{-4} *10*	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). Iγ: 8 *3* in ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)>0.0047?; B(E2)(W.u.)<0.15?
	3286.2 *2*	100 *3*				
3288.0	1097.2 *3*	100				
3338.3	2081.6 *3*	100	M1+E2		6.54×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28).
3353.1	2096.4 *4*	9 *3*	M1+E2		6.57×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28).
	3353.0 *5*	100 *3*	E2		1.04×10^{-3}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<0.027.
3354.38	427.67[@] *10*	5.8[@] *3*	E1		0.00347	Mult.: A_2=−0.20 *2* and A_4=0.07 *4* in (1980Va13); Pγ=0.38 *5* (1980Va13).
	805.11[@] *7*	100[@] *6*	E1		8.38×10^{-4}	Eγ: 807 *1* in ^{113}In(p,2nγ) (1969Ya05). Mult.: α(K)exp=0.00070 *15* in ^{110}Cd(α,2nγ) (1980Va13); A_2=−0.233 *5* and A_4=−0.01 *1* in ^{110}Cd(α,2nγ) (1980Va13); Pγ=0.37 *5* in ^{110}Cd(α,2nγ) (1980Va13) and +0.06 *3* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); DCO=0.71 *13* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
3378.9	1228.0 *3*	100				
3384.30	467.2[#] *3*	16.1[#] *15*				
	2127.3 *3*	100[#] *6*	E1		8.44×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E1)(W.u.)=0.00014 *+5–7*.
3397.20	1042.95 *11*	72.4 *17*	M1+E2	1.8 *12*	0.00123 *13*	B(M1)(W.u.)=0.008 *+9–8*; B(E2)(W.u.)=20 *+9–11*.
	1246.6 *3*	100 *17*				
3413.93	468.03[@] *13*	32[@] *2*	E2		0.00893	Mult.: α(K)exp=0.007 *2* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.32 *6* and A_4=−0.18 *10* in ^{110}Cd(α,2nγ) (1979Br07); Pγ=0.49 *8* in ^{110}Cd(α,2nγ) (1979Br07). B(E2)(W.u.)=180 *100*.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{112}Sn) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[§]	δ[‡§b]	α	Comments
3413.93	630.36[@] *12*	56[@] *2*	E2		0.00392	Mult.: α(K)exp=0.0038 *8* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.34 *2* and A_4=0.71 *8* in ^{110}Cd(α,2nγ) (1979Br07); Pγ=0.71 *8* in ^{110}Cd(α,2nγ) (1979Br07). B(E2)(W.u.)=70 *40*.
	893.2[@] *2*	38[@] *12*	E2		1.66×10^{-3}	B(E2)(W.u.)=9 *6*.
	1166.9[@] *3*	100[@] *10*	E2		9.25×10^{-4}	Mult.: α(K)exp=0.0009 *4* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.38 *7* and A_4=–0.12 *13* in ^{110}Cd(α,2nγ) (1979Br07); Pγ=0.8 *2* in ^{110}Cd(α,2nγ) (1979Br07). B(E2)(W.u.)=6 *3*.
3417.41	2160.7 *1*	100	E2		6.56×10^{-4}	Mult.: from γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28). B(E2)(W.u.)<0.94.
3430.65	76.3[@] *2*	100[@]	M1+E2	0.04 *3*	1.221 *22*	Mult.: A_2=–0.15 *2* (1980Va13); A_4=–0.01 *2* in ^{110}Cd(α,2nγ) (1980Va13). B(M1)(W.u.)=0.0365 *19*; B(E2)(W.u.)=8 *+12–8*.
3433.9	3433.8[a] *5*	100	(E1)[a]		1.50×10^{-3}	B(E1)(W.u.)=0.0038 *+20–22*.
3456.31	700.3[#] *6*	22[#] *5*				
	2199.6[#] *2*	100[#] *6*	M1+E2	2.8 *10*	6.67×10^{-4}	Mult.,δ: from ^{112}Sn(n,n'γ) (2005Ku28). B(M1)(W.u.)<0.00045; B(E2)(W.u.)<0.38.
3471.7	951.0 *3*	100	[M1]		1.75×10^{-3}	B(M1)(W.u.)<0.11.
3494.00	1246.6 *2*	100				
3499.21	979.3 *2*	54 *5*	[E1]		5.69×10^{-4}	B(E1)(W.u.)=0.0027 *+14–27*.
	1144.2 *2*	100 *5*	[E2]		9.63×10^{-4}	B(E2)(W.u.)=150 *+80–150*.
3520.45	1166.3 *2*					
	1369.0 *6*					
3524.54	431.9[#] *6*	9.2[#] *14*	[M1]		0.01136	B(M1)(W.u.)<0.16.
	1277.7[#] *5*	22[#] *8*	E2		7.82×10^{-4}	Mult.: From ^{112}Sn(n,n'γ) in 2005Ku28. B(E2)(W.u.)<7.2.
	2267.80[#] *20*	100[#] *8*	M1(+E2)	≥–0.5	6.88×10^{-4} *11*	Mult.,δ: From ^{112}Sn(n,n'γ) in 2005Ku28. B(M1)(W.u.)<0.0096?
	3524.2 *10*		E2		1.10×10^{-3}	
3530.15	380.8 *2*					
	1009.4[#] *4*	84[#] *19*				
	1282.4[#] *4*	65[#] *13*				
	1379.6[#] *2*	100[#] *5*				
3553.7	2297.0 *3*	100	[E1]		9.40×10^{-4}	B(E1)(W.u.)=0.00014 *+5–10*.
3557.29	1036.1 *4*	16.3 *23*				
	1203.1 *1*	100.0 *23*				
3604.90	1357.5 *1*	100				
3610.97	1460.1 *1*					
	2354.1 *5*	100				
3631.03	552.5 *2*	100				
3654.34	2397.6 *2*		M1+E2	0.52 *6*	7.28×10^{-4}	
	3654.3 *2*		E2		1.14×10^{-3}	Mult.: assigned by the evaluators; M1+E2 with δ=0.48 *6* in ^{112}Sn(n,n'γ) (2005Ku28) is not consistent with the Jπ differences.
3693.68	263.03[@] *7*	100[@]	M1+E2	0.13 *1*	0.0404	δ: Also 0.12 *16* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(M1)(W.u.)=0.024 *4*; B(E2)(W.u.)=4.8 *11*.
3726.22	2469.5 *2*	100				
3754.4	1507.0 *3*	100				
3782.9	1632.0 *3*	100				
3813.78	283.8[#] *2*	2.59[#] *24*				
	900.8[#] *5*	17[#] *3*				
	1029.6[#] *7*	43[#] *3*				
	1293.6[#] *7*	6[#] *3*				
	1459.5[#] *1*	27.1[#] *12*				
	1566.4[#] *2*	100.0[#] *24*				
4077.59	384					Eγ: from ^{98}Mo(^{16}O,2nγ) (2003Wo15).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{112}Sn) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[§]	α	Comments
4077.59	663.66[@] *8*	100[@]	E2	0.00343	Mult.: α(K)exp=0.0027 *4* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.375 *9* and A_4=−0.11 *2* in ^{110}Cd(α,2nγ) (1979Br07); DCO=0.93 *9* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pγ=0.65 *6* in ^{110}Cd(α,2nγ) (1979Br07) and +0.11 *4* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=140 *60*.
4141.3	4141.2[a] *5*	100	(E1)[a]	1.78×10^{-3}	
4162.3	4162.2[a] *5*	100	(E1)[a]	1.78×10^{-3}	
4330.4	4330.3[a] *5*	100	(E1)[a]	0.00184	
4582.61	1151.94[@] *11*	100[@]	E2	9.49×10^{-4}	Mult.: α(K)exp=0.0007 *3* in ^{110}Cd(α,2nγ) (1980Va13); A_2=0.344 *15* and A_4=−0.14 *3* in ^{110}Cd(α,2nγ) (1980Va13); Pγ=0.72 *8* in ^{110}Cd(α,2nγ) (1980Va13). B(E2)(W.u.)=36 *11*.
4681.0	603.1 *5*	25 *11*			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
	987.4 *3*	100 *22*			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
4726.5	4726.4[a] *5*	100	(E1)[a]	0.00197	
4819.37	741.8[@] *2*	100[@]	E2	0.00259	Mult.: α(K)exp=0.0025 *4* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.366 *12* and A_4=−0.11 *2* in ^{110}Cd(α,2nγ) (1979Br07); DCO=1.04 *10* for 741.7γ+744.6γ in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pγ=0.53 *5* in ^{110}Cd(α,2nγ) (1979Br07) and +0.25 *11* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=$6.\times10^2$ *3*.
4837.4	4837.3[a] *5*	100	(E1)[a]	0.00201	
4928.9	345.9 *8*	<8.3	M1+E2	0.0198	Eγ,Iγ,Mult.: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
	1235.3[@] *3*	100[@] *25*	E2	8.30×10^{-4}	Mult.: α(K)exp=0.0007 *2* in ^{110}Cd(α,2nγ) (1980Va13); A_2=0.34 *3* and A_4=−0.13 *3* in ^{110}Cd(α,2nγ) (1980Va13); Pγ=0.72 *8* in ^{110}Cd(α,2nγ) (1980Va13). B(E2)(W.u.)>0.28.
5057.1	5057.0[a] *5*	100	(E1)[a]	0.00207	
5128.2	5128.1[a] *5*	100	(E1)[a]	0.00209	
5246.2	5246.1[a] *5*	100	(E1)[a]	0.00213	
5480.5	5480.4[a] *5*	100	(E1)[a]	0.00220	
5502.6	5502.5[a] *5*	100	(E1)[a]	0.00220	
5564.3	745.0[@] *2*	100[@] *19*	E2	0.00256	Mult.: α(K)exp=0.0024 *6* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.27 *4* and A_4=−0.05 *6* in ^{110}Cd(α,2nγ) (1979Br07); DCO=1.04 *10* for 741.7+744.6 in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pγ=0.61 *12* in ^{110}Cd(α,2nγ) (1979Br07) and +0.27 *11* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=80 *30*.
	883.2 *3*	40 *11*	[E2]	1.70×10^{-3}	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=14 *6*.
5593.7	5593.6[a] *5*	100	(E1)[a]	0.00223	
5617.6	5617.4[a] *5*	100	(E1)[a]	0.00223	
5649.1	5648.9[a] *5*	100	(E1)[a]	0.00224	
5666.4	5666.2[a] *5*	100	(E1)[a]	0.00225	
5684.59	865.21[@] *9*	100[@]	E2	0.00179	Mult.: α(K)exp=0.0024 *7* in ^{110}Cd(α,2nγ) (1979Br07); A_2=0.40 *6* and A_4=−0.12 *10* in ^{110}Cd(α,2nγ) (1979Br07); Pγ=0.7 *2* in ^{110}Cd(α,2nγ) (1979Br07).
	1004				Eγ: from ^{100}Mo(^{16}O,4nγ) (1988Ha20).
5699.9	5699.7[a] *5*	100	(E1)[a]	0.00225	
5748.6	5748.4[a] *5*	100	(E1)[a]	0.00226	
5812.7	5812.5[a] *5*	100	(E1)[a]	0.00228	
5860.7	5860.5[a] *5*	100	(E1)[a]	0.00230	
5884.0	5883.8[a] *5*	100	(E1)[a]	0.00230	
5924.1	5923.9[a] *5*	100	(E1)[a]	0.00231	
5976.6	5976.4[a] *5*	100	(E1)[a]	0.00233	
6005.0	6004.8[a] *10*	100	(E1)[a]		
6059.8	6059.6[a] *10*	100	(E1)[a]		
6080.9	6080.7[a] *10*	100	(E1)[a]		
6096.9	6096.7[a] *10*	100	(E1)[a]		
6129.0	6128.8[a] *10*	100	(E1)[a]		
6150.4	6150.2[a] *10*	100	(E1)[a]		
6168.3	6168.1[a] *10*	100	(E1)[a]		

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Adopted Levels, Gammas (continued)

$\gamma(^{112}Sn)$ (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[§]	α	Comments
6198.7	6198.5[a] *10*	100	(E1)[a]		
6224.3	6224.1[a] *10*	100	(E1)[a]		
6246.4	6246.2[a] *10*	100	(E1)[a]		
6259.1	6258.9[a] *10*	100	(E1)[a]		
6272.6	6272.4[a] *10*	100	(E1)[a]		
6313.3	6313.1[a] *10*	100	(E1)[a]		
6348.7	6348.5[a] *10*	100	(E1)[a]		
6362.9	678.1 *8*	<4	[E2]	0.00324	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=2.0 *+21−20*.
	798.6 *1*	100 *16*	E2	0.00216	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). Mult.: DCO=0.99 *12* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pol_{DCO}=+0.08 *3* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=44 *15*.
6388.1	6387.9[a] *10*	100	(E1)[a]		Eγ: Other: 6384.9 keV *4* in 2008BoZK.
6398.3	1469.4 *4*	100			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). 1471 in ^{100}Mo(^{16}O,4nγ) (1988Ha20).
6404.1	6403.9[a] *10*	100	(E1)[a]		Eγ: Other:6402.0 keV *2* in 2008BoZK.
6428.6	6428.4[a] *10*	100	(E1)[a]		Eγ: Other: 6431.6 keV 8 in 2008BoZK.
6450.0	6449.8[a] *10*	100	(E1)[a]		
6476.3	6476.1[a] *15*	100	(E1)[a]		
6520.7	6520.5[a] *10*	100	(E1)[a]		
6550.1	6549.9[a] *10*	100	(E1)[a]		
6601.0	6600.8[a] *10*	100	(E1)[a]		
6679.9	6679.7[a] *10*	100	(E1)[a]		
6706.7	6706.5[a] *10*	100	(E1)[a]		
6715.0	6714.8[a] *10*	100	(E1)[a]		Eγ: Other: 6718.7 keV *13* in 2008BoZK.
6731.9	6731.7[a] *10*	100	(E1)[a]		Eγ: Other: 6735.2 keV *14* in 2008BoZK.
6795.5	6795.3[a] *10*	100	(E1)[a]		Eγ: Other: 6791.6 keV *23* in 2008BoZK.
6818.7	6818.5[a] *10*	100	(E1)[a]		Eγ: 6819.4 keV *11* in 2008BoZK.
6824.2	6824.0[a] *10*	100	(E1)[a]		
6855.9	6855.7[a] *10*	100	(E1)[a]		
6871.2	6871.0[a] *10*	100	(E1)[a]		
6941.2	6941.0[a] *10*	100	(E1)[a]		
6961.5	6961.3[a] *10*	100	(E1)[a]		
6982.7	6982.5[a] *10*	100	(E1)[a]		
7009.8	7009.6[a] *10*	100	(E1)[a]		
7018.7	7018.5[a] *10*	100	(E1)[a]		
7025.8	7025.6[a] *10*	100	(E1)[a]		
7043.1	7042.9[a] *10*	100	(E1)[a]		
7092.8	7092.6[a] *10*	100	(E1)[a]		
7167.2	7167.0[a] *10*	100	(E1)[a]		
7198.2	7198.0[a] *10*	100	(E1)[a]		Eγ: Other: 7199.6 keV *9* in 2008BoZK.
7207.1	808.8 *3*	100			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
7208.1	7207.9[a] *10*	100	(E1)[a]		
7214.2	851.3 *1*	100	E2	0.00186	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). Mult.: DCO=1.05 *13* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pol_{DCO}=+0.24 *14* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=72 *13*.
7217.8	7217.6[a] *11*	100	(E1)[a]		
7228.1	7227.8[a] *10*	100	(E1)[a]		Eγ: 7229.3 keV *14* in 2008BoZK.
7248.4	7248.1[a] *14*	100	(E1)[a]		
7311.1	7310.8[a] *10*	100	(E1)[a]		
7389.9	7389.6[a] *10*	100	(E1)[a]		
7438.6	7438.3[a] *10*	100	(E1)[a]		
7444.1	7443.8[a] *10*	100	(E1)[a]		
7468.3	7468.0[a] *10*	100	(E1)[a]		
7531.3	7531.0[a] *10*	100	(E1)[a]		
7537.2	7536.9[a] *10*	100	(E1)[a]		
7559.1	7558.8[a] *10*	100	(E1)[a]		
7594.5	7594.2[a] *10*	100	(E1)[a]		
7615.3	7615.0[a] *10*	100	(E1)[a]		
7859.5	7859.2[a] *10*	100	(E1)[a]		
7904.7	7904.4[a] *10*	100	(E1)[a]		

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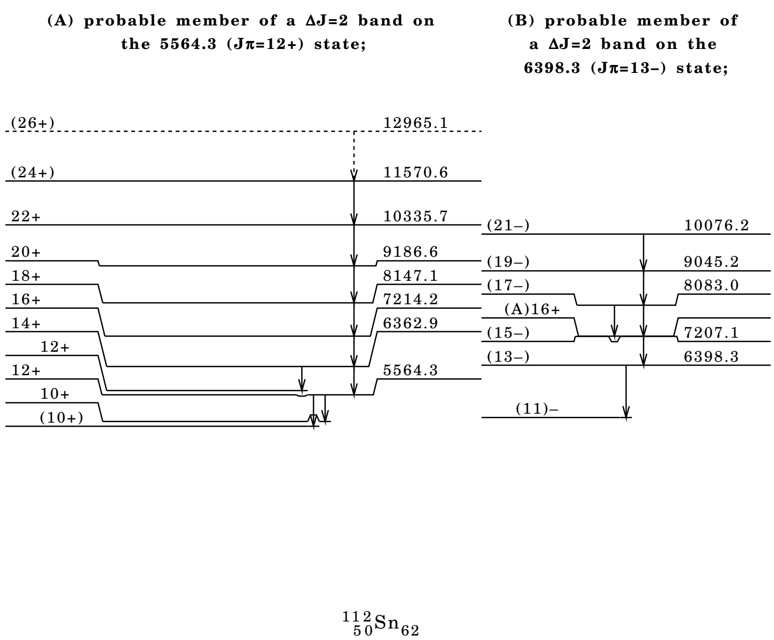
Adopted Levels, Gammas (continued)

γ(^{112}Sn) (continued)

E(level)	Eγ[†]	Iγ[†]	Mult.[§]	α	Comments
7936.7	7936.4[a] *10*	100	(E1)[a]		
7988.2	7987.9[a] *10*	100	(E1)[a]		
8020.7	8020.4[a] *10*	100	(E1)[a]		
8051.6	8051.3[a] *10*	100	(E1)[a]		
8069.6	8069.3[a] *10*	100	(E1)[a]		
8083.0	868.8 *4*	38 *15*			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
	875.9 *3*	100 *30*			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
8147.1	932.9 *2*	100	E2	1.50×10^{-3}	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). Mult.: DCO=1.06 *19* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45); Pol_{DCO}=+0.22 *14* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=73 *+22−18*.
8194.5	8194.2[a] *10*	100	(E1)[a]		
8218.2	8217.9[a] *10*	100	(E1)[a]		
8253.6	8253.3[a] *10*	100	(E1)[a]		
8448.6	8448.3[a] *10*	100	(E1)[a]		
8568.9	8568.5[a] *10*	100	(E1)[a]		
8600.4	8600.0[a] *10*	100	(E1)[a]		
8750.2	8749.8[a] *10*	100	(E1)[a]		
8823.4	8823.0[a] *10*	100	(E1)[a]		
9045.2	962.2 *4*	100			Eγ,Iγ,Mult.: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
9050.5	9050.1[a] *10*	100	(E1)[a]		
9095.3	9094.9[a] *10*	100	(E1)[a]		
9150.1	9149.7[a] *10*	100	(E1)[a]		
9186.6	1039.5 *2*	100	E2	1.18×10^{-3}	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). Mult.: DCO=1.00 *21* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=66 *18*.
9329.8	9329.4[a] *10*	100	(E1)[a]		
10076.2	1031.0 *10*	100			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).
10335.7	1149.1 *3*	100	E2	9.54×10^{-4}	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). Mult.: DCO=1.13 *23* in ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)=63 *18*.
11570.6	1234.9 *5*	100	[E2]	8.30×10^{-4}	Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45). B(E2)(W.u.)>18.
12965.1?	1395.0[c] *10*	100			Eγ,Iγ: from ^{100}Mo(^{20}Ne,α4nγ) (2007Ga45).

† From ^{112}Sn(n,n'γ) (2005Ku28), unless otherwise noted.
‡ From γ(θ) in ^{112}Sn(n,n'γ) (2005Ku28), unless otherwise noted.
§ Based on α(K)exp, A_2, A_4 in γ(θ) and γ–linear polarization, unless otherwise noted.
\# From ^{112}Sb ε decay (1976Wi10,1975WiZX).
@ From ^{110}Cd(α,2nγ) (1980Va13,1979Br07).
a From ^{112}Sn(γ,γ').
b If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
c Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas (continued)



^{112}In β^- Decay 1962Ru05,1953Bl44

Parent ^{112}In: E=0.0; Jπ=1+; $T_{1/2}$=14.88 min *15*; Q(g.s.)=665 *4*; %β^- decay=42.6 *48*.

1962Ru05: Facility: Osaka University cyclotron; Source: ^{112}In from ^{112}Cd(d,2n) and ^{109}Ag(α,n), where E(d)=11 MeV and E(α)=22 MeV; Detectors: β–spectrometer of Mushroom type, one NaI(Tl); Measured: Eβ, Iβ; Deduced: log *ft*.

1953Bl44: chemically separated In source from α+Ag reaction, where E(α)=20 MeV; Measured: Eβ, Iβ, β(t); Deduced: t, β–decay Branching.

^{112}Sn Levels

E(level)	Jπ†
0.0	0+

† From the adopted levels.

β^- radiations

$E\beta^-$	E(level)	$I\beta^-$†	Log *ft*	Comments
658 *6*	0.0	100	4.14 *5*	$E\beta^-$: wt. average of 656 *6* in 1953Bl44 and 670 *15* in 1962Ru05. $I\beta^-$: $I\beta^-/I\beta^+$=1.94 (1953Bl44), 2.04 (1962Ru05).

† For β^- intensity per 100 decays, multiply by 0.426 *48*.

^{112}Sb ε Decay 1976Wi10,1975WiZX,1976Wi10

Parent ^{112}Sb: E=0.0; Jπ=(3+); $T_{1/2}$=53.5 s *6*; Q(g.s.)=7057 *18*; %ε+%β^+ decay=100.
1975WiZX: Facility: AVF cyclotron at Vrije Universiteit, Amsterdam; Source: mass–separated ^{112}Sb from ^{112}Sn(p,n), E(p)=25 MeV, 35 mg/cm^2 thick target enriched to 87.51% in ^{112}Sn; Detectors: four coaxial Ge(Li), one planar Ge(Li) and one LEPS, active and passive anti–Compton shielding; Measured: γ, γ–γ, , γ(t), Eγ, Iγ; Deduced: ^{112}Sn level scheme, t, Jπ, log *ft*; Also, from the same collaboration 1976Wi10.
Others: 1959Se56, 1969BoZS, 1970SuZY, 1972Si28, 1972Mi27.

^{112}Sn Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0+	2756.02 *9*	3+	3248.67 *10*	2+
1256.69 *4*	2+	2783.90 *20*	4+	3286.18 *15*	(2)+
2150.86 *6*	2+	2913.14 *22*	4+	3384.30 *22*	(3)–
2247.40 *6*	4+	2917.39 *10*	2+,3,4+	3417.42 *11*	4+
2354.12 *5*	3–	2945.40 *17*	4+	3456.32 *20*	(2,3)+
2476.15 *11*	2+	2966.58 *8*	2+	3524.55 *18*	2+
2520.78 *8*	4+	3078.54 *13*	(2,3)+	3530.13 *14*	2+,3,4+
2556.6 *3*	(2+)	3092.21 *10*	2+	3553.7 *3*	(3)–
2721.07 *14*	2+	3149.27 *21*	4+	3813.72 *10*	(2+,3+,4+)

† From a least–squares fit to Eγ.
‡ From the adopted levels.

β^+,ε Data

Eε	E(level)	Iβ$^+$§	Iε†§	Log *ft*‡	I(ε+β^+)‡§	Comments
(3243 *18*)	3813.72	1.94 *6*	1.09 *4*	5.163 *19*	3.03 *9*	
(3503 *18*)	3553.7	0.77 *5*	0.307 *21*	5.78 *3*	1.08 *7*	
(3527 *18*)	3530.13	0.23 *3*	0.089 *11*	6.32 *6*	0.32 *4*	
(3532 *18*)	3524.55	0.32 *3*	0.12 *1*	6.19 *5*	0.44 *4*	
(3601 *18*)	3456.32	0.259 *19*	0.092 *7*	6.33 *4*	0.351 *25*	
(3640 *18*)	3417.42	0.74 *5*	0.25 *2*	5.90 *3*	0.99 *6*	
(3673 *18*)	3384.30	0.66 *4*	0.21 *1*	5.98 *3*	0.87 *5*	
(3771 *18*)	3286.18	1.01 *5*	0.293 *14*	5.864 *24*	1.30 *6*	
(3808 *18*)	3248.67	1.27 *15*	0.36 *4*	5.79 *6*	1.63 *19*	
(3908 *18*)	3149.27	0.62 *4*	0.15 *1*	6.17 *3*	0.77 *5*	
(3965 *18*)	3092.21	0.95 *3*	0.226 *9*	6.020 *19*	1.18 *4*	
(3978 *18*)	3078.54	1.23 *3*	0.288 *9*	5.918 *17*	1.52 *4*	
(4090 *18*)	2966.58	4.29 *7*	0.895 *20*	5.450 *14*	5.18 *8*	
(4112 *18*)	2945.40	0.209 *8*	0.0428 *18*	6.775 *21*	0.252 *10*	
(4140 *18*)	2917.39	3.3 *5*	0.65 *10*	5.60 *7*	3.9 *6*	
(4144 *18*)	2913.14	1.51 *14*	0.30 *3*	5.94 *5*	1.81 *17*	
(4273 *18*)	2783.90	≤0.10	≤0.018	≥7.2	≤0.12	
(4301 *18*)	2756.02	1.48 *4*	0.253 *8*	6.043 *17*	1.73 *5*	
(4336 *18*)	2721.07	0.426 *17*	0.071 *3*	6.603 *21*	0.497 *20*	
(4500 *18*)	2556.6	0.179 *17*	0.0257 *24*	7.07 *5*	0.205 *19*	
(4536 *18*)	2520.78	0.58 *12*	0.081 *17*	6.59 *10*	0.66 *14*	
(4581 *18*)	2476.15	0.49 *5*	0.066 *7*	6.68 *5*	0.56 *6*	
(4703 *18*)	2354.12	0.7 *3*	0.09 *3*	6.59 *17*	0.8 *3*	
(4810 *18*)	2247.40	6.1 *6*	0.68 *7*	5.71 *5*	6.8 *7*	
(4906 *18*)	2150.86	1.33 *19*	0.138 *20*	6.42 *7*	1.47 *21*	
5770 *50*	1256.69	59.2 *5*	3.32 *5*	5.186 *10*	62.5 *5*	Eε: From 1972Si28. Others: 5550 *50* (1969BoZS), 6220 *100* (1972Mi27).

† From I(γ+ce) imbalance at each level.
‡ The decay scheme suffer from the pandemonium effect and there are many unplaced γ rays, so the values should be considered as approximate.
§ Absolute intensity per 100 decays.

^{112}Sb ε Decay 1976Wi10,1975WiZX,1976Wi10 (continued)

γ(^{112}Sn)

I(511γ±)/I(1256γ)=1.83 *9* (1975WiZX,1976Wi10).

Iγ normalization: from Σ(I(γ+ce) to g.s.)=100 and by assuming of no direct ε feeding to ^{112}Sn g.s. (Jπ=0+). The decay scheme suffer from the pandemonium effect and there are many unplaced γ rays, so the normalization should be considered as approximate.

Eγ[§]	E(level)	Iγ[†@]	Mult.[§]	δ[§#]	α	Comments
203.2[†] *2*	2354.12		[E1]		0.0246	Eγ: from the adopted gammas.
234.8[†] *3*	2756.02	0.85 *8*	[M1+E2]		0.0542	
279.5[†] *2*	2756.02	0.57 *5*	[M1+E2]		0.0343	
283.8[†] *2*	3813.72	0.43 *4*				
[x]301.9[†] *2*		1.64 *10*				
[x]377.0[†] *6*		0.58 *11*				
380.8 *2*	3530.13					
392.8 *5*	2913.14	0.69 *8*	[M1]		0.01440	Eγ: 392.3 keV *4* in 1975WiZX,1976Wi10.
401.3[†] *5*	2756.02	0.37 *8*	[E1]		0.00406	
431.9 *6*	3524.55	0.33 *5*	[M1]		0.01136	
[x]446.2[†] *7*		0.43 *7*				
467.2[†] *3*	3384.30	1.29 *12*				
470	2945.40		[E2]		0.00882	Eγ: not observed in 1976Wi10,1975WiZX, 1976Wi10.
508.8[&] *3*	2756.02		M1+E2	0.2 *1*	0.00757	
536	2783.90		[M1+E2]		0.00669	Eγ: not observed in 1975WiZX,1976Wi10.
557.8 *3*	3078.54	0.88 *6*				Eγ: 558.4 keV *2* in 1975WiZX,1976Wi10. Eγ: transition placed by the evaluators on the basis of the observed γ–ray in 1975WiZX,1976Wi10 and the adopted gammas.
605.1[†] *2*	2756.02	3.03 *18*	[M1+E2]		0.00500	
612.4 *1*	2966.58	4.0 *3*	E1		1.50×10^{-3}	Eγ: 612.7 keV *2* in 1975WiZX,1976Wi10.
665.6 *3*	2913.14	16.0[‡] *17*	[M1]		0.00399	Eγ,Iγ: Not observed in 1975WiZX,1976Wi10.
669.9 *1*	2917.39	39 *6*				Eγ: 670.0 keV *4* in 1975WiZX,1976Wi10.
700.3[†] *6*	3456.32	0.67 *17*				
767.0 *2*	2917.39	4.6 *3*				Eγ: 766.8 keV *2* in 1975WiZX,1976Wi10.
772.44 *24*	3248.67	2.56 *19*	[M1+E2]		0.00282	Eγ: 772.8 keV *2* in 1975WiZX,1976Wi10.
794.5 *2*	2945.40		[E2]		0.00219	Eγ: not observed in 1976Wi10,1975WiZX, 1976Wi10.
[x]797.8[†] *3*		2.67 *19*				
831.1[†] *4*	3078.54	0.66 *14*				
[x]868.7[†] *4*		0.50 *8*				
894.17 *4*	2150.86	27.6 *21*	M1+E2	−0.28 *6*	0.00199	Eγ: 894.6 keV *2* (1975WiZX,1976Wi10).
894.2 *2*	3248.67	2.7 *19*	[E1]		6.79×10^{-4}	Eγ: 894.1keV 5 in 1975WiZX,1976Wi10.
900.8[†] *5*	3813.72	2.9 *5*				
901.8[a] *6*	3149.27	1.6[a] *5*	[M1+E2]		0.00197	Eγ: 900.8 keV *5* in 1975WiZX,1976Wi10.
[x]921.5[†] *3*		0.73 *9*				
927.7 *2*	3078.54	7.3 *2*	M1+E2	0.60 *+1−2*	0.00176 *3*	Eγ: 927.6 keV *2* in 1975WiZX,1976Wi10.
[x]963.1[†] *3*		1.7 *3*				
990.69 *4*	2247.40	149 *4*	E2		1.31×10^{-3}	Eγ: 990.0 keV *1* (1975WiZX,1976Wi10).
1009.4[†] *4*	3530.13	1.3 *3*				
1029.6[†] *7*	3813.72	7.1 *5*				
1097.38 *4*	2354.12	20 *2*	E1		4.59×10^{-4}	Eγ: 1098.0 keV *2* (1975WiZX,1976Wi10).
1097.4 *2*	3248.67		[M1+E2]		1.27×10^{-3}	Eγ: transition placed by the evaluators.
[x]1154.4[†] *12*		2.1 *6*				
[x]1170.6[†] *13*		2.0 *5*				
1219.34 *13*	2476.15	1.56[‡] *21*	M1+E2	−0.54 *7*	9.77×10^{-4} *16*	Eγ: 1219.3 keV *2* (1975WiZX,1976Wi10).
1256.68 *4*	1256.69	1000	E2		8.05×10^{-4}	Eγ: 1257.05 keV *8* (1975WiZX,1976Wi10).
1264.07 *7*	2520.78	11.8 *13*	E2		7.96×10^{-4}	Eγ: 1264.3 keV *3* (1975WiZX,1976Wi10).
1277.7 *5*	3524.55	0.8 *3*	E2		7.82×10^{-4}	
1282.4[†] *4*	3530.13	1.0 *2*				
1293.6[†] *7*	3813.72	1.0 *5*				
[x]1360.8[†] *2*		0.95 *5*				
[x]1369.1[†] *5*		0.27 *5*				
1379.6[†] *2*	3530.13	1.55 *7*				
[x]1421.2[†] *4*		0.29 *6*				
[x]1426.0[†] *3*		0.38 *6*				
1459.5[†] *1*	3813.72	4.5 *2*				

Continued on next page (footnotes at end of table)

^{112}Sb ε Decay 1976Wi10,1975WiZX,1976Wi10 (continued)

γ(^{112}Sn) (continued)

Eγ§	E(level)	Iγ†@	Mult.§	δ§#	α	Comments
1464.22 15	2721.07	4.6 2	M1+E2	0.17 10	7.38×10^{-4}	Eγ: 1464.7 keV 1 (1975WiZX,1976Wi10).
x1477.8† 2		2.7 2				
1499.5† 1	2756.02	14.3 4	M1+E2	0.03 5	7.18×10^{-4}	
1527.2 2	2783.90	7.7 3	E2		6.25×10^{-4}	Eγ: 1527.6 keV 2 (1975WiZX,1976Wi10).
x1534.7† 5		0.31 8				
x1555.1† 2		1.22 7				
1566.4† 2	3813.72	16.6 4				
x1582.4† 7		0.20 6				
x1620.7† 6		1.17 8				
x1631.0† 9		0.25 7				
1656.7 6	2913.14	5.6 3	E2		5.99×10^{-4}	Eγ: 1656.7 keV 6 in 1975WiZX,1976Wi10.
1688.7 3	2945.40	2.70 10	E2		5.96×10^{-4}	Eγ: 1689.0 keV 2 in 1975WiZX,1976Wi10.
1709.9 4	2966.58	14.1 5	M1(+E2)	≤0.7	6.36×10^{-4} 12	Eγ: 1710.2 keV 2 in 1975WiZX,1976Wi10.
x1804.3† 1		0.43 4				
1821.8 2	3078.54	7.5 3	M1+E2	−1.3 +3−5	6.11×10^{-4} 10	Eγ: 1822.2 keV 2 in 1975WiZX,1976Wi10.
1836.0 3	3092.21	10.3 3	M1+E2	−1.5 10	6.09×10^{-4} 20	Eγ: 1836.5 keV 2 in 1975WiZX,1976Wi10.
x1879.2† 4		0.24 4				
1892.2 5	3149.27	6.7 2	[E2]		6.03×10^{-4}	Eγ: 1892.7 keV 2 in 1975WiZX,1976Wi10.
x1926.1† 1		0.35 12				
x1986.0† 3		0.40 4				
1992.25 12	3248.67	2.27 13	M1+E2		6.41×10^{-4}	Eγ: 1992.2 keV 2 in 1975WiZX,1976Wi10; transition placed by the evaluators.
x2016.6† 3		0.88 8				
2029.4 2	3286.18	6.4 4	M1+E2	≤0.4	6.45×10^{-4} 10	Eγ: 2029.7 keV 2 in 1975WiZX,1976Wi10.
x2082.3† 2		0.38 3				
x2092.9† 2		0.95 7				
2127.3 3	3384.30	8.0 5	E1		8.44×10^{-4}	Eγ: 2127.5 keV 2 in 1975WiZX,1976Wi10.
2150.9 4	2150.86	4.6 3	E2		6.53×10^{-4}	Eγ: 1257.0 keV 2 (1975WiZX,1976Wi10).
2160.7 1	3417.42	10.6 6	E2		6.56×10^{-4}	Eγ: 2160.9 keV 2 in 1975WiZX,1976Wi10.
2199.6† 2	3456.32	3.1 2	M1+E2	2.8 10	6.67×10^{-4}	
x2247.4† 3		0.67 6				
2267.8 2	3524.55	3.6 3	M1(+E2)	≥−0.5	6.88×10^{-4} 11	
2297.0 3	3553.7	11.6 7	[E1]		9.40×10^{-4}	Eγ: 2297.1 keV 2 in 1975WiZX,1976Wi10.
x2398.2† 2		1.88 11				
x2449.0† 6		0.28 6				
x2454.8† 6		0.26 4				
2475.8 3	2476.15	7.6 5	E2		7.48×10^{-4}	Eγ: 2475.9 keV 2 (1975WiZX,1976Wi10).
2556.6† 3	2556.6	2.2 2	[E2]		7.73×10^{-4}	
x2610.7† 3		0.94 7				
x2670.1† 4		0.12 2				
2721.6 3	2721.07	0.73 6	E2		8.28×10^{-4}	Eγ: 2721.3 keV 7 (1975WiZX,1976Wi10).
x2737.3† 7		0.40 3				
x2755.2† 9		0.16 3				
x2775.1† 9		0.24 4				
x2781.4† 11		0.15 4				
x2830.8† 5		0.21 3				
x2887.3† 8		0.31 3				
2966.6 1	2966.58	37.5 5	E2		9.11×10^{-4}	Eγ: 2966.3 keV 3 in 1975WiZX,1976Wi10.
x2976.9† 5		0.22 3				
3092.1 1	3092.21	2.7 2	E2		9.54×10^{-4}	Eγ: 3092.4 keV 3 in 1975WiZX,1976Wi10.
x3130.4† 6		0.16 3				
x3146.8† 7		0.12 3				
3248.8 8	3248.67	9.9 6	E2		1.01×10^{-3}	Eγ: 3248.1 keV 4 in 1975WiZX,1976Wi10.
3286.2 2	3286.18	7.6 5				Eγ: 3285.6 keV 4 in 1975WiZX,1976Wi10.
x3351.9† 7		0.54 4				
x3408.4† 5		0.19 2				
x3431.7† 5		0.13 2				
x3455.4† 5		0.13 2				
3524.2 10	3524.55					Eγ: from the adopted gammas. Not observed in 1976Wi10,1975WiZX,1976Wi10.
x3653.9† 5		1.95 12				
x3700.6† 15		0.14 3				
x3723.8† 1		0.13 3				

Continued on next page (footnotes at end of table)

^{112}Sb ε Decay 1976Wi10,1975WiZX,1976Wi10 (continued)

γ(^{112}Sn) (continued)

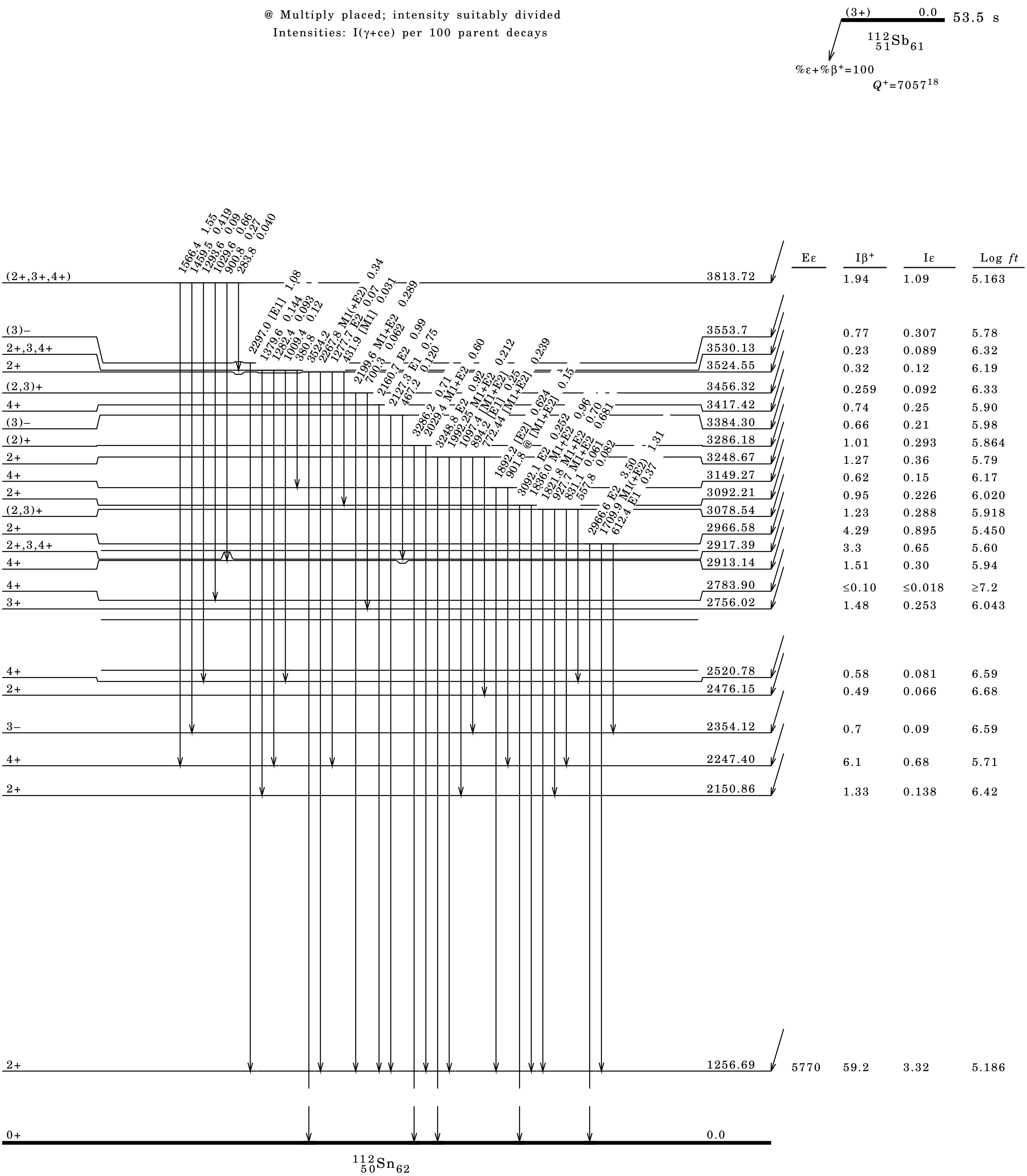
Eγ§	Iγ†@	Eγ§	Iγ†@	Eγ§	Iγ†@
x3827.1† *8*	0.18 *2*	x4152.4† *16*	0.11 *2*	x4665.4† *17*	0.12 *2*
x3879.4† *6*	0.29 *3*	x4212.0† *9*	0.13 *2*	x4745.4† *27*	0.05 *2*
x3923.8† *6*	0.23 *3*	x4390.1† *1*	0.12 *2*	x4910.8† *25*	0.06 *2*
x4042.6† *7*	0.06 *2*	x4541.2† *14*	0.08 *2*	x5132.9† *34*	0.07 *2*
x4077.3† *9*	0.11 *3*	x4566.9† *15*	0.12 *2*		
x4086.1† *7*	0.28 *3*	x4614.5† *16*	0.09 *2*		

† From 1975WiZX,1976Wi10, unless otherwise noted.
‡ From adopted gammas, normalized to the Iγ of the strongest decay branch.
§ From adopted gammas, unless otherwise stated.
\# If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
@ For absolute intensity per 100 decays, multiply by 0.09314 *10*.
& Placement of transition in the level scheme is uncertain.
a Multiply placed; intensity suitably divided.
x γ ray not placed in level scheme.

^{112}Sb ε Decay 1976Wi10,1975WiZX,1976Wi10 (continued)

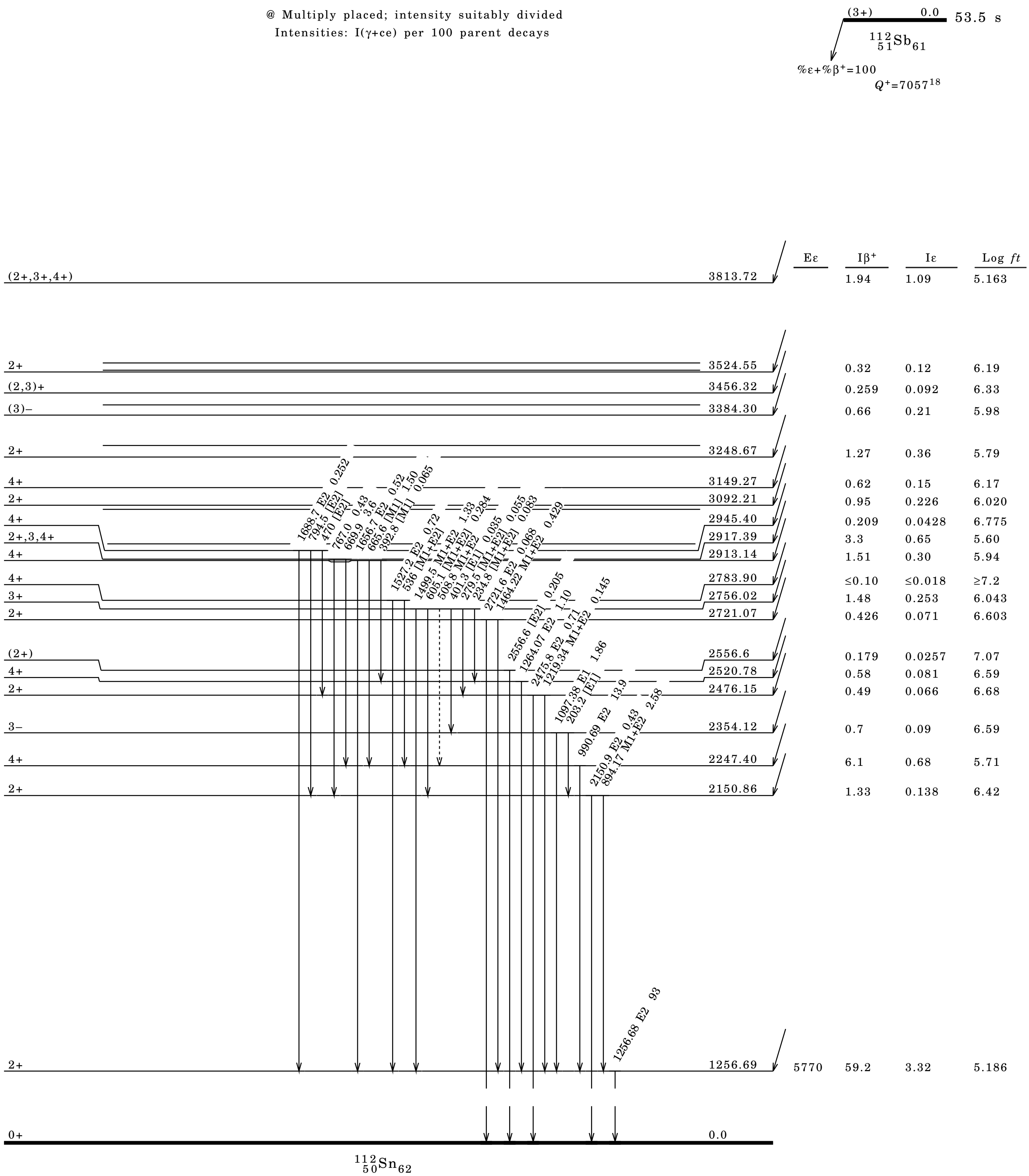
Decay Scheme

@ Multiply placed; intensity suitably divided
Intensities: I(γ+ce) per 100 parent decays



^{112}Sb ε Decay 1976Wi10,1975WiZX,1976Wi10 (continued)

Decay Scheme (continued)



^{100}Mo(^{16}O,4nγ),^{98}Mo(^{16}O,2nγ) 1988Ha20,1986Ka25,2003Wo15

1988Ha20, 1986Ka25: Facility: 160 cm RIKEN cyclotron; Beam: E(^{16}O)=72–76 MeV; Targets: 677 μg/cm^2, enriched to 94.5% in ^{110}Mo, supported by thin Au foil and Ta stopper. Also used – a thick target enriched to 96% ^{100}Mo on Pb backing; Detectors: BGOACS comprising five HPGe detectors with BGO shield, neutron multiplicity filter; Measured: Eγ, γγ, n–γ; Deduced: ^{112}Sn level scheme, τ from recoil–distance measurements; Also, from the same collaboration: 1987HaZA, 1987HaZE, 1987YoZU, 1986HaZD, 1986HaZP, 1986KaZY.

2003Wo15: Facility: HIL cyclotron, Warsaw; Beam: E(^{16}O)=60–80 MeV; Target: 5.6 mg/cm^2 enriched in ^{98}Mo; Detectors: OSIRIS–II multidetector, comprising 10 HPGe detectors and 48–element BGO multiplicity filter; Measured: γ–γ, Eγ, Iγ; Deduced: ^{112}Sn level scheme; Also, from the same collaboration: 2003Wo16.

Other: 1971FoZQ.

^{112}Sn Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	$T_{1/2}$§	E(level)†	Jπ‡
0.0	0+	3136.5 *17*	5–		5684.0 *18*	12+
1257.0 *10*	2+	3355.0 *14*	(7)–		6362.0# *19*	14+
2186.9 *13*	0+	3414.3 *12*	6+		6399.5@ *21*	(13–)
2247.5 *12*	4+	3430.7 *16*	(8)–	0.62 ns *4*	7208.5@ *23*	(15–)
2354.5 *14*	3–	3693.5 *16*	(9)–	47 ps *7*	7213.0# *21*	16+
2474.8 *13*	2+	4077.6 *15*	8+		8089.0# *23*	(17–)
2521.2 *13*	4+	4582.7 *19*	(10)–	<21 ps	8145.0# *23*	18+
2549.8 *14*	6+	4680.2 *17*	(10+)		9051@ *3*	(19–)
2783.9 *13*	4+	4818.9 *17*	10+		9184# *3*	20+
2926.9 *15*	6+	4928.5 *19*	(11)–	<21 ps	10082@ *3*	(21–)
2945.4 *12*	4+	5564.0# *18*	12+		10332# *3*	22+

† From a least–squares fit to Eγ. ΔEG=1 keV was used for the fit by the evaluators.
‡ From the adopted levels.
§ From recoil–distance measurements in 1986Ka25.
# (A): Probable member of a ΔJ=2 band on the 5564.0 keV (Jπ=12+) state.
@ (B): Probable member of a ΔJ=2 band on the 6399.5 keV (Jπ=13–) state.

γ(^{112}Sn)

Eγ†	E(level)	Comments
76.3 *2*	3430.7	
263	3693.5	
286‡	2474.8	
302	2549.8	
377	2926.9	Eγ: 376 in 2003Wo15.
384‡	4077.6	
428	3355.0	
469	3414.3	Eγ: 470 in 2003Wo15.
470‡	2945.4	
536‡	2783.9	
630	3414.3	Eγ: 631 in 2003Wo15.
663	4077.6	Eγ: 664 in 2003Wo15.
678	6362.0	
741	4818.9	Eγ: 742 in 2003Wo15.
745	5564.0	
782‡	3136.5	
798	6362.0	
805	3355.0	Eγ: 806 in 2003Wo15.
809	7208.5	
851	7213.0	
865	5684.0	
876	8089.0	
884	5564.0	
893	3414.3	Eγ: 894 in 2003Wo15.
928‡	2186.9	Eγ: 934.12 *4* in the adopted gammas.
932	8145.0	
962	9051	
987	4680.2	
990	2247.5	Eγ: 991 in 2003Wo15.
1001‡	3355.0	

Continued on next page (footnotes at end of table)

$^{100}Mo(^{16}O,4n\gamma),^{98}Mo(^{16}O,2n\gamma)$ 1988Ha20,1986Ka25,2003Wo15 (continued)

$\gamma(^{112}Sn)$ (continued)

Eγ†	E(level)	Comments
1004	5684.0	
1031	10082	
1039	9184	
1098‡	2354.5	
1148	10332	
1152	4582.7	
1167	3414.3	
1219‡	2474.8	
1235	4928.5	
1257	1257.0	
1264	2521.2	
1471	6399.5	Eγ: 1469.4 *4* in the adopted gammas.
1527	2783.9	
1689	2945.4	Eγ: 1687 in 2003Wo15.

† From 1988Ha20, unless otherwise noted. ΔEγ not given by the authors.
‡ From 2003Wo15.

$^{100}Mo(^{20}Ne,\alpha4n\gamma)$ 2007Ga45

Facility: Variable Energy Cyclotron Center, Kolkata; Beam: $E(^{20}Ne)$=136 MeV; Target: 4.7 mg/cm^2, enriched to 99.54% in ^{100}Mo and evaporated on aluminium backing; Detectors: INGA multidetector array, comprising six Compton–suppressed Clover detectors; Measured: γ–γ, Eγ, Iγ, γγ(θ), γ–polarization; Deduced: ^{112}Sn level scheme, γ–ray multipolarity, τ from DSAM, δ.

^{112}Sn Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	$T_{1/2}$§
0.0#	0+	4928.3 *4*	(11)–	
1256.61# *10*	2+	5563.74@ *23*	12+	0.66 ps *14*
2247.11# *14*	4+	5684.4 *3*	12+	
2520.12 *20*	4+	6362.34@ *25*	14+	1.21 ps *28*
2548.81# *17*	6+	6397.7& *5*	(13–)	
2783.62 *22*	4+	7206.5& *5*	(15–)	
2926.1 *3*	6+	7213.6@ *3*	16+	0.55 ps *10*
2945.62 *25*	4+	8082.4& *4*	(17–)	
3353.90 *20*	(7)–	8146.6@ *4*	18+	0.34 ps *+8–10*
3413.82@ *17*	6+	9044.6& *6*	(19–)	
3430.19 *25*	(8)–	9186.1@ *4*	20+	0.22 ps *6*
3693.2 *3*	(9)–	10075.6& *12*	(21–)	
4077.43@ *19*	8+	10335.2@ *5*	22+	0.14 ps *4*
4582.4 *5*	10–	11570.1@ *7*	(24+)	<0.35 ps
4680.6 *3*	(10+)	12965.1?@ *13*	(26+)	
4819.13@ *21*	10+			

† From a least–squares fit to Eγ's.
‡ From the adopted levels.
§ From DSAM in 2007Ga45.
\# (A): Yrast sequence.
@ (B): configuration=$\pi g_{9/2}^{-2}\otimes\pi g_{7/2}^{2}$. Above $J^\pi=12^+$, configuration=$\pi[g_{9/2}^{-2}g_{7/2}^{2}]\otimes\nu h_{11/2}^{2}$ due to the alignment of a pair of $h_{11/2}$ neutrons at $\hbar\omega\approx0.35$ MeV.
& (C): configuration=$\pi g_{9/2}^{-1}\otimes\pi h_{11/2}$. Also, possible configuration=$\pi[g_{9/2}^{-1}h_{11/2}]\otimes\nu h_{11/2}^{2}$ due to the alignment of $h_{11/2}$ neutrons before J=17.

^{100}Mo(^{20}Ne,α4nγ) 2007Ga45 (continued)

γ(^{112}Sn)

Eγ†	E(level)	Iγ†	Mult.‡	δ†	Comments
76.3 *2*	3430.19		M1+E2#		Eγ: from the adopted gammas.
263.0 *1*	3693.2	25.3 *25*	M1(+E2)§	+0.12 *16*	Mult.: DCO=0.78 *11* (2007Ga45).
301.7 *1*	2548.81	42.1 *25*	E2		Mult.: DCO=1.11 *6* (2007Ga45); Pol_{DCO}=+0.06 *3* (2007Ga45).
345.9 *8*	4928.3	<1	M1+E2#		
377.2 *3*	2926.1	2.7 *10*	M1#		
427.8 *3*	3353.90	2.3 *11*	E1#		
468.2 *2*	3413.82	6.2 *12*	E2#		
603.1 *5*	4680.6	2.8 *12*			
630.2	3413.82	10.2 *7*	E2#		Eγ: uncertainty not listed by 2007Ga45, assumed as 0.3 keV by evaluators for least–squares fit procedure.
663.6 *1*	4077.43	37.2 *20*	E2		Mult.: DCO=0.93 *9* (2007Ga45); Pol_{DCO}=+0.11 *4* (2007Ga45).
678.1 *8*	6362.34	<1			
741.7 *1*	4819.13	33 *4*	E2		Mult.: DCO=1.04 *10* for 741.7+744.6 (2007Ga45); Pol_{DCO}=+0.25 *11* (2007Ga45).
744.6 *1*	5563.74	21 *4*	E2		Mult.: DCO=1.04 *10* for 741.7+744.6 (2007Ga45); Pol_{DCO}=+0.27 *11* (2007Ga45).
798.6 *1*	6362.34	25 *4*	E2		Mult.: DCO=0.99 *12* (2007Ga45); Pol_{DCO}=+0.08 *3* (2007Ga45).
805.1 *1*	3353.90	37 *5*	E1		Mult.: DCO=0.71 *13* (2007Ga45); Pol_{DCO}=+0.06 *3* (2007Ga45).
808.8 *3*	7206.5	7.7 *23*			
851.3 *1*	7213.6	21.1 *22*	E2		Mult.: DCO=1.05 *13* (2007Ga45); Pol_{DCO}=+0.24 *14* (2007Ga45).
865.3 *2*	5684.4	8.8 *24*	E2#		
868.8 *4*	8082.4	2.6 *10*			
875.9 *3*	8082.4	6.8 *18*			
883.2 *3*	5563.74	8.6 *23*			
893.7 *3*	3413.82	6.4 *21*	E2#		
932.9 *2*	8146.6	16 *4*	E2		Mult.: DCO=1.06 *19* (2007Ga45); Pol_{DCO}=+0.22 *14* (2007Ga45).
962.2 *4*	9044.6	4.4 *15*			
987.4 *3*	4680.6	11.1 *24*			
990.5 *1*	2247.11	71 *7*	E2		Mult.: DCO=1.03 *5* (2007Ga45); Pol_{DCO}=+0.07 *3* (2007Ga45).
1031.0 *10*	10075.6				
1039.5 *2*	9186.1	13.8 *18*	E2§		Mult.: DCO=1.00 *21* (2007Ga45).
1149.1 *3*	10335.2	10.8 *21*	E2		Mult.: DCO=1.13 *23* (2007Ga45).
1152.2 *4*	4582.4	5.7 *22*	E2#		
1166.7 *1*	3413.82	16.8 *17*	E2§		Mult.: DCO=0.96 *9* (2007Ga45).
1234.9 *5*	11570.1	6.6 *15*			
1235.1 *2*	4928.3	12 *3*	E2#		
1256.6 *1*	1256.61	100 *3*	E2		Mult.: DCO=1.01 *6* (2007Ga45); Pol_{DCO}=+0.05 *2* (2007Ga45).
1263.5 *2*	2520.12	5.9 *16*	E2#		
1395.0@ *10*	12965.1?				
1469.4 *4*	6397.7	9.5 *19*			
1527.0 *2*	2783.62	11.9 *23*	E2#		
1689.0 *6*	2945.62	5.1 *11*	E2#		

† From 2007Ga45, unless otherwise stated.
‡ Based on the DCO and Pol_{DCO} measurements in 2007Ga45, unless otherwise stated.
§ Based only on DCO measurements in 2007Ga45.
# From the adopted gammas.
@ Placement of transition in the level scheme is uncertain.

$^{103}Rh(^{12}C,p2n\gamma)$ 1990ViZW

Beam: E(^{12}C)=68 MeV from U–240 cyclotron; Target: 65 mg/cm^2 enriched in ^{112}Rh; Detectors: one HPGe; Measured: Eγ, DSAM; Deduced: ^{112}Sn level scheme, τ.

Other: 1981Gi13: ^{112}Sn from ^{106}Cd(^{12}C,α2p) channel.

^{112}Sn Levels

E(level)†	Jπ‡	$T_{1/2}$†	Comments
0.0	0+		
1256.9	2+		
2520.8	4+	0.42 ps *14*	
2783.8	4+	0.35 ps *14*	
3414.0	6+	0.6 ps *3*	
3430.7	(8)−		
3693.8	(9)−	0.69 ps *14*	$T_{1/2}$: in disagreement with 47 ps *7* from the adopted levels.
4077.7	8+	1.0 ps *4*	
4582.3	(10)−	0.24 ps *7*	
4819.5	10+	0.14 ps *7*	
5564.7	12+	<1.4 ps	

† From 1990ViZW.
‡ From the adopted levels.

$\gamma(^{112}$Sn)

Eγ†	E(level)
263.0	3693.8
663.7	4077.7
741.8	4819.5
745.0	5564.7
893.2	3414.0
1151.9	4582.3
1264.2	2520.8
1527.2	2783.8

† From 1990ViZW.

$^{110}Cd(^3He,n)$ 1977Fi04

1977Fi04: Facility: Univ.Colorado; Beam: E(^{3}He)=25.4 MeV; Target: self–supporting, 0.5 – 2 mg/cm thick; three liquid scintillators; Measured: neutron TOF, dσ/dΩ; Deduced: E_{level}, DWBA analysis, Jπ; Also, from the same collaboration: 1977LiZA, 1975FiZQ.

^{112}Sn Levels

E(level)†	Jπ‡	L§
0.0	0+	0
2190	0+	0
3570	0(+)	0

† From 1977Fi04; ΔE not given by the authors.
‡ From the adopted levels.
§ From 1977Fi04, based on DWBA.

$^{110}Cd(^{3}He,n\gamma),^{112}Cd(^{3}He,3n\gamma)$ 1989An14

1989An14: Facility: Univ. Cologne Tandem accelerator; Beam $E(^{3}He)$=29 MeV; Target: 4 mg/cm^2 enriched to 90.8% in ^{106}Cd and having 2% ^{112}Cd admixture; Detectors: two HPGe and two NE213 liquid scintillators; Measured: γ–γ, γ–γ(t), Eγ; Deduced: ^{112}Sn level scheme, $T_{1/2}$, B(E2); Also, from the same collaboration: 1988Pe17.
Other: 1967Be07.

^{112}Sn Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	0+		
1256.6 *10*	2+		
2247.2 *15*	4+		
2548.9 *18*	6+	13.5 ns *4*	$T_{1/2}$: weighted average of 12.1 ns *15* (1989An14,1988Pe17) and 13.6 ns *4* (1989An14) from centroid shift and slope analysis, respectively.

† From a least–squares fit to Eγ.
‡ From the adopted levels.

$\gamma(^{112}Sn)$

Eγ†	E(level)
301.7 *10*	2548.9
990.6 *10*	2247.2
1256.6 *10*	1256.6

† From 1989An14. ΔE deduced by the evaluators.

$^{110}Cd(\alpha,2n\gamma)$ 1980Va13,1979Br07

1980Va13, 1979Br07: Facility: Vrije Universiteit cyclotron, Amsterdam; Beam: E(α)=17–33 MeV; Targets: 5 mg/cm^2 thick self–supporting and a thin target with a thickness of 0.5 mg/cm^2, isotopically enriched in ^{110}Cd; Detectors: Compton polarimeter comprising one coaxial Ge and two Ge(Li) detectors, one planar, one intrinsic Ge x–ray detector, mini–orange spectrometer; Measured: γ, γ–ce, γ–γ–Δt, Eγ, Iγ, γ(θ), E_{ce}, I_{ce}, linear polarization (P_γ); Deduced: ^{112}Sn level scheme, Jπ, γ–ray multipolarities; Also, from the same collaboration: 1981Va15.
Other: 1968Ya04, 1969Lu05, 1969Ya05, 1975Vi03, 1976HeZJ, 1977BrYY, 1978BrZS, 1978BrZU, 1981Go17.

^{112}Sn Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	0+		
1256.65 *8*	2+		
2247.24 *11*	4+		
2353.95 *22*	3–		
2520.82 *11*	4+		
2548.92 *13*	6+	13.74 ns *8*	$T_{1/2}$: weighted average of 13.9 ns *2* (1980Va13); 14.0 ns *4* (1969Ya05); 13.2 ns *4* (1981Go17) and 13.7 ns *1* (1981Va15). g: +0.097 *9* (1981Go17); Other: +0.04 *3* from TDPAD in 1981Va15. Q: 0.29 *6* (1975Vi03). configuration: $\nu g_{7/2}\nu d_{5/2}$, $(\nu g_{7/2})^2$.
2783.69 *14*	4+		
2926.41 *15*	6+		
2945.77 *14*	4+		
3354.05 *14*	(7)–		
3413.96 *14*	6+		
3430.35 *25*	(8)–	0.58 ns *6*	$T_{1/2}$: from γγ(t) in 1980Va13.
3693.4 *3*	(9)–		
4077.62 *16*	8+		
4582.3 *3*	(10)–		
4819.4 *3*	10+		
4928.7 *4*	(11)–		
5564.4 *4*	12+		

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^{110}Cd(α,2nγ) 1980Va13,1979Br07 (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ‡
5684.6 3	12+

† From a least–squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Sn)

Eγ†	E(level)	Iγ†	Mult.‡	δ†	α	Comments
76.3 2	3430.35	12.0 8	M1+E2	0.04 3	1.221 22	Mult.: A_2=−0.15 2 (1980Va13); A_4=−0.01 2 (1980Va13).
263.03 7	3693.4	17.9 5	M1+E2	0.13 1		Mult.: A_2=−0.021 6 (1980Va13); A_4=0.00 1 (1980Va13); Pγ=−0.43 5 (1980Va13); α(K)exp=0.0045 7 (1980Va13).
301.68 7	2548.92	60 2	E2		0.0348	Mult.: A_2=0.220 4 (1980Va13); A_4=−0.04 1 (1980Va13); Pγ=0.31 6 (1980Va13); α(K)exp=0.033 5 (1980Va13). B(E2)(W.u.)=0.497 3.
377.50 8	2926.41	6.6 8	M1			Mult.: A_2=0.365 8 (1980Va13); A_4=0.00 2 (1980Va13); Pγ=0.67 5 (1980Va13); α(K)exp=0.017 3 (1980Va13).
427.67 10	3354.05	2.1 1				Mult.: A_2=−0.20 2 (1980Va13); A_4=0.07 4 (1980Va13); Pγ=0.38 5 (1980Va13).
468.03§ 13	3413.96	1.6§ 1	E2			Mult.: A_2=0.32 6 (1979Br07); A_4=−0.18 10 (1979Br07); Pγ=0.49 8 (1979Br07); α(K)exp=0.007 2 (1979Br07).
630.36§ 12	3413.96	2.8§ 1	E2			Mult.: A_2=0.34 2 (1979Br07); A_4=0.71 8 (1979Br07); Pγ=0.71 8 (1979Br07); α(K)exp=0.0038 8 (1979Br07).
663.66§ 8	4077.62	8.8§ 3	E2			Mult.: A_2=0.375 9 (1979Br07); A_4=−0.11 2 (1979Br07); Pγ=0.65 6 (1979Br07); α(K)exp=0.0027 4 (1979Br07).
741.8§ 2	4819.4	5.6§ 2	E2			Mult.: A_2=0.366 12 (1979Br07); A_4=−0.11 2 (1979Br07); Pγ=0.53 5 (1979Br07); α(K)exp=0.0025 4 (1979Br07).
745.0§ 2	5564.4	1.6§ 1	E2			Mult.: A_2=0.27 4 (1979Br07); A_4=−0.05 6 (1979Br07); Pγ=0.61 12 (1979Br07); α(K)exp=0.0024 6 (1979Br07).
805.11 7	3354.05	36 2	E1			Mult.: A_2=−0.233 5 (1980Va13); A_4=−0.01 1(1980Va13); Pγ=0.37 5 (1980Va13); α(K)exp=0.00070 15 (1980Va13).
865.21§ 9	5684.6	1.0§ 1	E2			Mult.: A_2=0.40 6 (1979Br07); A_4=−0.12 10 (1979Br07); Pγ=0.7 2 (1979Br07); α(K)exp=0.0024 7 (1979Br07).
893.2§ 2	3413.96	1.9§ 6	E2			
990.60§ 7	2247.24	75§ 2	E2			Mult.: A_2=0.236 5 (1979Br07); A_4=−0.050 9 (1979Br07); Pγ=0.37 (1979Br07); α(K)exp=0.0014 (1979Br07).
1097.3 2	2353.95	2.9 1	E1			Mult.: A_2=−0.21 3 (1980Va13); A_4=0.03 4 (1980Va13); Pγ=0.34 9 (1980Va13); α(K)exp<0.0005 (1980Va13).
1151.94 11	4582.3	5.1 2	E2			Mult.: A_2=0.344 15 (1980Va13); A_4=−0.14 3 (1980Va13); Pγ=0.72 8 (1980Va13); α(K)exp=0.0007 3 (1980Va13).
1166.9§ 3	3413.96	5.0§ 5	E2			Mult.: A_2=0.38 7 (1979Br07); A_4=−0.12 13 (1979Br07); Pγ=0.8 2 (1979Br07); α(K)exp=0.0009 4 (1979Br07).
1235.3 3	4928.7	3.8 1	E2			Mult.: A_2=0.34 3 (1980Va13); A_4=−0.13 3 (1980Va13); Pγ=0.80 10 Pγ=0.72 8 (1980Va13); α(K)exp=0.0007 2 (1980Va13).
1256.64§ 8	1256.65	100.0§ 1	E2			Mult.: A_2=0.243 5 (1979Br07); A_4=−0.048 9 (1979Br07); Pγ=0.39 (1979Br07); α(K)exp=0.00060 8 (1979Br07).
1264.17§ 8	2520.82	7.0§ 2	E2			Mult.: A_2=0.218 11 (1979Br07); A_4=−0.07 2 (1979Br07); Pγ=0.53 8 (1979Br07); α(K)exp=0.0007 2 (1979Br07).
1527.15§ 14	2783.69	5.1§ 2	E2			Mult.: A_2=−0.09 3 (1979Br07); A_4=0.7 2 (1979Br07).
1688.92§ 14	2945.77	2.3§ 1	E2			Mult.: A_2=0.22 3 (1979Br07); A_4=0.5 2 (1979Br07).

† From 1980Va13, unless otherwise noted.
‡ From 1980Va13 and 1979Br07, based on angular correlations, polarization and α(K)exp data.
§ From 1979Br07.

^{112}Sn(γ,γ') 2014Oz03,2006Py01,2008BoZK

2014Oz03: Target of about 2 g of >99% enriched metallic ^{112}Sn placed between ^{11}B layers. Incident bremsstrahlung beam with endpoints up 9.5 MeV, produced by S–DALINAC electron linear accelerator at TU–Darmstadt. Measured Eγ, Iγ, γ(θ) at 90° and 130°. Deduced levels, J, π, multipolarity, B(E1), summed E1 strengths, widths.

2006Py01: Facility: Stuttgart Dynamitron accelerator; Beam: unpolarized bremsstrahlung beam from 3.8 MeV electrons; Target: 1990 mg, enriched to 99.5% in ^{112}Sn; Detectors: three HPGe, one of which with BGO shield; Measured: Eγ; Deduced: B(E2); Also, from the same collaboration: 2005PyZZ.

2008BoZK: Facility: HIγS, Duke FEL; Beam: bremsstrahlung from accelerated electrons; Detectors: five HPGe; Measured: γ, γ–γ(θ), lear pol., Eγ, Iγ; Deduced: γ–ray Mult., Γ_0, ^{112}Sn level scheme.

^{112}Sn Levels

B(E1)↑ values are listed here in e^2b units.

Summed E1 transition strength, B(E1)=0.00175 e^2b *24*, with a centroid energy of 6.7 MeV for resolved transitions up to 9.5 MeV excitation.

E(level)†	Jπ§	$\Gamma^2_{\gamma 0}/\Gamma$ (eV)	Comments
0.0	0+		
3433.9 *5*	1−	0.162 eV *15*	B(E1)↑=11.5×10^{-5} *11*.
			Other: B(E1)=10.7×10^{-5} *12* (2006Py01).
4141.3 *5*	1−	0.017 eV *4*	B(E1)↑=0.7×10^{-5} *2*.
4162.3 *5*	1−	0.044 eV *4*	B(E1)↑=1.8×10^{-5} *2*.
4330.4 *5*	1−	0.015 eV *3*	B(E1)↑=0.5×10^{-5} *1*.
4726.5 *5*	1−	0.012 eV *3*	B(E1)↑=0.3×10^{-5} *1*.
4837.4 *5*	1−	0.028 eV *5*	B(E1)↑=0.7×10^{-5} *1*.
5057.1 *5*	1−	0.134 eV *13*	B(E1)↑=3.0×10^{-5} *3*.
5128.2 *5*	1−	0.198 eV *20*	B(E1)↑=4.2×10^{-5} *4*.
5246.2 *5*	1−	0.166 eV *14*	B(E1)↑=3.3×10^{-5} *3*.
5480.5 *5*	1−	0.066 eV *11*	B(E1)↑=1.2×10^{-5} *2*.
5502.6 *5*	1−	0.086 eV *10*	B(E1)↑=1.5×10^{-5} *2*.
5593.7 *5*	1−	0.043 eV *7*	B(E1)↑=0.7×10^{-5} *1*.
5617.6 *5*	1−	0.039 eV *7*	B(E1)↑=0.6×10^{-5} *1*.
5649.1 *5*	1−	0.043 eV *7*	B(E1)↑=0.7×10^{-5} *1*.
5666.4 *5*	1−	0.023 eV *6*	B(E1)↑=0.4×10^{-5} *1*.
5699.9 *5*	1−	0.033 eV *7*	B(E1)↑=0.5×10^{-5} *1*.
5748.6 *5*	1−	0.066 eV *7*	B(E1)↑=1.0×10^{-5} *1*.
5812.7 *5*	1−	0.034 eV *8*	B(E1)↑=0.5×10^{-5} *1*.
5860.7 *5*	1−	0.159 eV *27*	B(E1)↑=2.3×10^{-5} *4*.
5884.0 *5*	1−	0.100 eV *16*	B(E1)↑=1.4×10^{-5} *2*.
5924.1 *5*	1−	0.112 eV *12*	B(E1)↑=1.5×10^{-5} *2*.
5976.6 *5*	1−	0.128 eV *14*	B(E1)↑=1.7×10^{-5} *2*.
6005.0 *10*	1−	0.244 eV *21*	B(E1)↑=3.2×10^{-5} *3*.
6059.8 *10*	1−	0.477 eV *44*	B(E1)↑=6.1×10^{-5} *6*.
6080.9 *10*	1−	0.073 eV *15*	B(E1)↑=0.9×10^{-5} *2*.
6096.9 *10*	1−	0.385 eV *23*	B(E1)↑=3.6×10^{-5} *2*.
6129.0 *10*	1−	0.115 eV *13*	B(E1)↑=1.4×10^{-5} *2*.
6150.4 *10*	1−	0.273 eV *28*	B(E1)↑=3.4×10^{-5} *3*.
6168.3 *10*	1−	0.098 eV *17*	B(E1)↑=1.2×10^{-5} *2*.
6198.7 *10*	1−	0.179 eV *18*	B(E1)↑=2.2×10^{-5} *2*.
6224.3 *10*	1−	0.315 eV *26*	B(E1)↑=3.7×10^{-5} *3*.
6246.4 *10*	1−	0.152 eV *20*	B(E1)↑=1.8×10^{-5} *2*.
6259.1 *10*	1−	0.130 eV *17*	B(E1)↑=1.5×10^{-5} *2*.
6272.6 *10*	1−	0.220 eV *21*	B(E1)↑=2.5×10^{-5} *3*.
6313.3 *10*	1−	0.251 eV *23*	B(E1)↑=2.9×10^{-5} *3*.
6348.7 *10*	1−	0.134 eV *17*	B(E1)↑=1.5×10^{-5} *2*.
6388.1 *10*	1−	0.663 eV *47*	B(E1)↑=7.3×10^{-5} *5*.
			Other: B(E1)=5.17×10^{-5} *2* (2008BoZK).
6404.1 *10*	1−	1.69 eV *12*	B(E1)↑=18.4×10^{-5} *13*.
			Other: B(E1)=8.47×10^{-5} *3* (2008BoZK).
6428.6 *10*	1−	0.114 eV *18*	B(E1)↑=1.2×10^{-5} *2*.
			Other: B(E1)=4.89×10^{-5} *2* (2008BoZK).
6450.0 *10*	1−	0.109 eV *15*	B(E1)↑=1.2×10^{-5} *2*.
6476.3‡ *15*	1−	0.7 eV *4*	B(E1)↑=7.46×10^{-5} *4* (2008BoZK).
6520.7 *10*	1−	0.309 eV *33*	B(E1)↑=3.2×10^{-5} *3*.
6550.1 *10*	1−	0.054 eV *11*	B(E1)↑=0.6×10^{-5} *1*.
6601.0 *10*	1−	0.173 eV *23*	B(E1)↑=1.7×10^{-5} *2*.
6679.9 *10*	1−	0.074 eV *14*	B(E1)↑=0.7×10^{-5} *1*.
6706.7 *10*	1−	0.187 eV *24*	B(E1)↑=1.8×10^{-5} *2*.

Continued on next page (footnotes at end of table)

$^{112}Sn(\gamma,\gamma')$ 2014Oz03,2006Py01,2008BoZK (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ§	$\Gamma^2_{\gamma 0}/\Gamma$ (eV)	Comments
6715.0 *10*	1−	0.156 eV *67*	B(E1)↑=1.5×10^{-5} *6*. Other: B(E1)=3.03×10^{-5} *1* (2008BoZK).
6731.9 *10*	1−	0.289 eV *51*	B(E1)↑=2.7×10^{-5} *5*. Other: B(E1)=2.66×10^{-5} *1* (2008BoZK).
6795.5 *10*	1−	0.185 eV *25*	B(E1)↑=1.7×10^{-5} *2*. Other: B(E1)=2.01×10^{-5} *1* (2008BoZK).
6818.7 *10*	1−	0.139 eV *23*	B(E1)↑=1.3×10^{-5} *2*. Other: B(E1)=3.16×10^{-5} *1* (2008BoZK).
6824.2 *10*	1−	0.194 eV *32*	B(E1)↑=1.7×10^{-5} *3*.
6855.9 *10*	1−	0.170 eV *25*	B(E1)↑=1.5×10^{-5} *2*.
6871.2 *10*	1−	0.189 eV *19*	B(E1)↑=1.7×10^{-5} *2*.
6941.2 *10*	1−	0.367 eV *41*	B(E1)↑=3.1×10^{-5} *3*.
6961.5 *10*	1−	0.362 eV *53*	B(E1)↑=3.1×10^{-5} *5*.
6982.7 *10*	1−	0.246 eV *30*	B(E1)↑=2.1×10^{-5} *3*.
7009.8 *10*	1−	0.062 eV *15*	B(E1)↑=0.5×10^{-5} *1*.
7018.7 *10*	1−	0.082 eV *16*	B(E1)↑=0.7×10^{-5} *1*.
7025.8 *10*	1−	0.086 eV *17*	B(E1)↑=0.7×10^{-5} *1*.
7043.1 *10*	1−	0.245 eV *42*	B(E1)↑=2.0×10^{-5} *3*.
7092.8 *10*	1−	0.524 eV *48*	B(E1)↑=4.2×10^{-5} *4*.
7167.2 *10*	1−	0.363 eV *42*	B(E1)↑=2.8×10^{-5} *3*.
7198.2 *10*	1−	0.578 eV *75*	B(E1)↑=4.4×10^{-5} *6*. Other: B(E1)=2.66×10^{-5} *1* (2008BoZK).
7208.1‡ *10*	1−	0.15 eV *7*	B(E1)↑=1.18×10^{-5} *1* (2008BoZK).
7217.8‡ *11*	1−	0.25 eV *10*	B(E1)↑=1.89×10^{-5} *1* (2008BoZK).
7228.1 *10*	1−	0.164 eV *27*	B(E1)↑=1.2×10^{-5} *2*. Other: B(E1)=2.01×10^{-5} *1* (2008BoZK).
7248.4‡ *14*	1−	0.27 eV *11*	B(E1)↑=2.01×10^{-5} *1* (2008BoZK).
7311.1 *10*	1−	0.138 eV *28*	B(E1)↑=1.0×10^{-5} *2*.
7389.9 *10*	1−	0.183 eV *30*	B(E1)↑=1.3×10^{-5} *2*.
7438.6 *10*	1−	0.275 eV *42*	B(E1)↑=1.9×10^{-5} *3*.
7444.1 *10*	1−	0.233 eV *37*	B(E1)↑=1.6×10^{-5} *3*.
7468.3 *10*	1−	0.186 eV *45*	B(E1)↑=1.3×10^{-5} *3*.
7531.3 *10*	1−	0.429 eV *62*	B(E1)↑=2.9×10^{-5} *4*.
7537.2 *10*	1−	0.770 eV *82*	B(E1)↑=5.2×10^{-5} *6*.
7559.1 *10*	1−	0.323 eV *43*	B(E1)↑=2.1×10^{-5} *3*.
7594.5 *10*	1−	0.205 eV *31*	B(E1)↑=1.3×10^{-5} *2*.
7615.3 *10*	1−	0.257 eV *41*	B(E1)↑=1.7×10^{-5} *3*.
7859.5 *10*	1−	0.207 eV *35*	B(E1)↑=1.2×10^{-5} *2*.
7904.7 *10*	1−	0.196 eV *40*	B(E1)↑=1.1×10^{-5} *2*.
7936.7 *10*	1−	0.272 eV *39*	B(E1)↑=1.6×10^{-5} *2*.
7988.2 *10*	1−	0.606 eV *62*	B(E1)↑=3.4×10^{-5} *3*.
8020.7 *10*	1−	0.412 eV *67*	B(E1)↑=2.3×10^{-5} *4*.
8051.6 *10*	1−	0.396 eV *60*	B(E1)↑=2.2×10^{-5} *3*.
8069.6 *10*	1−	0.482 eV *65*	B(E1)↑=2.6×10^{-5} *4*.
8194.5 *10*	1−	0.518 eV *75*	B(E1)↑=2.7×10^{-5} *4*.
8218.2 *10*	1−	0.262 eV *48*	B(E1)↑=1.4×10^{-5} *2*.
8253.6 *10*	1−	0.177 eV *38*	B(E1)↑=0.9×10^{-5} *2*.
8448.6 *10*	1−	0.147 eV *41*	B(E1)↑=0.7×10^{-5} *2*.
8568.9 *10*	1−	0.166 eV *43*	B(E1)↑=0.8×10^{-5} *2*.
8600.4 *10*	1−	0.118 eV *35*	B(E1)↑=0.5×10^{-5} *2*.
8750.2 *10*	1−	0.249 eV *56*	B(E1)↑=1.1×10^{-5} *2*.
8823.4 *10*	1−	0.278 eV *64*	B(E1)↑=1.2×10^{-5} *3*.
9050.5 *10*	1−	0.41 eV *11*	B(E1)↑=1.6×10^{-5} *4*.
9095.3 *10*	1−	0.268 eV *65*	B(E1)↑=1.0×10^{-5} *2*.
9150.1 *10*	1−	0.240 eV *75*	B(E1)↑=0.9×10^{-5} *3*.
9329.8 *10*	1−	0.60 eV *14*	B(E1)↑=2.1×10^{-5} *5*.

† From a least–squares fit to Eγ.
‡ Level observed only in 2008BoZK.
§ Dipole transition (assumed E1) to 0+.

^{112}Sn(γ,γ') 2014Oz03,2006Py01,2008BoZK (continued)

γ(^{112}Sn)

Eγ[†]	E(level)	Mult.[‡]	Comments
3433.8 *5*	3433.9	(E1)	
4141.2 *5*	4141.3	(E1)	
4162.2 *5*	4162.3	(E1)	
4330.3 *5*	4330.4	(E1)	
4726.4 *5*	4726.5	(E1)	
4837.3 *5*	4837.4	(E1)	
5057.0 *5*	5057.1	(E1)	
5128.1 *5*	5128.2	(E1)	
5246.1 *5*	5246.2	(E1)	
5480.4 *5*	5480.5	(E1)	
5502.5 *5*	5502.6	(E1)	
5593.6 *5*	5593.7	(E1)	
5617.4 *5*	5617.6	(E1)	
5648.9 *5*	5649.1	(E1)	
5666.2 *5*	5666.4	(E1)	
5699.7 *5*	5699.9	(E1)	
5748.4 *5*	5748.6	(E1)	
5812.5 *5*	5812.7	(E1)	
5860.5 *5*	5860.7	(E1)	
5883.8 *5*	5884.0	(E1)	
5923.9 *5*	5924.1	(E1)	
5976.4 *5*	5976.6	(E1)	
6004.8 *10*	6005.0	(E1)	
6059.6 *10*	6059.8	(E1)	
6080.7 *10*	6080.9	(E1)	
6096.7 *10*	6096.9	(E1)	
6128.8 *10*	6129.0	(E1)	
6150.2 *10*	6150.4	(E1)	
6168.1 *10*	6168.3	(E1)	
6198.5 *10*	6198.7	(E1)	
6224.1 *10*	6224.3	(E1)	
6246.2 *10*	6246.4	(E1)	
6258.9 *10*	6259.1	(E1)	
6272.4 *10*	6272.6	(E1)	
6313.1 *10*	6313.3	(E1)	
6348.5 *10*	6348.7	(E1)	
6387.9 *10*	6388.1	(E1)	Eγ: 6384.9 keV *4* in 2008BoZK.
6403.9 *10*	6404.1	(E1)	Eγ: 6402.0 keV *2* in 2008BoZK.
6428.4 *10*	6428.6	(E1)	Eγ: 6431.6 keV 8 in 2008BoZK.
6449.8 *10*	6450.0	(E1)	
6476.1[§] *15*	6476.3	(E1)[§]	
6520.5 *10*	6520.7	(E1)	
6549.9 *10*	6550.1	(E1)	
6600.8 *10*	6601.0	(E1)	
6679.7 *10*	6679.9	(E1)	
6706.5 *10*	6706.7	(E1)	
6714.8 *10*	6715.0	(E1)	Eγ: 6718.7 keV *13* in 2008BoZK.
6731.7 *10*	6731.9	(E1)	Eγ: 6735.2 keV *14* in 2008BoZK.
6795.3 *10*	6795.5	(E1)	Eγ: 6791.6 keV *23* in 2008BoZK.
6818.5 *10*	6818.7	(E1)	Eγ: 6819.4 keV *11* in 2008BoZK.
6824.0 *10*	6824.2	(E1)	
6855.7 *10*	6855.9	(E1)	
6871.0 *10*	6871.2	(E1)	
6941.0 *10*	6941.2	(E1)	
6961.3 *10*	6961.5	(E1)	
6982.5 *10*	6982.7	(E1)	
7009.6 *10*	7009.8	(E1)	
7018.5 *10*	7018.7	(E1)	
7025.6 *10*	7025.8	(E1)	
7042.9 *10*	7043.1	(E1)	
7092.6 *10*	7092.8	(E1)	
7167.0 *10*	7167.2	(E1)	
7198.0 *10*	7198.2	(E1)	Eγ: 7199.6 keV *9* in 2008BoZK.

Continued on next page (footnotes at end of table)

^{112}Sn(γ,γ') 2014Oz03,2006Py01,2008BoZK (continued)

γ(^{112}Sn) (continued)

Eγ[†]	E(level)	Mult.[‡]	Comments
7207.9[§] *10*	7208.1	(E1)[§]	
7217.6[§] *11*	7217.8	(E1)[§]	
7227.8 *10*	7228.1	(E1)	Eγ: 7229.3 keV *14* in 2008BoZK.
7248.1[§] *14*	7248.4	(E1)[§]	
7310.8 *10*	7311.1	(E1)	
7389.6 *10*	7389.9	(E1)	
7438.3 *10*	7438.6	(E1)	
7443.8 *10*	7444.1	(E1)	
7468.0 *10*	7468.3	(E1)	
7531.0 *10*	7531.3	(E1)	
7536.9 *10*	7537.2	(E1)	
7558.8 *10*	7559.1	(E1)	
7594.2 *10*	7594.5	(E1)	
7615.0 *10*	7615.3	(E1)	
7859.2 *10*	7859.5	(E1)	
7904.4 *10*	7904.7	(E1)	
7936.4 *10*	7936.7	(E1)	
7987.9 *10*	7988.2	(E1)	
8020.4 *10*	8020.7	(E1)	
8051.3 *10*	8051.6	(E1)	
8069.3 *10*	8069.6	(E1)	
8194.2 *10*	8194.5	(E1)	
8217.9 *10*	8218.2	(E1)	
8253.3 *10*	8253.6	(E1)	
8448.3 *10*	8448.6	(E1)	
8568.5 *10*	8568.9	(E1)	
8600.0 *10*	8600.4	(E1)	
8749.8 *10*	8750.2	(E1)	
8823.0 *10*	8823.4	(E1)	
9050.1 *10*	9050.5	(E1)	
9094.9 *10*	9095.3	(E1)	
9149.7 *10*	9150.1	(E1)	
9329.4 *10*	9329.8	(E1)	

† From 2014Oz03, corrected for recoil energy. Uncertainties are 0.5 keV below 6 MeV and 1 keV 6 MeV, unless otherwise stated.
‡ D from γ(θ) data in 2014Oz03, but Mult=E1 was assumed for all transitions, unless otherwise stated.
§ From 2008BoZK.

^{112}Sn(n,n'γ) 2005Ku28,2007Or04

2005Ku28,2007Or04: Facility: 7 MV electrostatic accelerator at University of Kentucky; Beam: E(n)=2.5 to 4.5 MeV from ^{3}H(p,n)^{3}He reaction; Target: 4 g enriched to 99.5% in ^{112}Sn; Detectors: one BGO Compton–suppressed HPGe detector; Measured: Excitation function with neutrons at energies of 2.5 to 4.0 MeV, Eγ, Iγ, γ(θ), τ, n–TOF; Deduced: δ, γ–ray Mult., Jπ, ^{112}Sn level scheme; Also, from the same collaboration: 2005Ku37.
Other: 1981KuZQ, 1979De37.

^{112}Sn Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$[§]
0.0	0+	
1256.69 *4*	2+	0.37 ps *+7−6*
2150.87[#] *5*	2+	
2190.82[#] *6*	0+	>0.5 ps
2247.41[#] *6*	4+	
2354.19 *7*	3−	0.35 ps *+14−8*
2476.05 *12*	2+	>2.4 ps
2520.68 *8*	4+	>0.8 ps
2549.25 *14*	6+	>0.5 ps
2617.62 *18*	0+	>0.4 ps

Continued on next page (footnotes at end of table)

^{112}Sn(n,n'γ) 2005Ku28,2007Or04 (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$§	Comments
2721.07 *14*	2+	0.8 ps *+10−3*	
2756.01 *22*	3+	>0.8 ps	
2765.2 *3*		>1.0 ps	
2783.90 *21*	4+	0.31 ps *+10−6*	
2913.10 *22*	4+	>0.6 ps	
2917.42 *11*	2+,3,4+	>1.1 ps	
2927.9 *4*	6+	>0.22 ps	
2945.36 *17*	4+	>1.1 ps	
2966.62 *8*	2+	0.5 ps *+8−2*	
2969.31 *6*		0.29 ps *+21−9*	
2986.4 *3*	0+	>1.7 ps	
3078.53 *14*	(2,3)+	>1.2 ps	
3092.20 *10*	2+	0.25 ps *+8−5*	
3113.55 *15*	0+ to 4+		
3133.43@ *11*	5−	>1.0 ps	
3141.1 *4*			
3149.0 *4*	4+	0.6 ps *+10−2*	
3248.68 *10*	2+	>1.1 ps	
3272.31 *16*	4+	0.30 ps *+21−10*	
3283.61 *21*	2+		
3286.18 *15*	(2+)	0.22 ps *+15−7*	
3288.0 *3*	(1,2+)		
3338.3 *3*	2+	>0.3 ps	
3353.1 *4*	2+	>1.4 ps	
3378.9 *3*	0+ to 4+		
3384.0@ *3*	(3)−	0.18 ps *+8−5*	
3397.19@ *12*	2−,3−	0.23 ps *+10−6*	$T_{1/2}$: 0.13 *+13−5* in Table iv in (2005Ku28).
3413.43 *18*	6+		
3417.42 *11*	4+	>0.4 ps	
3433.4@ *5*	(1−)	1.9 fs *+11−10*	
3456.1 *3*	2+,3+	>0.7 ps	
3471.7 *3*	4+	>0.23 ps	
3494.02 *21*	2+ to 6+		
3499.19 *16*	5−	0.04 ps *+4−2*	
3520.44 *20*	1 to 4+		
3524.16 *18*	2+	>0.12 ps	
3529.8 *5*	2+,3,4+		
3553.7 *3*	(3)−	0.17 ps *+11−6*	
3557.27 *12*		>0.3 ps	
3604.92 *12*			
3610.97 *11*		0.8 ps *+4−2*	
3631.03 *24*			
3654.34 *15*	2+		
3726.22 *21*			
3754.4 *3*			
3782.9 *3*			

† From a least-squares fit to Eγ.
‡ From the adopted levels.
§ From DSAM measurements in 2005Ku28.
# Possible member of the two-phonon multiplet.
@ Possible member of the $2^+ \times 3^-$ multiplet.

γ(^{112}Sn)

Eγ†	E(level)	Iγ†	Mult.†	Comments
203.2 *2*	2354.19			
301.84 *13*	2549.25	1.00	E2	Mult.: possible admixture; δ(D/Q)=−0.2 *1* (2005Ku28).
378.6 *3*	2927.9	1.0		
380.8 *2*	3529.8	1.0		
392.8 *5*	2913.10	0.08 *2*		

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$^{112}Sn(n,n'\gamma)$ 2005Ku28,2007Or04 (continued)

$\gamma(^{112}Sn)$ (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
468.07 *6*	3413.43		E2		
508.8 *3*	2756.01	0.85 *1*	M1+E2	0.2 *1*	
552.5 *2*	3631.03				
557.8 *3*	3078.53				
612.4 *1*	2966.62	0.08 *2*	E1		
665.6 *3*	2913.10	0.68 *2*			
669.9 *1*	2917.42	1.0			
767.0 *2*	2917.42				
772.44 *24*	3248.68	0.03 *4*			
779.3 *2*	3133.43	0.14 *1*	E2		
794.5 *2*	2945.36		E2		
818.43 *6*	2969.31				
886.0 *1*	3133.43	0.86 *1*	E1		Mult.: possible admixture; δ(D/Q)=−0.02 *+1−4* (2005Ku28).
894.17 *4*	2150.87	0.83 *1*	M1+E2	−0.28 *6*	δ: Also: 7 *+3−2* (2005Ku28).
894.2 *2*	3248.68				
901.8 *6*	3149.0				
927.7 *2*	3078.53	0.53 *1*	M1+E2	0.60 *+1−2*	δ: Also: 3.0 *10* (2005Ku28).
934.12 *4*	2190.82	1.0	E2		Mult.: possible admixture; δ(D/Q)=−0.04 *4* (2005Ku28).
951.0 *3*	3471.7	1.0			
962.67 *14*	3113.55	1.0			
979.3 *2*	3499.19	0.35 *3*			
990.2 *4*	3141.1	1.0			
990.69 *4*	2247.41	1.0	E2		
1036.1 *4*	3557.27	0.14 *2*			
1036.2 *2*	3283.61	1.0			
1042.95 *11*	3397.19	0.42 *1*	(M1+E2)	1.8 *12*	
1097.2 *3*	3288.0	1.0			
1097.38 *7*	2354.19	1.0	E1		Mult.: possible admixture; δ(D/Q)=0.02 *2* (2005Ku28).
1097.4 *2*	3248.68				
1121.39 *15*	3272.31	0.21 *7*	E2		
1144.2 *2*	3499.19	0.65 *3*			
1165.33	3413.43		E2		
1166.3 *2*	3520.44				
1203.1 *1*	3557.27	0.86 *2*			
1219.34 *13*	2476.05	0.17 *2*	M1+E2	−0.54 *7*	
1228.0 *3*	3378.9	1.0			
1246.6 *3*	3397.19	0.58 *1*			
1246.6 *2*	3494.02	1.0			
1256.68 *4*	1256.69	1.0	E2		
1264.07 *7*	2520.68	1.00	E2		Mult.: possible admixture; δ(D/Q)=−0.04 *4* (2005Ku28).
1276.5 *4*	3524.16		E2		
1357.5 *1*	3604.92	1.0			
1360.92 *17*	2617.62	1.0	E2		
1369.0 *6*	3520.44				
1460.1 *1*	3610.97				
1464.22 *15*	2721.07	0.73 *5*	M1+E2	0.17 *10*	
1499.1 *3*	2756.01	0.15 *1*	M1(+E2)	0.03 *5*	
1507.0 *3*	3754.4	1.0			
1508.5 *3*	2765.2	1.0			
1527.2 *2*	2783.90	1.0	E2		Mult.: possible admixture; δ(D/Q)=−0.06 *4* (2005Ku28).
1632.0 *3*	3782.9	1.0			
1656.3 *4*	2913.10	0.24 *2*	E2		Mult.: possible admixture; δ(D/Q)=−0.11 *11* (2005Ku28).
1688.7 *3*	2945.36	1.0	E2		
1709.9 *4*	2966.62	0.25 *6*	M1(+E2)	0.3 *4*	
1712.61 *6*	2969.31	1.0			
1729.7 *3*	2986.4	1.0	E2		
1821.8 *2*	3078.53	0.47 *1*	M1+E2	−1.3 *+3−5*	
1836.0 *3*	3092.20	0.37 *10*	M1+E2	−1.5 *10*	
1892.2 *5*	3149.0	1.0	E2		Mult.: possible admixture; δ(D/Q)=0.05 *10* (2005Ku28).
1992.25 *12*	3248.68	0.02 *4*	M1+E2		
2016.1 *5*	3272.31	0.79 *7*	E2		Mult.: possible admixture; δ(D/Q)=0.0 *1* (2005Ku28).
2029.4 *2*	3286.18	0.07 *3*	M1(+E2)	0.1 *+3−2*	δ: Also: 1.8 *10* (2005Ku28).
2081.6 *3*	3338.3	1.00	M1+E2		

Continued on next page (footnotes at end of table)

^{112}Sn(n,n'γ) 2005Ku28,2007Or04 (continued)

γ(^{112}Sn) (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
2096.4 *4*	3353.1	0.08 *3*	M1+E2		
2127.3 *3*	3384.0	1.00	E1		Mult.: possible admixture; δ(D/Q)=0.01 *5*. Also, 0.013 *5* in table IV in (2005Ku28).
2150.9 *4*	2150.87	0.17 *1*	E2		
2160.7 *1*	3417.42	1.0	E2		Mult.: δ=0.5 *+10–5* (2005Ku28).
2199.4 *3*	3456.1	1.0	M1+E2	2.8 *10*	
2267.5 *2*	3524.16		M1(+E2)	−0.1 *4*	
2297.0 *3*	3553.7	1.0			
2354.1 *5*	3610.97	1.0			
2397.6 *2*	3654.34		M1+E2	0.52 *6*	
2469.5 *2*	3726.22	1.0			
2475.8 *3*	2476.05	0.83 *2*	E2		
2721.6 *3*	2721.07	0.27 *5*	E2		
2966.6 *1*	2966.62	0.67 *8*	E2		
3092.1 *1*	3092.20	0.63 *10*	E2		
3248.8 *8*	3248.68	0.95 *2*	E2		
3286.2 *2*	3286.18	0.93 *3*			
3353.0 *5*	3353.1	0.92 *3*	E2		
3433.3 *5*	3433.4	1.0	E1		
3524.2 *10*	3524.16		E2		
3654.3 *2*	3654.34		E2		Mult.: assigned by the evaluators; Other: M1+E2 with δ=0.48 *6* in ^{112}Sn(n,n'γ) (2005Ku28) is not consistent with the Jπ assignments.

† From 2005Ku28, unless otherwise stated.

^{112}Sn(p,p') 1980Bl01,1979BlZZ

1980Bl01,1979BlZZ: Facility: AVF cyclotron at the Free University; Beam: E(p)=20.51 and 25.0 MeV; Target: 190 μg/cm^2 enriched to 87.51% in ^{112}Sn; Detectors: ENGE split–pole spectrograph, six position–sensitive solid–state detectors; Measured: E(p)(θ), dσ/dΩ; Deduced: ^{112}Sn levels, L, Jπ, DWBA analysis.

Others: 1990JoZZ, 1989JoZZ, 1975RaYL, 1975SrZZ, 1974Ka10, 1974SrZZ, 1973De01, 1972DeZU, 1971Ha43, 1971RaZV, 1968Ma34.

^{112}Sn Levels

E(level)†	Jπ‡	L§	Comments
0.0	0+		
1257 *2*	2+	2	β_2=0.147 *4*, weighted average of 0.143 *5* and 0.150 *5* in 1980Bl01; Other: 0.152 in 1968Ma34.
2151 *2*	2+	2	
2190 *2*	0+		
2247 *2*	4+	4	
2354 *2*	3−	3	β_3=0.152 *6*, weighted average of 0.146 *5* and 0.157 *5* in 1980Bl01; Other: 0.203 *15* in 1968Ma34.
2475 *2*	2+		
2521 *2*	4+		
2550 *2*	6+		
2618 *2*	0+		
2723 *2*	2+	2	
2760 *2*	(3)+		
2786 *2*	4+	4	
2860 *2*			
2915 *2*	4+	4	Possible doublet structure.
2928 *2*	6+		
2947 *2*	4+	4	
2969 *2*	2+		
2989 *2*	0+	(0)	
3095 *7*	2+	2	
3118 *7*	(0+ to 4+)		
3137 *7*	5−	5	
3152 *7*	4+	4	

Continued on next page (footnotes at end of table)

^{112}Sn(p,p') 1980Bl01,1979BlZZ (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ‡	L§	Comments
3253 7	2+	(2)	
3278 7	4+	4	
3292 7	(1,2+)		
3360 7	(7)−		
3387 7	(3)−		
3402 7	4+		
3424 7	4+	4	
3440 7	1−		
3477 7	4(+)		
3502 7	5(−)		
3522 7			
3532 7	(2+,3,4+)		
3558 7			
3580 7	4(+)	4	
3611 7			
3624 7	(2+,4+)	(2)	Jπ: L=(2) in 1980Bl01 supports 2+.
3654 7	2+	2	
3695 7	(9)−		
3737 7			
3756 7			
3773 7			
3815 7			
3832 7			
3857 7			
3877 7			
3914 7			
3988 7			
4031 7			
4054 7			
4078 7	8+		
4105 7			
4138 7			
4151 7			
4171 7	4(+)	4	
4193 7			
4222 7			
4239 7			
4279 7			
4325 7			
4364 7			
4402 7			
4437 7			
4461 7			
4502 7			
4544 7			
4571 7	10−		
4610 7			
4685 7	(10+)		
4738 7			
4757 7			
4794 7			
4825 7	10+		
4850 7			
4887 7			
4928 7	(11)−		
4957 7			
5059 7			
5089 7			
5116 7			
5144 7			
5181 7			
5270 7			
5355 7			

† From 1980Bl01; ΔE estimated by the evaluators on the basis of the author's statement that ΔE=2–7 from the low–lying to the higher–lying states.
‡ From the adopted levels.
§ From 1980Bl01, based on DWBA.

^{112}Sn(p,p'γ) 1981Ba05,1981Jo03

1981Jo03,1981Ba05: Facility: Uppsala Tandem Accelerator Lab, Univ. Jyvaskyla cyclotron; Beam: E(p)=6–8 MeV; Target: 15 mg/cm^2 self–supporting, enriched to 80.5% in ^{112}Sn; Detectors: magnetic lens, one Ge(Li), one surface–barrier Si(Li), one plastic scintillator; Measured: p–γ, e–γ, cyclotron RF–e, p–γ(t), Eγ; Deduced: level scheme.
Others: 1968Ma34, 1977BaXX, 1979BlZZ.

^{112}Sn Levels

E(level)†	Jπ‡
0.0	0+
1256.7 *4*	2+
2150.7 *4*	2+
2190.9 *4*	0+
2247.9 *7*	4+
2354.3 *7*	3−

† From a least–squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Sn)

Eγ†	E(level)	Iγ	Mult.	I(γ+ce)	Comments
894.0 *5*	2150.7				
934.12 *4*	2190.9	100	E2		Eγ,Mult.: From adopted gammas.
991.2 *5*	2247.9				
1097.6 *5*	2354.3				
1256.7 *5*	1256.7				
2150.7 *5*	2150.7				
2190.9 *5*	2190.9		E0	0.1455 *21*	Eγ,Mult.: from ce measurements in ^{112}Sn(p,p'γ) (1981Ba05). I(γ+ce): from Ice(K)(2190.9γ)/Ice(K)(934.12γ)=0.55 *10* in ^{112}Sn(p,p'γ) (1981Ba05), α(K)(934.12γ)=0.001301 *19*, Iγ(934.12γ)=100 and Ω_K/Ω_T=0.8942 (2008Ki07).

† From 1981Jo03, unless otherwise noted.

^{112}Sn(d,d') 1966Ki04

Facility: Univ. Pittsburgh cyclotron; Beam: E(d)=15 MeV; Target: 2.36 mg/cm^2 self–supporting, enriched to 74.7% in ^{112}Sn; Detectors: wedge–shaped magnet, photographic plates; Measured: dσ/dΩ; Other: 1972Wi01, 1974Ch27.
Also: (pol d, d') in 1991Er03.

^{112}Sn Levels

E(level)†	Jπ‡
0.0	0+
1250	2+
2260	4+
2360	3−
2530	4+
2800	4+
2970	
3150	4+
3430	4+

† From 1966Ki04. ΔE not given by the authors.
‡ From the adopted levels.

^{112}Sn(α,α') 1970Br07

Facility: Saclay cyclotron; Beam: E(α)=44 MeV; Target: 0.4 mg/cm^2, enriched to 70% in ^{112}Sn; Detectors: dipole magnet, multidetector array comprising Li drifted E–detectors and surface–barrier ΔE detectors (FWHM=90 keV); Measured: E(α), σ(θ); Deduced: ^{112}Sn level scheme B(E2), B(E3).
Others: 2011Ki15, 2006FuZZ, 2005Ga21, 2003FuZY, 2003Ga30, 2003Ga33, 1978Ba17, 1975Al06, 1975Gr30, 1972BaXP, 1972BaZT, 1972TaYT, 1972TaYX, 1967Br25.

^{112}Sn Levels

E(level)†	Jπ‡	L§	Comments
0.0	0+		
1260	2+	2	β_2=0.12.

Continued on next page (footnotes at end of table)

^{112}Sn(α,α') 1970Br07 (continued)

^{112}Sn Levels (continued)

E(level)†	Jπ‡	L§	Comments
2200?	0+		
2350	3−	3	β_3=0.097.
2500?	2+		

† From 1970Br07; ΔE not given by the authors.
‡ From the adopted levels.
§ From Austern–Blair model analysis in 1970Br07.

Coulomb Excitation 2011Ju01,2011Wa15,1981Jo03

2011Ju01,2011Wa15: Facility: GSI Unilac accelerator; Beam: E(^{112}Sn)=448 MeV; Target: cooled and polarized multilayer target consisting of 0.67 mg/cm^2 natural carbon, 10.8 mg/cm^2 natural Gd, 1.0 mg/cm^2 natural Ta, and a 4.86 mg/cm^2 natural Cu; Detectors: array of four Si diodes and four EUROBALL Cluster detectors; Measured: C ions, γ, γ–C ions, Eγ, Iγ, γ(θ); Deduced: τ, B(E2), g–factor from the recoil distance transient field (RDTF) technique.

1981Jo03: Facility: Uppsala EN tandem; Beam: E(^{16}O)=48 MeV; Detectors: one NaI(Tl), one Ge(Li); Measured: γ, γ–γ. Eγ, Iγ; Deduced: ^{112}Sn level scheme, B(E2).

1975Gr30: Facility: three–stage Van de Graaff accelerator at University of Pittsburgh; Beams: E(α)=10.6 MeV and E(^{16}O)=42 MeV; Targets: 5 to 40 μg/cm^2 of SnO_2, enriched to 87.51% in ^{112}Sn, 15 μg/cm^2 carbon backing; Detectors: surface–barrier Si detector; Measured: E(α),.

Other: 2011Ku05, 2010Ku07, 2007Va22, 1981Ba05, 1970St20, 1965Ro09.

^{112}Sn Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	0+		
1256.69 *4*	2+	0.376 ps *5*	$T_{1/2}$: from B(E2)↑. B(E2)↑: 0.240 *3*, weighted average of 0.242 *8* (2011Ku05,2010Ku07), 0.240 *20* (2007Va22), 0.229 *5* (1975Gr30), and 0.256 *6* (1970St20). Other: 0.240 *14* (1987Ra01), weighted average of the data in 1975Gr30 and 1970St20. μ: +0.21 *7* from g–factor=+0.104 *35* in 2011Wa15. Q: −0.06 *9*, weighted average of−0.03 *11* (1975Gr30) and −0.15 *18* (1970St20).
2150.86 *6*	2+	1.4 ps *4*	$T_{1/2}$: from B(E2)↑=0.00065 *20* (1981Jo03).
2190.81 *6*	0+	≥2.7 ps	$T_{1/2}$: From B(E2)↑≤0.029 (1981Ba05).
2247.38 *6*	4+	3.3 ps *5*	$T_{1/2}$: From B(E2)↑. B(E2)↑=0.032 *5* (1981Jo03). μ: +1.5 *7* from g–factor=+0.38 *18* in 2011Wa15.
2354.07 *8*	3−	0.215 ps *14*	$T_{1/2}$: from DSAM in 2011Ju01. B(E3)↑=0.087 *12* (1981Jo03). μ: −1.4 *28* from g–factor=−0.48 *92* in 2011Wa15.
2476.2 *5*	2+		
2521.4 *5*	4+		

† From a least–squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Sn)

Eγ†	E(level)	Iγ†	Mult.†	δ†	α
203.2 *2*	2354.07				
286	2476.2				
894.17 *4*	2150.86	100 *1*	M1+E2	−0.28 *6*	
934.12 *4*	2190.81		E2		
990.69 *4*	2247.38	100			
1097.38 *7*	2354.07	100	E1		
1219.34 *13*	2476.2	20.5 *24*	M1+E2	−0.54 *7*	9.77×10^{-4} *16*

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Coulomb Excitation 2011Ju01,2011Wa15,1981Jo03 (continued)

$\gamma(^{112}Sn)$ (continued)

Eγ†	E(level)	Iγ†	Mult.†	α	I(γ+ce)†	Comments
1256.68 *4*	1256.69	100	E2			Mult.: A_2=0.64 *8* (2011Wa15) and A_4=−0.82 *8* (2011Wa15); Also: A_2=0.90 *6* (2011Wa15) and A_4=−0.71 *6* (2011Wa15).
1264.07 *7*	2521.4	100	E2	7.96×10^{-4}		
2150.9 *4*	2150.86	16.7 *11*	E2			
2190.9 *5*	2190.81		E0		0.1455 *21*	
2475.8 *3*	2476.2	100.0 *24*	E2	7.48×10^{-4}		

† From the adopted gammas.

$^{113}In(p,2n\gamma)$ 1969Ya05

1969Ya05: Facility: LRL Berkeley cyclotron; Beam: E(p)=12,14,16 MeV; Target: ^{113}In; Detectors: one Ge(Li), one 3mm thick planar detector (FWHM=2.7 nsec); Measured: Eγ; Deduced: ^{112}Sn level scheme.

^{112}Sn Levels

E(level)†	Jπ‡	Comments
0.0	0+	
1258.0 *10*	2+	
2251.0 *15*	4+	
2553.0 *18*	6+	
3360.0 *20*	(7)−	configuration: $\nu d_{3/2}h_{11/2}$.

† From a least–squares fit to Eγ.
‡ From the adopted levels.

$\gamma(^{112}Sn)$

Eγ†	E(level)	Comments
302 *1*	2553.0	
ˣ377 *1*		
807 *1*	3360.0	Eγ: 805.11 *7* in the adopted gammas.
993 *1*	2251.0	Eγ: 990.69 *4* in the adopted gammas.
1258 *1*	1258.0	

† From 1969Ya05; ΔEγ was estimated by the evaluators.
ˣ γ ray not placed in level scheme.

$^{114}Sn(p,t)$ 2012Gu10,1980Bl01

2012Gu10: Facility: Munich technical university tandem; Beam: E(p)= 22 MeV; Target: 113 μg/cm² enriched to 71% in ^{114}Sn with 10 μg/cm² carbon backing; Detectors: Munich Q3D spectrograph, focal plane detector comprising a position–sensitive proportional counter and a plastic scintillator (FWHM=8 keV); Measured: E, L; Deduced: level scheme, DWBA, σ, dσ/dΩ.
1980Bl01: Facility: Free University AVF cyclotron; Beam: E(p)=27.5 MeV; Targets: 160 and 190 μg/cm² with 1.26% of ^{112}Sn; Detectors: Enge split–pole spectrograph, six position–sensitive solid–state detectors (FWHM 10–15 keV); Measured: E(θ), dσ/dΩ; Deduced: ^{112}Sn level scheme, L, Jπ, DWBA; Also, from the same collaboration: 1979BlZZ.
Others: 1998GuZW, 1979BlZZ, 1970Fl08.

^{114}Sn(p,t) 2012Gu10,1980Bl01 (continued)

^{112}Sn Levels

E(level)†	Jπ‡	L§	Comments
0.0	0+	0	
1257 *3*	2+	2	
2151 *3*	2+	2	
2192?# *10*	0+	0	E(level),L: from 1980Bl01; level not reported in 2012Gu10.
2248 *3*	4+	4	
2355 *3*	3−	3	
2476 *3*	2+	2	
2521 *3*	4+	4	
2549 *3*	6+	6	
2618 *3*	0+	0	
2722 *3*	2+	2	
2784 *3*	4+	4	
2927 *3*	6+	6	
2966 *3*	2+	2	
2988 *3*	0+	0	
3132 *3*	5−	5	
3248 *3*	2+	2	
3275 *3*	4+	4	
3286 *3*	2(+)	2	
3345 *3*	2+	2	
3400 *3*	4+	4	
3414 *3*	6+	4,6	unresolved doublet in 2012Gu10.
3445 *3*	4+	4	
3481 *3*	4(+)	4	
3510 *3*	5(−)	5	
3554 *3*	3(−)	3	
3586 *3*	2(+)	2	
3624 *3*	(2+,4+)	4	Jπ: L=4 in 2012Gu10 supports 4+.
3663# *10*	2+		
3715# *10*			
3776# *10*			
3818# *10*			
3874# *10*			
3930# *10*			
4048# *10*			
4091# *10*	8+		
4164# *10*			
4241# *10*			
4287# *10*			
4316# *10*			
4363# *10*			
4455# *10*			
4486# *10*			
4576# *10*	10−		
4629# *10*			
4724# *10*			
4740# *10*			

† From 2012Gu10, unless otherwise noted.
‡ From the adopted levels.
§ Based on DWBA in 2012Gu10, unless otherwise noted.
# From 1980Bl01. ΔE assigned by the evaluators.

Adopted Levels, Gammas

Q(β⁻)=–4031 *20*; S(n)=–8834 *20*; S(p)=–2948 *19*; Q(α)=96 *20* 2012Wa38.

^{112}Sb Levels

Cross Reference (XREF) Flags

A ^{112}Te ε Decay	D ^{103}Rh(^{12}C,3nγ),^{90}Zr(^{31}P,2αnγ)
B ^{112}Sb IT Decay (0.56 μs)	E ^{89}Y(^{29}Si,α2nγ),^{88}Sr(^{28}Si,p3nγ)
C ^{112}Sn(p,nγ)	F ^{112}Sn(^{3}He,t)

E(level)†	Jπ	XREF	$T_{1/2}$	Comments
0.0‡	(3+)	ABCDE	53.5 s *6*	%ε+%β⁺=100. Jπ: direct feeding of 2+ and 4+ levels in ^{112}Sb following %ε+%β⁺ decay. $T_{1/2}$: weighted average for 51.4 *10* s (1976Wi10), 53.5 *5* s (1972Si28), 56 *1* s (1972Mi27), 53 *1* s (1970SuZY), 54 *6* s (1959Se56). configuration: $\pi d_{5/2}\otimes\nu g_{7/2}$.
38.40‡ *6*	(2+)	C		Jπ: 38.3γ to (3+); 357.54γ M1(+E2) from (3+); assignment is tentative.
60.97‡ *16*	(1+)	C		Jπ: Tentative assignment based on the association of this level as a member of the $\pi d_{5/2}\otimes\nu g_{7/2}$ split multiplet.
103.88‡ *6*	(4+)	ABCDE		Jπ: 103.9γ M1(+E2) to (3+).
132.37‡ *22*	(5+)	BCDE		XREF: C(129.6)D(133.5). Jπ: 133.5γ E2 to (3+).
140 *30*	(1+)&	F		
167.14§ *6*	(4+)	CDE		Jπ: 167.1γ M1(+E2) to (3+), prompt 37.5γ to (5+).
236.51§ *5*	(3+)	A CD		Jπ: 132.59γ M1+E2 to (4+), 198.08γ M1(+E2) to (2+).
296.16§ *4*	(2+)	A C		Jπ: 296.18γ M1+E2 to (3+), 257.8γ M1 to (2+); member of the $\pi d_{5/2}\otimes\nu d_{5/2}$ split multiplet.
350.90? *20*	(1+)	A		Jπ: 350.9γ to (3+); probable feeding in ^{112}Te ε decay (Jπ=0+).
369.2‡ *3*	(6+)	BCDE		XREF: B(366.3)D(370.1). Jπ: 236.9γ M1+E2 to (5+), 976.0γ M1+E2 from (7+).
372.70 *20*	(1+)	A		Jπ: 372.7γ to (3+); probable feeding in ^{112}Te ε decay (Jπ=0+).
395.94@ *6*	(3+)	C		Jπ: 292.1γ M1(+E2) to (4+), 99.9γ to (2+).
411.12# *7*	(1+,2+)	C		Jπ: 372.72γ M1+E2 to (2+); 350.0γ to (1+).
501.96§ *21*	(5+)	CDE		Jπ: 398.2γ M1+E2 to (4+); member of the $\pi d_{5/2} x \nu d_{5/2}$ split multiplet.
510.56 *6*	(2+,3+)	C F		XREF: F(510). Jπ: 274.05γ M1+E2 to (3+) and 214.4γ M1 to (2+); Probable member of the $\pi d_{5/2} x \nu s_{1/2}$ split multiplet; Jπ=1+ in ^{112}Sn(^{3}He,t), but level not observed in ^{112}Te ε decay (Jπ=0+).
672.84 *8*	(3+,4+)	C		Jπ: 569.05γ M1 to (4+), 436.8γ M1+E2 to (3+).
714.68 *6*	(2+,3+)	A C		Jπ: 418.59γ M1+E2 to (2+), 611.9γ to (4+).
780.97# *7*	(1+,2+)	C		Jπ: 369.8γ (M1+E2) to (1+), 742.58γ M1 to (2+).
788.25# *6*	(2+,3+)	C		Jπ: 749.89γ M1 to (2+), 684.6γ to (4+); member of the $\pi d_{5/2} x \nu d_{3/2}$ split multiplet.
804.37 *11*	2+,3,4,5+	C		Jπ: 637.2γ to (4+) and 804.6γ to (3+).
808.18 *4*	(2+)	C		Jπ: 808.17γ M1+E2 to (3+), 704.3γ (E2) to (4+).
825.9 *4*	(8−)	B DE	536 ns *22*	XREF: D(826.7). Jπ: 456.4γ M2+E3 to (6+). $T_{1/2}$: from γ(t) in 1982Ma29. Other: 0.56 μs *12* from 456.4γ(t) in 1976Ke07. μ: +2.19 *4* (1976Ke07) using the perturbed angular correlations technique. Q: 0.71 *8* from γ(θ,t) from abs(Q(^{112}Sb,8−)/Q(^{123}Sb,5/2+))=1.958 *10* in 1982Ma29, deduced using the perturbed angular correlations technique, and Q(^{121}Sb,5/2+)=−0.36 *4* (1978Bu24). configuration: $\pi d_{5/2}\otimes\nu h_{11/2}$.
844.9? *4*		A		
973.4 *3*	(6+)	CDE		Jπ: 471.7γ M1+E2 to (5+), 701.3γ E1 from (7−).
1042.7 *4*	(8−)	D		Jπ: 216.8γ (M1+E2) to (8−), 631.6γ (M1+E2) from (7−).
1120 *30*	(1+)&	F		
1169.9 *5*		D		
1184.3 *5*	(7+)	DE		XREF: D(1185.2). Jπ: 815.1γ (M1+E2) to (6+).

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Adopted Levels, Gammas (continued)

^{112}Sb Levels (continued)

E(level)[†]	Jπ	XREF	$T_{1/2}$	Comments
1268.0 *4*	(7–)	DE		Jπ: 441.9γ M1+E2 to (8–).
1340 *30*	(1+)[&]	F		
1340.3 *4*		D		
1344.7 *3*	(7+)	D		Jπ: 976.0γ M1+E2 to (6+), 1211.9γ E2 to (5+).
1389.5 *3*	(6+)	D		Jπ: 1285.6γ E2 to (4+).
1529.8 *4*	(9–)	D		Jπ: 704.0γ M1+E2 to (8–).
1540 *30*	1+[&]	F		
1674.4 *4*	(7–)	DE		Jπ: 701.3γ E1 to (6+) and 848.4γ M1+E2 to (8–).
1681.5 *5*	(8+)	D		Jπ: 1312.3γ E2 to (6+).
1690.5 *5*	(7+)	D		Jπ: 1321.3γ M1+E2 to (6+).
1746.6[d] *4*	(8–)	DE		Jπ: 920.8γ M1+E2 to (8–), 402.0γ E1 to (7+) and 72.4γ M1+E2 to (7–).
1830 *30*	(1+)[&]	F		
1884.4 *4*	(10–)	D		XREF: D(1885.2). Jπ: 1058.5γ E2 to (8–) and 355.2γ M1+E2 to (9–).
1948.7[d] *4*	(9–)	DE		Jπ: 1122.9γ M1+E2 to (8–); band member.
2075.0 *4*	(9–)	D		Jπ: 1249.1γ (M1+E2) to (8–).
2100.0 *6*	(9+)	D		Jπ: 418.5γ (M1+E2) to (8+).
2161.5 *6*	(8+)	D		Jπ: 471.0γ (M1+E2) to (7+).
2180 *30*	(1+)[&]	F		
2274.3[d] *4*	(10–)	DE		Jπ: 527.7γ E2 to (8–), 325.5γ M1+E2 to (9–).
2320.1 *5*	(11+)	D		Jπ: 435.7γ E1 to (10–).
2410 *30*	(1+)[&]	F		
2481.8 *5*	(12–)	D		Jπ: 161.8γ (E1) to (11+), 597.5γ (E2) to (10–).
2492.1 *5*		D		
2547.9 *5*	(11–)	D		Jπ: 664.0γ (M1+E2) to (10–) and 1017.6γ (E2) to (9–).
2569.8 *6*	(9+)	D		Jπ: 1385.5γ E2 to (7+).
2581.6 *11*		D		
2601.5 *5*	(12–)	D		Jπ: 717.1γ E2 to (10–).
2628.1[d] *4*	(11–)	DE	0.39 ps *+17–18*	XREF: E(2626.9). Jπ: 679.1γ E2 to (9–) and 353.9γ M1+E2 to (10–). $T_{1/2}$: From 354γ DSAM in 2005De02.
2720 *30*	(1+)[&]	F		
2868.2 *5*	(12–)	D		Jπ: 983.8γ E2 to (10–).
2908.1 *6*		D		
2987.6 *4*	(12–)	D		Jπ: 1103.4γ E2 to (10–), 358.9γ M1+E2 to (11–).
3008.8[d] *4*	(12–)	DE	0.35 ps *+11–12*	XREF: E(3007.3). Jπ: 734.6γ E2 to (10–) and 380.6γ M1+E2 to (11–). $T_{1/2}$: From 380γ DSAM in 2005De02.
3082.0 *5*	(12–)	D		Jπ: 1197.7γ E2 to (10–), 761.9γ to (11+).
3100 *30*	(1+)[&]	F		
3224.0 *6*	(14–)	D		Jπ: 622.6γ E2 to (12–).
3295.7 *5*	(12–)	D		Jπ: 1411.3γ (E2) to (10–); assumed yrast state.
3380.1 *5*	(13+)	D		Jπ: 1060.0γ E2 to (11+) and 511.8γ to (12–).
3382.3 *4*	(13–)	D		Jπ: 754.3γ E2 to (11–), 373.5γ M1+E2 to (12–).
3401.4[d] *5*	(13–)	D	0.35 ps *8*	Jπ: 773.5γ E2 to (11–), 392.4γ M1+E2 to (12–); band member. $T_{1/2}$: From 392γ DSAM in 2005De02.
3403.1 *5*	(12+)	D		Jπ: 1083.0γ M1+E2 to (11+).
3420 *30*	(1+)[&]	F		
3489.1 *5*	(12+)	D		Jπ: 1168.8γ M1+E2 to (11+), 1007.4γ (E1) to (12–).
3622.0 *5*	(14–)	D		Jπ: 613.2γ E2 to (12–).
3680 *30*	(1+)[&]	F		
3686.6 *5*	(14–)	D		Jπ: 285.2γ (M1+E2) to (13–).
3686.8 *6*	(14–)	D		Jπ: 818.6γ E2 to (12–); yrast state assumed.
3725.6 *7*		D		
3730.8 *6*		D		
3747.3 *6*	(13–)	D		Jπ: 1199.4γ (E2) to (11–).
3794.1 *7*		D		
3808.3[d] *5*	(14–)	DE		XREF: E(3806.8). Jπ: 799.7γ E2 to (12–), 425.9γ M1+E2 to (13–); band member.
3845.1 *6*		D		
3850 *30*	1+[&]	F		
4050 *30*	1+[&]	F		

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Adopted Levels, Gammas (continued)

^{112}Sb Levels (continued)

E(level)[†]	Jπ	XREF	Comments
4088.9 *6*	(15+)	D	Jπ: 708.8γ E2 to (13+).
4089.3 *7*	(15−)	D	Jπ: 402.5γ (M1+E2) to (14−).
4121.3 *5*	(14+)	D	Jπ: 632.0γ E2 to (12+).
4223.0 *6*		D	
4240 *30*	1+[&]	F	
4254.8[b] *6*	(14−)	D	Jπ: 1653.3γ E2 to (12−); band member.
4260.5 *5*	(15−)	DE	XREF: E(4258.7). Jπ: 451.9γ M1+E2 to (14−); band member.
4276.5 *6*		D	
4294.7[d] *5*	(15−)	DE	XREF: E(4293.0). Jπ: 893.2γ E2 to (13−), 486.3γ M1+E2 to (14−); band member.
4320.2 *6*	(15+)	D	Jπ: 940.1γ E2 to (13+); yrast state.
4391.3 *7*	(16−)	D	Jπ: 302.0γ (M1+E2) to (15−).
4433.4[a] *6*	(15+)	D	Jπ: 312.1γ M1+E2 to (14+); band member.
4600 *30*	1+[&]	F	
4675.7 *7*	(16+)	D	Jπ: 586.8γ (M1+E2) to (15+).
4797.8[d] *5*	(16−)	DE	XREF: E(4794.9). Jπ: 989.8γ E2 to (14−), 503.0γ M1+E2 to (15−); band member.
4837.2[b] *6*	(16−)	D	Jπ: 1613.2γ E2 to (14−); band member.
4863.9 *6*	(16+)	D	Jπ: 742.6γ E2 to (14+); yrast state.
4880 *30*	1+[&]	F	
5161.0[a] *6*	(17+)	D	Jπ: 727.7γ E2 to (15+), 297.0γ M1+E2 to (16+); band member.
5310 *30*	(1+)[&]	F	
5325.7[d] *6*	(17−)	DE	XREF: E(5320.3). Jπ: 1030.8γ to (15−), 527.9γ M1+E2 to (16−); band member.
5570 *30*	(1+)[&]	F	
5643.7[b] *7*	(18−)	D	Jπ: 806.5γ E2 to (16−).
5717.0 *7*		D	
5729.3 *7*	(18+)	D	Jπ: 865.4γ E2 to (16+).
6002.3[a] *7*	(19+)	D	Jπ: 841.2γ E2 to (17+), 273.0γ M1+E2 to (18+); band member.
6544.5[b] *7*	(20−)	D	Jπ: 900.8γ to (18−); band member.
6934.5[a] *7*	(21+)	D	Jπ: 932.2γ E2 to (19+); band member.
7535.3[b] *8*	(22−)	D	Jπ: 990.8γ E2 to (20−); band member.
7937.4[a] *8*	(23+)	D	Jπ: 1002.9γ E2 to (21+); band member.
8615.9[b] *9*	(24−)	D	Jπ: 1080.6γ (22−); band member.
8996.4[a] *9*	(25+)	D	Jπ: 1059.0γ E2 to (23+); band member.
9784.2[b] *9*	(26−)	D	Jπ: 1168.3γ to (24−); band member.
10113.2[a] *10*	(27+)	D	Jπ: 1116.8γ E2 to (25+); band member.
11041.2[b] *10*	(28−)	D	Jπ: 1257.0γ to (26−); band member.
11296.4[a] *10*	(29+)	D	Jπ: 1183.2γ E2 to (27+); band member.
12393.6[b] *11*	(30−)	D	Jπ: 1352.4γ to (28−); band member.
12595.2[a] *10*	(31+)	D	Jπ: 1298.8 γ E2 to (29+); band member.
13839.4[b] *12*	(32−)	D	Jπ: 1445.8γ to (30−); band member.
14088.8[a] *11*	(33+)	D	Jπ: 1493.6γ to (31+); band member.
15387.6[b] *13*	(34−)	D	Jπ: 1548.2γ to (32−); band member.
15784.3[a] *11*	(35+)	D	Jπ: 1695.5γ to (33+); band member.
17053.6[b] *15*	(36−)	D	Jπ: 1666.0γ to (34−); band member.
17655.6[a] *12*	(37+)	D	Jπ: 1871.3γ to (35+); band member.
y[e]	(10+)	D	Jπ: Possible γ-ray transitions to the (8+) level at 2161.4 keV and the (9+) level at 2569.5 keV. All transitions in the band associated with this level are observed by 1998La14 in coincidence with the 471γ, depopulating the (8+) level at 2161.4 keV and 1385γ, depopulating the (9+) level at 2569.5 keV.
y+378.09[e] *24*	(11+)	D	Jπ: 378.2γ M1+E2 to (10+); band member.
y+709.4 *11*	(12+)	D	Jπ: 368.2γ (M1+E2) from (13+).
y+750.72[e] *24*	(12+)	D	Jπ: 750.6γ to (10+), 372.6γ M1+E2 to (11+); band member.
y+1077.6[e] *3*	(13+)	D	Jπ: 699.7γ to (11+), 326.8γ M1+E2 to (12+); band member.
y+1095.4 *5*	(13+)	D	Jπ: 277.2γ M1+E2 from (14+).
y+1372.6[e] *4*	(14+)	D	Jπ: 621.7γ to (12+), 294.9γ M1+E2 to (13+); band member.
y+1690.4[e] *5*	(15+)	D	Jπ: 613.0γ to (13+), 317.8γ M1+E2 to (14+); band member.
y+2046.2[e] *6*	(16+)	D	Jπ: 673.9γ to (14+), 355.8γ M1+E2 to (15+); band member.
y+2437.8[e] *6*	(17+)	D	Jπ: 747γ to (15+), 391.6γ M1+E2 to (16+); band member.
y+2852.1[e] *7*	(18+)	D	Jπ: 414.2γ M1+E2 to (17+); band member.
y+3217.1 *8*	(19+)	D	Jπ: 365.0γ M1+E2 to (18+); band member.

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Adopted Levels, Gammas (continued)

^{112}Sb Levels (continued)

E(level)[†]	Jπ	XREF	Comments
y+3284.6[e] *8*	(19+)	D	Jπ: 432.5γ M1+E2 to (18+); band member.
x[c]	(11−)	D	Jπ: Possible γ–ray transition to the (10−) level at 1884.4 keV. All in–band transitions are observed by 1998La14 to be in coincidence with the 1059γ,depopulating the (10−) level at 1884.4 keV.
x+561.0[c] *3*	(13−)	D	Jπ: 561.0γ to (11−); band member.
x+1216.8[c] *5*	(15−)	D	Jπ: 655.8γ to (13−); band member.
x+1960.5[c] *6*	(17−)	D	Jπ: 743.7γ E2 to (15−); band member.
x+2794.5[c] *6*	(19−)	D	Jπ: 834.0γ E2 to (17−); band member.
x+3718.4[c] *7*	(21−)	D	Jπ: 923.9γ (E2) to (19−); band member.
x+4733.7[c] *8*	(23−)	D	Jπ: 1015.3γ (E2) to (21−); band member.
x+5842.6[c] *8*	(25−)	D	Jπ: 1108.9γ to (23−); band member.
x+7046.5[c] *9*	(27−)	D	Jπ: 1203.9γ to (25−); band member.
x+8346.3[c] *9*	(29−)	D	Jπ: 1299.8γ to (27−); band member.
x+9733.3[c] *10*	(31−)	D	Jπ: 1387.0γ to (29−); band member.
x+11202.0[c] *10*	(33−)	D	Jπ: 1468.6γ to (31−); band member.
x+12772.6[c] *11*	(35−)	D	Jπ: 1570.6γ to (33−); band member.
x+14480.6[c] *12*	(37−)	D	Jπ: 1708.0γ to (35−); band member.
x+16361.4[c] *14*	(39−)	D	Jπ: 1880.8γ to (37−); band member.
x+18439.4?[c] *17*	(41−)	D	Jπ: 2078γ to (39−); band member.

† From a least squares fit to Eγ.
‡ Probable member of the $\pi d_{5/2}\otimes\nu g_{7/2}$ split multiplet.
§ Probable member of the $\pi d_{5/2}\otimes\nu d_{5/2}$ split multiplet.
# Probable member of the $\pi d_{5/2}\otimes\nu d_{3/2}$ split multiplet.
@ Probable member of the $\pi d_{5/2}\otimes\nu s_{1/2}$ split multiplet.
& From ΔL=0 in ^{112}Sn(^{3}He,t) in 1995Ph01.
a (A): ΔJ=2 band based on the 4433.4–keV (15+) state.
b (B): ΔJ=2 band based on the 4254.8–keV (14−) state.
c (C): ΔJ=2 band based on the (11−) state.
d (D): ΔJ=1 band, based on the 1746.6–keV (8−) state configuration=$\pi g_{9/2}^{-1}\nu h_{11/2}$.
e (E): ΔJ=1 band, based on the (10+) state.

γ(^{112}Sb)

E(level)	Eγ[†]	Iγ[†]	Mult.[†]	δ[&]	α	Comments
38.40	38.3[‡] *4*	100[‡]				
60.97	(22.7[‡])	100[‡]				Eγ: not measured directly, but inferred from γ–γ coincidences in ^{112}Sn(p,nγ) (1997Fa08).
103.88	103.9 *3*	100	M1(+E2)[#]	−0.01[#] *4*	0.555 *10*	Mult.: A_2=−0.264 *86* (1997Fa08); A_4=−0.042 *73* (1997Fa08); A_2=−0.30 *3* and DCO=0.61 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
132.37	(29.6)					Eγ: not measured directly, but inferred from γ–γ coincidences in 1998La14.
	133.5 *3*	100 *4*	E2		0.593 *10*	Mult.: A_2=0.18 *5* and DCO=1.47 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
167.14	37.5[‡] *4*	7[‡] *4*				
	167.1 *3*	100 *5*	M1(+E2)[#]	+0.01[#] *4*	0.1482 *23*	Mult.: α(K)exp=0.102 *30* (1997Fa08); A_2=−0.254 *95* and A_4=−0.044 *81* (1997Fa08); A_2=−0.29 *4* and DCO=0.98 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
236.51	69.39[‡] *4*	22[‡] *4*	M1(+E2)[#]	+0.02[#] *8*	1.76 *5*	Mult.: A_2=−0.145 *103* (1997Fa08); A_4=−0.132 *89* (1997Fa08).
	132.59[‡] *4*	100[‡] *6*	M1+E2[#]	−0.07[#] *6*	0.282 *6*	Mult.,δ: α(K)exp=0.225 *44*, A_2=−0.011 *107* and A_4=0.064 *93* (1997Fa08).
	198.08[‡] *4*	31[‡] *3*	M1(+E2)[#]	−0.04[#] *6*	0.0935 *14*	Mult.,δ: α(K)exp=0.075 *14*, A_2=−0.243 *139* and A_4=−0.133 *121* (1997Fa08).
	236.6[‡] *3*	17[‡] *8*	(M1+E2)		0.0582	Mult.: α(K)exp=0.067 *18* (1997Fa08); doublet.
296.16	59.7[‡] *1*	8.3[‡] *15*				
	257.8[‡] *1*	5.5[‡] *7*	M1[#]		0.0464	
	296.18[‡] *4*	100[‡] *4*	M1+E2[#]		0.0323	

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Adopted Levels, Gammas (continued)

γ(^{112}Sb) (continued)

E(level)	Eγ†	Iγ†	Mult.†	δ&	α	Comments
350.90?	350.9§ 2	100§				
369.2	236.9 3	100	M1+E2		0.0580	Mult.: A_2=−0.18 3, DCO=0.55 2 in ^{103}Rh(^{12}C,3nγ) (1998La14); α(K)exp=0.067 18 (1997Fa08).
372.70	372.7§ 2	100§				
395.94	99.9‡ 3	3.0‡ 9				
	159.3 4	18.2 17	M1+E2#		0.169 3	Mult.: α(K)exp=0.158 50 (1997Fa08).
	228.8‡ 2	42.9‡ 22	(M1)#		0.0636	Mult.: α(K)exp=0.050 5 (1997Fa08).
	292.1‡ 1	19.9‡ 22	M1(+E2)#	+0.07# 9	0.0335	Mult.: α(K)exp=0.048 2 (1997Fa08). Mult.: A_2=−0.154 (1997Fa08); A_4=0.017 111 (1997Fa08).
	357.54‡ 4	100‡ 5	M1(+E2)#	+0.01# 5	0.0199	Mult.: α(K)exp=0.017 2 (1997Fa08); A_2=−0.234 105 (1997Fa08); A_4=−0.024 89 (1997Fa08).
411.12	350.0‡ 4	39‡ 6				
	372.72‡ 4	100‡ 3	M1+E2#	−0.07# 4	0.0179	Mult.: α(K)exp=0.017 2 (1997Fa08); A_2=−0.002 81 (1997Fa08); A_4=−0.001 71 (1997Fa08).
501.96	335.0 3	42.2 16	M1+E2#	−0.14# 8	0.0236	Mult.: α(K)exp=0.029 9 and A_2=−0.229 371, A_4=−0.058 311 (1997Fa08); DCO=0.76 4 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	398.2 3	100 4	M1+E2#	−0.14# 8	0.01519	Mult.: α(K)exp=0.014 2 and A_2=−0.508 218, A_4=−0.010 169 (1997Fa08); DCO=0.70 9 in ^{103}Rh(^{12}C,3nγ) (1998La14).
510.56	114.9‡ 5	24‡ 5	M1(+E2)#	+0.07# 15	0.42 3	Mult.: A_2=−0.147 135 (1997Fa08); A_4=−0.077 116 (1997Fa08).
	214.4‡ 1	16.1‡ 23	M1#	#	0.0756	Mult.: α(K)exp=0.055 8 (1997Fa08).
	274.05‡ 4	50.6‡ 23	M1+E2#		0.0395	Mult.: α(K)exp=0.038 4 (1997Fa08). Mult.: A_2=−0.276 166 (1997Fa08); A_4=−0.176 146 (1997Fa08).
	510.7‡ 3	100‡ 20				
672.84	436.8‡ 4	22.1‡ 15	M1+E2		0.01206	Mult.: α(K)exp=0.012 2 (1997Fa08).
	505.7‡ 5	100‡ 27	M1+E2		0.00840	Mult.: α(K)exp=0.0075 9 (1997Fa08).
	569.05‡ 9	26.7‡ 15	M1		0.00631	Mult.: α(K)exp=0.0062 7 (1997Fa08).
	672.7‡ 1	25‡ 3				
714.68	418.59‡ 5	100‡ 7	M1(+E2)#	+0.28# 56	0.01338 23	Mult.: α(K)exp=0.012 2, A_2=−0.057 100 and A_4=−0.004 87 (1997Fa08).
	476.9§ 2	25§ 5				
	611.9§ 5	8§ 2				
	653.8‡ 2	5.4‡ 12				
	714.7§ 5	4.2§ 16				
780.97	369.8‡ 1	24.1‡ 25	(M1+E2)#	−0.02# 14	0.0183	Mult.: α(K)exp=0.016 2, A_2=−0.304 219 and A_4=−0.104 183 (1997Fa08).
	719.9‡ 3	8.9‡ 13				
	742.58‡ 4	100‡ 8	M1#		0.00335	Mult.: α(K)exp=0.0040 10 (1997Fa08).
788.25	491.8‡ 4	72‡ 16	(M1+E2)		0.00900	Mult.: α(K)exp=0.0082 18 (1997Fa08).
	551.6‡ 5	28‡ 6				
	684.6‡ 3	20‡ 3				
	749.89‡ 5	100‡ 6	M1		0.00328	Mult.: α(K)exp=0.0032 6 (1997Fa08).
	788.1‡ 1	45‡ 6				
804.37	637.2‡ 1	100‡ 7				
	804.6‡ 3	85‡ 11				
808.18	641.2‡ 2	7‡ 3				
	704.3‡ 2	79‡ 9	(E2)#		0.00311	Mult.: α(K)exp=0.0031 3 (1997Fa08).
	808.17‡ 4	100‡ 23	M1+E2#	+0.25# 11	0.00272 5	Mult.: α(K)exp=0.0027 4 and A_2=0.022 396, A_4=−0.179 342 (1997Fa08).
825.9	456.4 3	100	M2(+E3)		0.034 4	Mult.: A_2=0.28 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.75 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); K/L=5.6 13 in 1976Ka19. δ: 2.5 20 from K/L=5.6 13 in 1976Ka19. However, the deduced E3 transition strength of B(E3)(W.u.)=620 140 exceeds RUL=100 by more than 3 sigma.

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Adopted Levels, Gammas (continued)

γ(^{112}Sb) (continued)

E(level)	Eγ†	Iγ†	Mult.†	α	Comments
844.9?	494.0§ 3	100§			
973.4	471.7 3	100	M1+E2	0.00997	Mult.: α(K)exp=0.010 2 (1997Fa08); A_2=−0.17 3 and DCO=0.77 2 in ^{103}Rh(^{12}C,3nγ)(1998La14).
1042.7	216.8 3	100	(M1+E2)	0.0734	Mult.: DCO=1.52 12 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1169.9	196.5 3	100			
1184.3	815.1 3	100	(M1+E2)	0.00270	Mult.: from DCO=0.44 6 in ^{103}Rh(^{12}C,3nγ) (1998La14). Other: Mult.=(E2) in ^{89}Y(^{29}Si,α2nγ) (1997Mo01), but no arguments were given.
1268.0	441.9 3	100	M1+E2	0.01171	Mult.: DCO=0.94 3 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1340.3	513.9 3	100			
1344.7	976.0 3	100 5	M1+E2	0.00179	Mult.: DCO=0.56 6 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	1211.9 3	100 5	E2	9.13×10^{-4}	Mult.: DCO=1.95 16 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1389.5	1285.6 3	100	E2	8.21×10^{-4}	Mult.: DCO=1.76 21 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1529.8	704.0 3	100	M1+E2	0.00380	Mult.: A_2=−0.58 5 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.39 9 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1674.4	406.2 3	17.5 9	M1+E2	0.01445	Mult.: DCO(406.2+406.9)=1.14 4 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	631.6 3	13.1 7	(M1+E2)	0.00491	Mult.: DCO=0.94 14 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	701.3 3	81 3	E1	1.18×10^{-3}	Mult.: A_2=0.10 2 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.98 3 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	848.4 3	100 4	M1+E2	0.00246	Mult.: A_2=0.42 5 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.39 5 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1681.5	1312.3 3	100	E2	7.93×10^{-4}	Mult.: A_2=0.7 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=2.05 12 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1690.5	1321.3 3	100	M1+E2	9.37×10^{-4}	Mult.: DCO=0.69 6 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1746.6	72.4 3	85 3	M1+E2	1.56 3	Mult.: DCO=0.97 3 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	402.0 3	21 1	E1	0.00426	Mult.: DCO=0.87 5 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	478.5 3	100 4	M1+E2	0.00962	Mult.: A_2=−0.45 5 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.55 2 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	920.8 3	14 1	M1+E2	0.00204	Mult.: DCO=1.44 17 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1884.4	355.2 3	4.90 20	M1+E2	0.0203	Mult.: A_2=−0.03 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.40 5 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	1058.5 3	100	E2	1.21×10^{-3}	Mult.: A_2=0.40 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.01 2 for 1058.5+1060.0 in ^{103}Rh(^{12}C,3nγ) (1998La14).
1948.7	202.2 3	100 3	M1+E2	0.0884	Mult.: A_2=−0.15 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.86 5 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	607.9 3	2.2 3			
	1122.9 3	28.8 9	M1+E2	1.31×10^{-3}	Mult.: A_2=0.37 5 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.34 10 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2075.0	1249.1 3	100	(M1+E2)	1.04×10^{-3}	Mult.: DCO=0.32 10 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2100.0	418.5 3	100	(M1+E2)	0.01341	Mult.: DCO=0.91 6 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2161.5	471.0 3	100	(M1+E2)	0.01000	Mult.: DCO=0.84 7 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2274.3	199.3 3	2.61 15	(M1+E2)	0.0919 14	Mult.: DCO=1.33 24 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	325.5 3	100 4	M1+E2	0.0253	Mult.: A_2=−0.05 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.92 2 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	527.7 3	3.4 4	E2	0.00667	Mult.: From ^{103}Rh(^{12}C,3nγ) (1998La14).
2320.1	435.7 3	100	E1	0.00350	Mult.: A_2=−0.25 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.49 2 in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.19 7.
2481.8	161.8 3	28.4 15	(E1)	0.0486	Mult.: DCO=0.67 11 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	597.5 3	100 6	(E2)	0.00476	Mult.: DCO=1.24 14 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2492.1	607.7 3	100			
2547.9	664.0 3	19 4	(M1+E2)	0.00436	Mult.: DCO=0.61 5 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	1017.6 3	100 4	(E2)	1.31×10^{-3}	Mult.: A_2=0.28 3 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2569.8	1385.5 3	100	E2	7.32×10^{-4}	Mult.: A_2=0.37 9 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=2.2 4 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2581.6	1397.3 10	100			A_2=0.47 10 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.25 13 in ^{103}Rh(^{12}C,3nγ) (1998La14).
2601.5	717.1 3	100	E2	0.00298	Mult.: DCO=0.92 6 for 717.1+718.2γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
2628.1	353.9 3	100 3	M1+E2		Mult.: A_2=−0.06 3 in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.91 2 in ^{103}Rh(^{12}C,3nγ) (1998La14).
	679.1 3	14.1 6	E2	0.00341	Mult.: DCO=1.71 8 in ^{103}Rh(^{12}C,3nγ) (1998La14). B(E2)(W.u.)=39 +18−17.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{112}Sb)$ (continued)

E(level)	Eγ†	Iγ†	Mult.†	α	Comments
2868.2	983.8 *3*	100	E2	1.42×10^{-3}	Mult.: A_2=0.41 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.97 *4* in ^{103}Rh(^{12}C,3nγ) (1998La14).
2908.1	416.0 *3*	100			
2987.6	358.9 *3*	65.9 *25*	M1+E2	0.0197	Mult.: DCO=0.79 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	1103.4 *3*	100 *5*	E2	1.10×10^{-3}	Mult.: DCO=1.02 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3008.8	380.6 *3*	100 *3*	M1+E2		Mult.: A_2=−0.13 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.95 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	734.6 *3*	18.9 *8*	E2	0.00280	Mult.: DCO=1.51 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14). B(E2)(W.u.)=37 *+13−12*.
3082.0	761.9 *3*	36 *3*			
	1197.7 *3*	100 *9*	E2	9.33×10^{-4}	Mult.: DCO=1.01 *12* for 1197.7+1199.4γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
3224.0	622.6 *3*	100	E2	0.00427	Mult.: DCO=1.01 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3295.7	1411.3 *3*	100	(E2)	7.15×10^{-4}	Mult.: A_2=0.40 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.0 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3380.1	511.8 *3*	23.0 *9*			
	1060.0 *3*	100 *3*	E2	1.20×10^{-3}	Mult.: A_2=0.40 *3* for 1058.5+1060.0γ in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.01 *2* for 1058.5+1060.0γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
3382.3	373.5 *3*	100 *3*	M1+E2	0.0178 *3*	Mult.: DCO=0.89 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	394.4 *3*	45.7 *18*	M1+E2	0.01556	Mult.: DCO=0.61 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	754.3 *3*	37.2 *18*	E2	0.00263	Mult.: DCO=1.39 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3401.4	392.4 *3*	100 *3*	M1+E2	0.01576 *23*	Mult.: DCO=0.86 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	773.5 *3*	23.8 *12*	E2	0.00247	Mult.: DCO=1.55 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14). B(E2)(W.u.)=35 *9*.
3403.1	1083.0 *3*	100	M1+E2	1.41×10^{-3}	Mult.: DCO=0.54 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=−0.3 *3*.
3489.1	1007.4 *3*	93 *5*	(E1)	5.71×10^{-4}	Mult.: DCO=1.08 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	1168.8 *3*	100 *5*	M1+E2	1.20×10^{-3}	Mult.: DCO=0.47 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3622.0	613.2 *3*	100	E2	0.00444	Mult.: DCO=1.51 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3686.6	285.2 *3*	100	(M1+E2)	0.0356	Mult.: DCO=0.86 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3686.8	818.6 *3*	100	E2	0.00216	Mult.: DCO=1.14 *11* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3725.6	501.6 *3*	100			
3730.8	1238.7 *3*	100			
3747.3	1199.4 *3*	100	(E2)	9.31×10^{-4}	Mult.: DCO=1.01 *12* for 1197.7+1199.4γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
3794.1	570.1 *3*	100			
3808.3	406.9 *3*	100 *3*	M1+E2	0.01439	Mult.: DCO=1.14 *4* for 406.2+406.9γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
	425.9 *3*	64.7 *22*	M1+E2	0.01284 *19*	Mult.: DCO=0.46 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	799.7 *3*	50.7 *22*	E2	0.00228	Mult.: DCO=1.43 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
3845.1	356.2 *3*	100			
4088.9	708.8 *3*	100	E2	0.00306	Mult.: DCO=1.07 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4089.3	402.5 *3*	100	(M1+E2)	0.01479	Mult.: DCO=0.28 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4121.3	632.0 *3*	100 *4*	E2	0.00410	Mult.: DCO=1.13 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	718.2 *3*	45.5 *18*	E2	0.00296	Mult.: DCO=0.92 *6* for 717.1+718.2γ in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.12 *19*.
4223.0	842.9 *3*	100			
4254.8	1653.3 *3*	100	E2	6.27×10^{-4}	Mult.: A_2=0.4 *1* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.85 *18* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4260.5	451.9 *3*	100	M1+E2	0.01108	Mult.: DCO=0.32 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4276.5	896.4 *3*	100			
4294.7	486.3 *3*	100 *3*	M1+E2	0.00925	Mult.: DCO=0.78 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	893.2 *3*	32.1 *22*	E2	1.76×10^{-3}	Mult.: DCO=2.1 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4320.2	940.1 *3*	100	E2	1.57×10^{-3}	Mult.: DCO=1.09 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4391.3	302.0 *3*	100	(M1+E2)	0.0307	Mult.: DCO=0.76 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4433.4	312.1 *3*	100 *6*	M1+E2	0.0282	Mult.: DCO=0.33 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=0.5 *2*.
	588.5 *3*	80 *6*			
4675.7	586.8 *3*	100	(M1+E2)	0.00586	Mult.: DCO=0.16 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4797.8	503.0 *3*	100 *4*	M1+E2	0.00851	Mult.: DCO=0.87 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	537.0 *3*	43 *3*	M1+E2	0.00726	Mult.: DCO=0.86 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	989.8 *3*	53 *4*	E2	1.40×10^{-3}	Mult.: DCO=1.62 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4837.2	582.3 *3*	26.7 *23*			

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Adopted Levels, Gammas (continued)

γ(^{112}Sb) (continued)

E(level)	Eγ†	Iγ†	Mult.†	α	Comments
4837.2	1613.2 *3*	100 *5*	E2	6.34×10^{-4}	Mult.: A_2=0.36 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.01 *16* in ^{103}Rh(^{12}C,3nγ) (1998La14).
4863.9	742.6 *3*	100	E2	0.00273	Mult.: DCO=1.00 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14) for 742.6+743.7γ; Pol=+0.21 *18*.
5161.0	297.0 *3*	71 *4*	M1+E2	0.0321	Mult.: DCO=0.57 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=−0.15 *20*.
	727.7 *3*	100 *5*	E2	0.00287	Mult.: DCO=1.35 *18* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.55 *10*.
5325.7	527.9 *3*	100 *5*	M1+E2	0.00757	Mult.: DCO=0.75 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	1030.8 *10*	<4.5			
5643.7	806.5 *3*	100	E2	0.00224	Mult.: DCO=0.85 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
5717.0	1041.3 *3*	100			
5729.3	865.4 *3*	100	E2	0.00189	Mult.: DCO=1.00 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.2 *3*.
6002.3	273.0 *10*	8.4 *15*	M1+E2	0.0399 *7*	Mult.: DCO=0.50 *16* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=−0.3 *3*.
	841.2 *3*	100 *5*	E2	0.00202	Mult.: DCO=0.98 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14), 0.97 *5* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.41 *8*.
6544.5	900.8 *3*	100			
6934.5	932.2 *3*	100	E2	1.60×10^{-3}	Mult.: DCO=0.98 *16* in ^{103}Rh(^{12}C,3nγ) (1998La14), 1.21 *11* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.67 *11*.
7535.3	990.8 *3*	100	E2	1.39×10^{-3}	Mult.: DCO=0.91 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
7937.4	1002.9 *3*	100	E2	1.36×10^{-3}	Mult.: DCO=0.98 *7* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.52 *11*.
8615.9	1080.6 *3*	100			
8996.4	1059.0 *5*	100	E2	1.20×10^{-3}	Mult.: DCO=0.99 *5* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol(1059+1059+1060)=+0.46 *11*.
9784.2	1168.3 *3*	100			
10113.2	1116.8 *2*	100	E2	1.07×10^{-3}	Mult.: DCO=1.27 *20* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.76 *18*.
11041.2	1257.0 *4*	100			
11296.4	1183.2 *2*	100	E2	9.55×10^{-4}	Mult.: DCO=1.2 *3* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.6 *3*.
12393.6	1352.4 *4*	100			
12595.2	1298.8 *2*	100	E2	8.07×10^{-4}	Mult.: DCO=1.06 *22* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.3 *3*.
13839.4	1445.8 *5*	100			
14088.8	1493.6 *3*	100			
15387.6	1548.2 *6*	100			
15784.3	1695.5 *3*	100			
17053.6	1666.0 *7*	100			
17655.6	1871.3 *5*	100			
y+378.09	378.2 *3*	100	M1+E2	0.01729	Mult.: DCO=1.09 *17* in ^{103}Rh(^{12}C,3nγ) (1998La14).
y+750.72	372.6 *3*	100	M1+E2	0.0180	Mult.: DCO=1.04 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	750.6 *3*	42.0 *20*			
y+1077.6	326.8 *3*	100	M1+E2	0.0251	Mult.: DCO=0.96 *4* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	368.2 *10*	12.9 *10*	(M1+E2)	0.0185	Mult.: DCO=1.26 *25* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	699.7 *3*	21.8 *14*			
y+1372.6	277.2 *3*	18.9 *10*	M1+E2	0.0384	Mult.: DCO=0.68 *11* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	294.9 *3*	100 *3*	M1+E2	0.0327	Mult.: DCO=0.51 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	621.7 *10*	4.5 *7*			
y+1690.4	317.8 *3*	100	M1+E2	0.0269	Mult.: A_2=−0.10 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.43 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	613.0 *10*	0.9 *8*			
y+2046.2	355.8 *3*	100	M1+E2	0.0202	Mult.: A_2=−0.03 *3* for 355.2+355.8+356.2γ in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.90 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	673.9 *10*	7.0 *9*			
y+2437.8	391.6 *3*	100	M1+E2	0.01584	Mult.: DCO=0.54 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
	747.6 *10*	100			
y+2852.1	414.2 *3*	100	M1+E2	0.01376	Mult.: DCO=0.91 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
y+3217.1	365.0 *3*	100	M1+E2	0.0189	Mult.: DCO=1.10 *12* in ^{103}Rh(^{12}C,3nγ) (1998La14).
y+3284.6	432.5 *3*	100	M1+E2	0.01236	Mult.: DCO=0.91 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
x+561.0	561.0 *3*	100			
x+1216.8	655.8 *3*	100			

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Adopted Levels, Gammas (continued)

γ(^{112}Sb) (continued)

E(level)	Eγ†	Iγ†	Mult.†	α	Comments
x+1960.5	743.7 *3*	100	E2	0.00272	Mult.: DCO=1.00 *10* for 742.6+743.7γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
x+2794.5	834.0 *3*	100	E2	0.00206	Mult.: DCO=0.93 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14).
x+3718.4	923.9 *3*	100			
x+4733.7	1015.3 *3*	100			
x+5842.6	1108.9 *2*	100			
x+7046.5	1203.9 *3*	100			
x+8346.3	1299.8 *3*	100			
x+9733.3	1387.0 *3*	100			
x+11202.0	1468.6 *3*	100			
x+12772.6	1570.6 *4*	100			
x+14480.6	1708.0 *5*	100			
x+16361.4	1880.8 *7*	100			
x+18439.4?	2078 *1*	100			

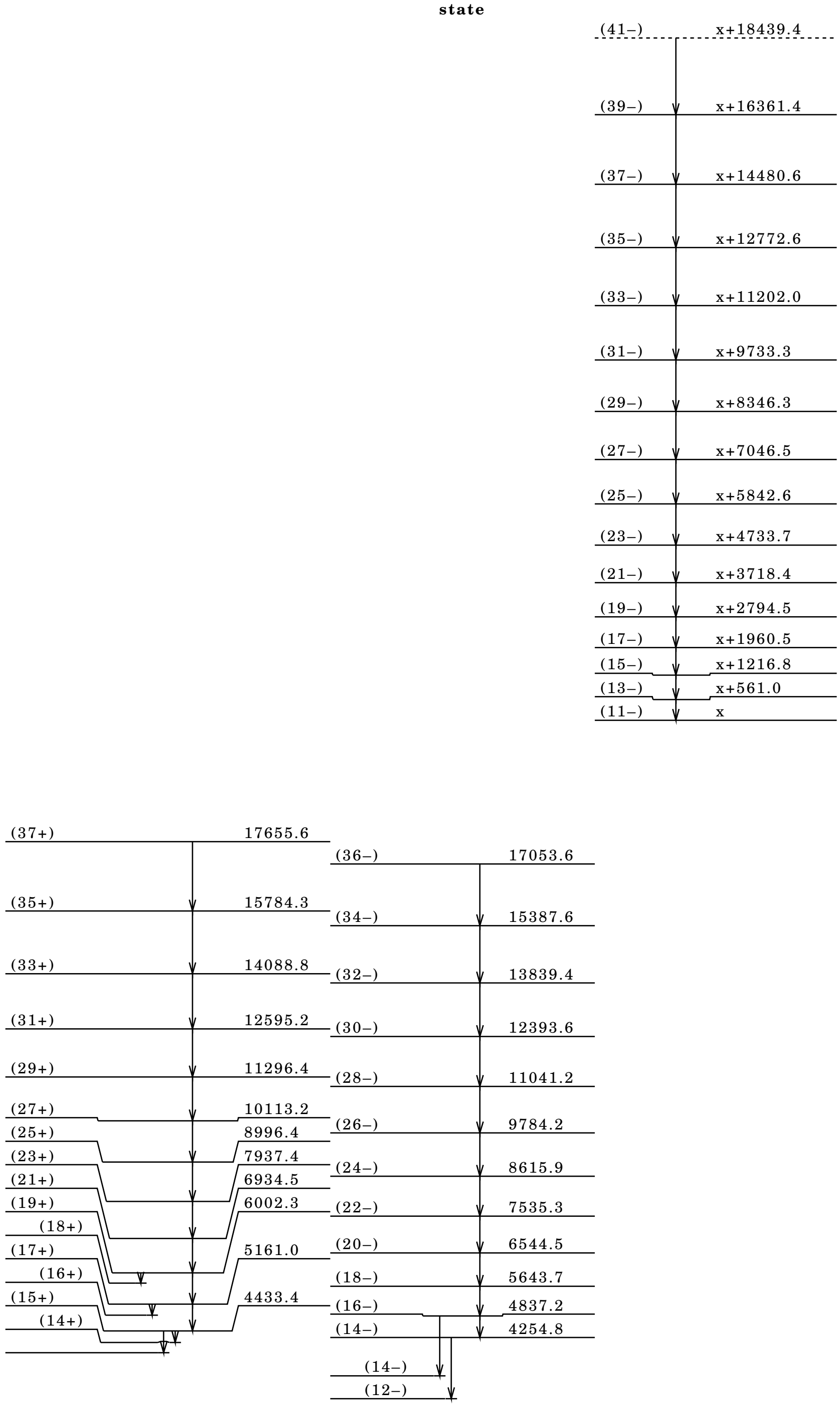
† From ^{103}Rh(^{12}C,3nγ) (1998La14), unless otherwise noted.
‡ From ^{112}Sn(p,nγ) (1997Fa08).
§ From ^{112}Te ε decay (1976Wi11, 1975WiZX).
# From ^{112}Sn(p,nγ) (1997Fa08).
& If no value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

Adopted Levels, Gammas (continued)

(A) ΔJ=2 band based on the 4433.4-keV (15+) state

(B) ΔJ=2 band based on the 4254.8-keV (14–) state

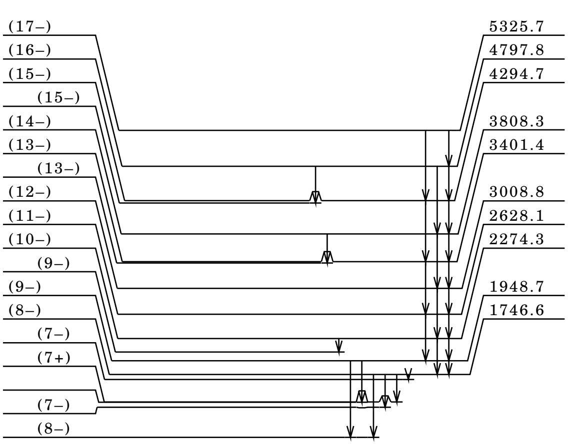
(C) ΔJ=2 band based on the (11–) state



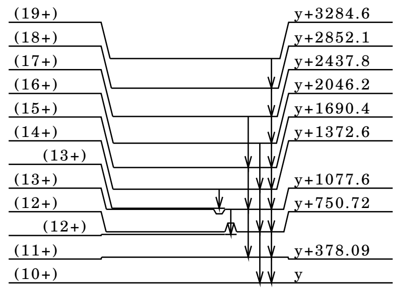
$^{112}_{51}Sb_{61}$

Adopted Levels, Gammas (continued)

(D) ΔJ=1 band, based on the 1746.6-keV (8–) state



(E) ΔJ=1 band, based on the (10+) state.



$^{112}_{51}Sb_{61}$

^{112}Sb IT Decay (0.56 μs) 1976Ke07,1976Ka19,1982Ma29

Parent ^{112}Sb: E=826.8 *6*; Jπ=(8–); $T_{1/2}$=536 ns *22*; %IT decay=100.

1976Ke07: Facility: Natuurkunding Laboratorium van de Vrije Universiteit, Amsterdam; Beam: E(p)=17MeV; Measured: γ(t) and μ; Deduced: $T_{1/2}$ and μ.

1976Ka19: Facility: IKO cyclotron, Amsterdam; Beam: E(^{3}He)=72 MeV; Detectors: electron spectrometer; Measured: E(ce), Ice; Deduced: ^{112}Sb level scheme, α(K)exp/α(L)exp ratio, γ–ray mult., Jπ, $T_{1/2}$.

1982Ma29: Facility: Stony Brook FN Tandem; Beam: E(^{12}C)=50 MeV, pulsed. Pulse width FWHM=5 ns and 2 μs repetition time; Target: 0.8 mg/cm^2 Rh foil; Detectors: NaI(Tl); Measured: γ, γ(θ,t), Iγ, Eγ; Deduced: Q.

^{112}Sb Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	(3+)		
103.9 *3*	(4+)		
133.5 *3*	(5+)		
370.4 *5*	(6+)		
826.8 *6*	(8–)	536 ns *22*	E(level): 796 *4* keV in 1976Ka19. $T_{1/2}$: from γ(t) in 1982Ma29. Other: 0.56 μs *12* from 456.4γ(t) in 1976Ke07. μ: +2.19 *4* (1976Ke07). Q: 0.71 *8* from γ(θ,t) from abs(Q(^{112}Sb,8–)/Q(^{123}Sb,5/2+))=1.958 *10* in 1982Ma29, deduced using the perturbed angular correlations technique, and Q(^{121}Sb,5/2+)=–0.36 *4* (1978Bu24). configuration: $\pi d_{5/2}\otimes\nu h_{11/2}$.

† From a least–squares fit to Eγ.
‡ From the adopted levels.

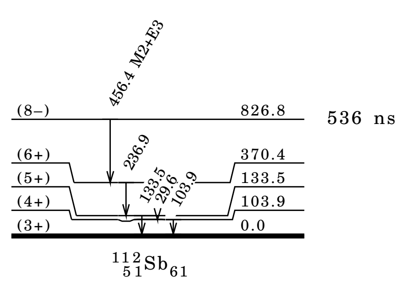
γ(^{112}Sb)

Eγ†	E(level)	Mult.	δ	Comments
29.6	133.5			
103.9 *3*	103.9			
133.5 *3*	133.5			
236.9 *3*	370.4			
456.4 *3*	826.8	M2+E3	2.5 *20*	Mult.,δ: from K/L=5.6 *13* in 1976Ka19.

† From the adopted levels.

Decay Scheme

%IT=100



^{112}Te ε Decay 1976Wi11,1975WiZX

Parent ^{112}Te: E=0.0; Jπ=0+; $T_{1/2}$=2.0 min *2*; Q(g.s.)=4032 *20*; %ε+%β$^+$ decay=100.

^{112}Te–%ε+%β$^+$ decay: The decay scheme is incomplete, so Iγ normalization and log *ft* are not given.

1975WiZX: Facility: AVF cyclotron at Vrije Universiteit, Amsterdam; Source: mass–separated ^{112}Te from ^{112}Sn(^{3}He,3n) reaction at E(^{3}He)=35–40; Target: 35 mg/cm^2 thick target enriched to 87.51% in ^{112}Sn; Detectors: four coaxial Ge(Li), one planar Ge(Li) and one LEPS, active and passive anti–Compton shielding; Measured: γ, γ–γ, γ(t), Eγ, Iγ; Deduced: ^{112}Sn level scheme, t, Jπ, log *ft*; Other: from the same collaboration: 1976Wi10.

^{112}Sb Levels

E(level)†	Jπ‡
0.0	(3+)
103.92 *21*	(4+)
236.90 *18*	(3+)
296.22 *17*	(2+)
350.90? *20*	(1+)
372.70 *20*	(1+)
714.57 *20*	(2+,3+)
844.9? *4*	

† From a least–squares fit to Eγ.
‡ From the adopted levels.

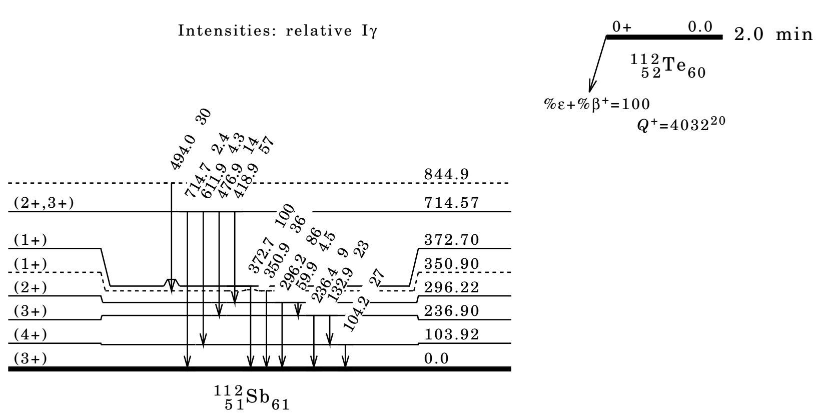
γ(^{112}Sb)

Eγ†	E(level)	Iγ†
ˣ38.6 *3*		16 *5*
ˣ52.1 *5*		5 *2*
59.9 *2*	296.22	4.5 *12*
ˣ70.0 *8*		5 *2*
104.2 *3*	103.92	27 *5*
132.9 *2*	236.90	23 *4*
ˣ167.4 *2*		7 *2*
236.4 *4*	236.90	9 *2*
ˣ274.2 *4*		5 *2*
ˣ280.4 *5*		3 *2*
296.2 *2*	296.22	86 *8*
350.9 *2*	350.90?	36 *3*
ˣ357.7 *3*		6 *2*
372.7 *2*	372.70	100
418.9 *2*	714.57	57 *5*
476.9 *2*	714.57	14 *3*
494.0 *3*	844.9?	30 *10*
ˣ584.4 *5*		8 *3*
ˣ598.5 *7*		6 *3*
611.9 *5*	714.57	4.3 *14*
ˣ690.4 *4*		10 *3*
ˣ698.5 *3*		12 *3*
714.7 *5*	714.57	2.4 *9*
ˣ743.0 *2*		11 *3*
ˣ797.3 *2*		24 *7*
ˣ807.4 *4*		9 *4*
ˣ820.1 *2*		17 *4*
ˣ881.9 *3*		10 *4*
ˣ924.8 *6*		11 *5*
ˣ928.4 *4*		11 *5*
ˣ971.3 *2*		23 *6*
ˣ1282.4 *9*		17 *7*
ˣ1287.2 *8*		10 *4*
ˣ1502.6 *6*		15 *4*
ˣ1657.6 *3*		14 *5*
ˣ1963.7 *4*		17 *5*

† From 1975WiZX.
ˣ γ ray not placed in level scheme.

Decay Scheme

Intensities: relative Iγ



$^{89}Y(^{29}Si,\alpha2n\gamma),^{88}Sr(^{28}Si,p3n\gamma)$ 1997Mo01,2005De02

1997Mo01: Facility: 12UD Pelletron Tandem accelerator at the University of Tsukba; Beams: E(^{29}Si)=108 MeV and E(^{28}Si)=120 MeV; Targets: a 6.4 mg/cm^2 thick ^{89}Y target and a 9 mg/cm^2 thick ^{88}Sr target; Detectors: seven HPGe detectors with BGO anti–Compton shield; Measured: γ, γ–γ, particle–γγ, and DCO ratios; Deduced: level scheme, band structure, configuration assignments.

Also from the same collaboration: 1996MoZY, 1995MoZW.

2005De02: Facility: 12UD Pelletron at NSC New Delhi; Beam: E(^{29}Si)=120 MeV; Target: 500 μg/cm^2 of ^{89}Y on 10 mg/cm^2 Au backing; Detectors: five Clover detectors; Measured: γ–γ, γ–γ(θ); Deduced: level scheme, Doppler broadening, τ, B(M1) and B(M2).

The level scheme of 1997Mo01 differs by the adopted one from ^{103}Rh(^{12}C,3nγ) (1998La14), mainly by the assignment of Jπ and the excitation energies of the excited band levels.

^{112}Sb Levels

E(level)†	Jπ‡	$T_{1/2}$§	Comments
0.0	(3+)	53.5 s *6*	$T_{1/2}$: From adopted levels.
103.4 *4*	(4+)		
133.0 *4*	(5+)		
167.8 *5*	(4)		
369.5 *6*	(6+)		
502.4 *5*	(5)		
806.2# *7*	(7+)		
826.1 *6*	(8−)	536 ns *22*	$T_{1/2}$: From adopted levels.
973.7 *6*	(6)		
1183.8# *7*	(8+)		
1267.7 *7*	(8−)		
1556.4# *7*	(9+)		
1674.5 *7*	(8)		
1746.2@ *7*	(9−)		
1882.7# *7*	(10+)		
1948.0@ *7*	(10−)		
2177.2# *8*	(11+)		
2273.4@ *8*	(11−)		
2494.4# *8*	(12+)		
2626.9@ *8*	(12−)	0.39 ps *+17−18*	
2849.8# *8*	(13+)		
3007.3@ *8*	(13−)	0.35 ps *+11−12*	
3241.5# *9*	(14+)		
3381.3@ *9*	(14−)		
3399.9@ *9*	(14−)	0.35 ps *8*	
3621.1# *10*	(15+)		
3772.8 *10*	(15−)		
3806.8@ *9*	(15−)		
4010.8# *11*	(16+)		
4133.1 *11*	(16−)		
4258.7@ *9*	(16−)		
4293.0@ *9*	(16−)		
4424.4# *12*	(17+)		
4534.9 *12*	(17−)		
4794.9@ *9*	(17−)		
4855.9# *13*	(18+)		
5320.3@ *11*	(18−)		

† From a least–squares fit to Eγ.
‡ From 1997Mo01.
§ From DSAM in 2005De02, unless otherwise stated.
\# (A): ΔJ=1 band, built on a (7+) level; configuration=$\pi g_{9/2}^{-1}\otimes\nu g_{7/2}$.
@ (B): ΔJ=1 band, built on the (9−) level; configuration=$\pi g_{9/2}^{-1}\otimes\nu h_{11/2}$.

γ(^{112}Sb)

Eγ†	E(level)
29.6 *5*	133.0
71.7 *5*	1746.2
103.4 *5*	103.4

Continued on next page (footnotes at end of table)

$^{89}Y(^{29}Si,\alpha 2n\gamma)$,$^{88}Sr(^{28}Si,p3n\gamma)$ 1997Mo01,2005De02 (continued)

$\gamma(^{112}Sb)$ (continued)

Eγ†	E(level)	Eγ†	E(level)	Eγ†	E(level)	Mult.‡
133.0 *5*	133.0	392.6 *5*	3399.9	620.8 *5*	2177.2	
167.8 *5*	167.8	399.0 *5*	502.4	672.6 *5*	2849.8	
201.8 *5*	1948.0	401.8 *5*	4534.9	678.9 *5*	2626.9	(E2)
236.5 *5*	369.5	406.7 *5*	1674.5	698.9 *5*	1882.7	
294.5 *5*	2177.2	406.9 *5*	3806.8	700.8 *5*	1674.5	
317.2 *5*	2494.4	413.6 *5*	4424.4	733.9 *5*	3007.3	(E2)
325.4 *5*	2273.4	425.5 *5*	3806.8	747.1 *5*	3241.5	
326.3 *5*	1882.7	431.5 *5*	4855.9	750.2 *5*	1556.4	
334.6 *5*	502.4	436.7 *5*	806.2	754.4 *5*	3381.3	
353.5 *5*	2626.9	441.6 *5*	1267.7	769.3§ *5*	4010.8	
355.4 *5*	2849.8	452.0 *5*	4258.7	771.3§ *5*	3621.1	
360.3 *5*	4133.1	456.6 *5*	826.1	773.0 *5*	3399.9	
372.6 *5*	1556.4	471.3 *5*	973.7	799.5 *5*	3806.8	
372.9 *5*	3772.8	478.5 *5*	1746.2	814.3 *5*	1183.8	(E2)
374.0 *5*	3381.3	486.2 *5*	4293.0	848.4 *5*	1674.5	
377.6 *5*	1183.8	501.8 *5*	4794.9	893.1 *5*	4293.0	
379.6 *5*	3621.1	525.4 *5*	5320.3	920.1 *5*	1746.2	
380.4 *5*	3007.3	527.2 *5*	2273.4	988.0 *5*	4794.9	
389.7 *5*	4010.8	536.3 *5*	4794.9	1056.6 *5*	1882.7	
391.7 *5*	3241.5	611.7 *5*	2494.4	1121.9 *5*	1948.0	(E2)

† From 1997Mo01. ΔEγ were not given by the authors and those were estimated by the evaluators.
‡ From 1997Mo01, based on the DCO analysis, but values were not provided by the authors.
§ Placement of transition in the level scheme is uncertain.

$^{103}Rh(^{12}C,3n\gamma)$,$^{90}Zr(^{31}P,2\alpha n\gamma)$ 1998La14,1982Ma29

1998La14: Facility: Stony Brook FN tandem/superconducting LINAC; Beam: E(^{12}C)=60 MeV; Target: thick target of natural rhodium; Detectors: six Compton–suppressed HPGe detectors and multiplicity filter comprising 14 BGO detectors; Measured: γ–γ, γ–γ(t), Eγ, Iγ, γγ(θ); Deduced: DCO ratios, level scheme, band structures.

1998La14: Vivitron accelerator; Beam: E(^{31}P)=150 MeV; Target: two stacked self–supporting foils each with thickness of 440 μg/cm^2 and enriched to 97 % in ^{90}Zr; Detectors: EUROGAM–II multidetector array; Measured: γ–γ–γ, Eγ, Iγ; Deduced: Doppler corrections, DCO ratios, linear polarization, level scheme, band structures.

Other: 1996Si15; Facility: 15UD Pelletron Accelerator of the Nuclear Science Center, New Delhi; Beam: E(^{12}C)=75 MeV; Target: self–supporting, ≈25 mg/cm^2; Detectors: nine Compton suppressed HPGe and a multiplicity filter comprising 14 BGO crystals; Measured: γ–γ, γ(θ), Eγ, Iγ; Deduced: level scheme, DCO ratios.

Also from the same collaboration: 1998LaZT.

1982Ma29: Facility: Stony Brook FN Tandem; Beam: E(^{12}C)=50 MeV, pulsed. Pulse width FWHM=5 ns and 2 μs repetition time; Target: 0.8 mg/cm^2 Rh foil; Detectors: NaI(Tl); Measured: γ, γ(θ, t), Iγ, Eγ; Deduced: Q.

Other: 1983VaZM, 1983Se21.

^{112}Sb Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	3+		
103.90 *25*	4+		
133.5 *3*	5+		
167.1 *3*	4+		
236.4 *4*	3+		
370.1 *4*	6+		
502.1 *3*	5+		
826.7 *4*	8−	536 ns *22*	$T_{1/2}$: from γ(t) in 1982Ma29. μ: +2.19 *4* (1976Ke07). Q: 0.071 *7* from γ(θ,t) in 1982Ma29 (perturbed angular correlations technique). configuration: $\pi d_{5/2}\otimes\nu h_{11/2}$.
973.8 *4*	6+		
1043.5 *4*	(8−)		
1170.3 *5*			
1185.2 *5*	7(+)		

Continued on next page (footnotes at end of table)

^{103}Rh(^{12}C,3nγ),^{90}Zr(^{31}P,2αnγ) 1998La14,1982Ma29 (continued)

^{112}Sb Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
1268.8 *4*	7−	3726.4 *7*		12596.0[&] *10*	(31+)
1341.2 *4*		3731.6 *6*		13840.3[a] *12*	(32−)
1345.7 *4*	7+	3748.1 *6*	(13−)	14089.6[&] *10*	(33+)
1389.5 *4*	6+	3794.9 *7*		15388.5[a] *14*	(34−)
1530.6 *4*	9−	3809.2[§] *5*	14−	15785.1[&] *10*	(35+)
1675.1 *4*	7−	3845.9 *6*		17054.5[a] *15*	(36−)
1682.4 *5*	8+	4089.7 *6*	15+	17656.5[&] *12*	(37+)
1691.4 *5*	7+	4090.1 *7*	(15−)	18865.7?[a] *18*	(38−)
1747.5[§] *4*	8−	4122.1 *5*	14+	19703.2?[&] *15*	(39+)
1885.2 *4*	10−	4223.8 *6*		x[#]	(11−)
1949.6[§] *4*	9−	4255.7[a] *6*	14−	x+561.0[#] *3*	(13−)
2075.8 *4*	(9−)	4261.3 *5*	15−	x+1216.8[#] *5*	(15−)
2100.9 *6*	9(+)	4277.3 *6*		x+1960.5[#] *6*	(17−)
2162.4 *6*	8(+)	4295.5[§] *5*	15−	x+2794.5[#] *7*	(19−)
2275.1[§] *4*	10−	4321.0 *6*	15+	x+3718.4[#] *8*	(21−)
2320.9 *5*	11+	4392.1 *7*	(16−)	x+4733.7[#] *8*	(23−)
2482.6 *5*	(12−)	4434.3[&] *6*	15+	x+5842.6[#] *8*	(25−)
2492.9 *5*		4676.5 *7*	(16+)	x+7046.5[#] *9*	(27−)
2548.7 *5*	(11−)	4798.6[§] *5*	16−	x+8346.3[#] *10*	(29−)
2570.8 *6*	9(+)	4838.0[a] *6*	16−	x+9733.3[#] *10*	(31−)
2582.6 *11*		4864.8 *6*	(16+)	x+11202.0[#] *10*	(33−)
2602.3 *5*	12−	5161.9[&] *6*	17+	x+12772.6[#] *11*	(35−)
2629.0[§] *4*	11−	5326.5[§] *6*	17−	x+14480.6[#] *12*	(37−)
2869.0 *5*	12−	5644.5[a] *7*	18−	x+16361.4[#] *14*	(39−)
2908.9 *6*		5717.8 *8*		x+18439?[#] *17*	(41−)
2988.4 *5*	12−	5730.2 *7*	18+	y[@]	(10+)
3009.6[§] *5*	12−	6003.1[&] *6*	19+	y+378.09[@] *24*	(11+)
3082.9 *5*	12−	6545.3[a] *8*	(20−)	y+709.4 *11*	(12+)
3224.8 *6*	14−	6935.3[&] *7*	21+	y+750.72[@] *24*	(12+)
3296.5 *5*	(12−)	7536.1[a] *8*	(22−)	y+1077.6[@] *3*	(13+)
3380.9 *5*	13+	7938.2[&] *7*	(23+)	y+1095.4 *5*	(13+)
3383.1 *5*	13−	8616.7[a] *9*	(24−)	y+1372.6[@] *4*	(14+)
3402.3[§] *5*	13−	8997.2[&] *9*	(25+)	y+1690.5[@] *5*	(15+)
3403.9 *5*	12+	9785.0[a] *9*	(26−)	y+2046.3[@] *5*	(16+)
3489.9 *5*	12+	10114.0[&] *9*	(27+)	y+2438.0[@] *6*	(17+)
3622.8 *6*	14−	11042.0[a] *10*	(28−)	y+2852.2[@] *7*	(18+)
3687.5 *6*	14(−)	11297.2[&] *9*	(29+)	y+3217.2 *7*	(19+)
3687.6 *6*	14−	12394.4[a] *11*	(30−)	y+3284.7[@] *7*	(19+)

[†] From a least-squares fit to Eγ.
[‡] From 1998La14.
[§] (A): ΔJ=1 band, based on the 8−, 1747.5-keV level; configuration=$\pi g_{9/2}^{-1}\otimes\nu h_{11/2}$.
[#] (B): ΔJ=2 band, based on the (11−) state.
[@] (C): ΔJ=1 band, based on the (10+) state.
[&] (D): ΔJ=2 band, based on the 15+ state.
[a] (E): ΔJ=2 band, based on the 14− state.

γ(^{112}Sb)

Eγ[†]	E(level)	Iγ[†]	Mult.[‡]	Comments
(29.6)	133.5			Eγ: required from γγ data.
72.4 *3*	1747.5	11.7 *4*	M1+E2	Mult.: DCO=0.97 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
103.9 *3*	103.90	45.2 *18*	M1+E2	Mult.: A_2=−0.30 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.61 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
132.5 *3*	236.4	1.37 *16*	M1+E2[§]	
133.5 *3*	133.5	1.68 *7*	E2	Mult.: A_2=0.18 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.47 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
161.8 *3*	2482.6	2.90 *15*	(E1)	Mult.: DCO=0.67 *11* in ^{103}Rh(^{12}C,3nγ) (1998La14).
167.1 *3*	167.1	4.4 *15*	M1+E2	Mult.: A_2=−0.29 *4* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.98 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).

Continued on next page (footnotes at end of table)

^{103}Rh(^{12}C,3nγ),^{90}Zr(^{31}P,2αnγ) 1998La14,1982Ma29 (continued)

γ(^{112}Sb) (continued)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
196.5 *3*	1170.3	1.18 *11*		
199.3 *3*	2275.1	2.22 *13*	(M1+E2)	Mult.: DCO=1.33 *24* in ^{103}Rh(^{12}C,3nγ) (1998La14).
202.2 *3*	1949.6	66 *2*	M1+E2	Mult.: A_2=−0.15 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.86 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
216.8 *3*	1043.5	4.4 *7*	(M1+E2)	Mult.: DCO=1.52 *12* in ^{103}Rh(^{12}C,3nγ) (1998La14).
236.9 *3*	370.1	48.7 *16*	M1+E2	Mult.: A_2=−0.18 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.55 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14).
273.0 *10*	6003.1	0.51 *9*	M1+E2	Mult.: DCO=0.50 *16* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=−0.3 *3*.
277.2 *3*	y+1372.6	3.04 *16*	M1+E2	Mult.: DCO=0.68 *11* in ^{103}Rh(^{12}C,3nγ) (1998La14).
285.2 *3*	3687.5	3.94 *16*	(M1+E2)	Mult.: DCO=0.86 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
294.9 *3*	y+1372.6	16.1 *5*	M1+E2	Mult.: DCO=0.51 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
297.0 *3*	5161.9	2.35 *13*	M1+E2	Mult.: DCO=0.57 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=−0.15 *20*.
302.0 *3*	4392.1	1.28 *18*	(M1+E2)	Mult.: DCO=0.76 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
312.1 *3*	4434.3	2.35 *15*	M1+E2	Mult.: DCO=0.33 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=0.5 *2*.
317.8 *3*	y+1690.5	14.2 *5*	M1+E2	Mult.: A_2=−0.10 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.43 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
325.5 *3*	2275.1	85 *3*	M1+E2	Mult.: A_2=−0.05 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.92 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14).
326.8 *3*	y+1077.6	5.1 *2*	M1+E2	Mult.: DCO=0.96 *4* in ^{103}Rh(^{12}C,3nγ) (1998La14).
335.0 *3*	502.1	8.1 *3*	M1+E2	Mult.: DCO=0.76 *4* in ^{103}Rh(^{12}C,3nγ) (1998La14).
353.9 *3*	2629.0	71 *2*	M1+E2	Mult.: A_2=−0.06 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.91 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14).
355.2 *3*	1885.2	4.9 *2*	M1+E2	Mult.: A_2=−0.03 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.40 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
355.8 *3*	y+2046.3	12.7 *4*	M1+E2	Mult.: A_2=−0.03 *3* for 355.2+355.8+356.2γ in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.90 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
356.2 *3*	3845.9	4.0 *4*	(D)	Mult.: A_2=−0.03 *3* for 355.2γ+355.8γ+356.2γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
358.9 *3*	2988.4	10.6 *4*	M1+E2	Mult.: DCO=0.79 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
365.0 *3*	y+3217.2	2.00 *11*	M1+E2	Mult.: DCO=1.10 *12* in ^{103}Rh(^{12}C,3nγ) (1998La14).
368.2 *10*	y+1077.6	0.66 *5*	(M1+E2)	Mult.: DCO=1.26 *25* in ^{103}Rh(^{12}C,3nγ) (1998La14).
372.6 *3*	y+750.72	5.5 *2*	M1+E2	Mult.: DCO=1.04 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
373.5 *3*	3383.1	16.4 *5*	M1+E2	Mult.: DCO=0.89 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
378.2 *3*	y+378.09	6.0 *3*	M1+E2	Mult.: DCO=1.09 *17* in ^{103}Rh(^{12}C,3nγ) (1998La14).
380.6 *3*	3009.6	48.8 *15*	M1+E2	Mult.: A_2=−0.13 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.95 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
391.6 *3*	y+2438.0	6.8 *3*	M1+E2	Mult.: DCO=0.54 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
392.4 *3*	3402.3	25.2 *8*	M1+E2	Mult.: DCO=0.86 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14).
394.4 *3*	3383.1	7.5 *3*	M1+E2	Mult.: DCO=0.61 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
398.2 *3*	502.1	19.2 *7*	M1+E2	Mult.: DCO=0.70 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
402.0 *3*	1747.5	2.91 *13*	E1	Mult.: DCO=0.87 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
402.5 *3*	4090.1	3.6 *2*	(M1+E2)	Mult.: DCO=0.28 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
406.2 *3*	1675.1	4.0 *2*	M1+E2	Mult.: DCO(406.2+406.9)=1.14 *4* in ^{103}Rh(^{12}C,3nγ) (1998La14).
406.9 *3*	3809.2	13.6 *4*	M1+E2	Mult.: DCO=1.14 *4* for 406.2+406.9γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
414.2 *3*	y+2852.2	7.6 *3*	M1+E2	Mult.: DCO=0.91 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
416.0 *3*	2908.9	3.9 *2*		
418.5 *3*	2100.9	3.17 *18*	(M1+E2)	Mult.: DCO=0.91 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
425.9 *3*	3809.2	8.8 *3*	M1+E2	Mult.: DCO=0.46 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
432.5 *3*	y+3284.7	3.15 *13*	M1+E2	Mult.: DCO=0.91 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
435.7 *3*	2320.9	54.8 *18*	E1	Mult.: A_2=−0.25 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.49 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.19 *7*.
441.9 *3*	1268.8	24.9 *14*	M1+E2	Mult.: DCO=0.94 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
451.9 *3*	4261.3	6.3 *2*	M1+E2	Mult.: DCO=0.32 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
456.4 *3*	826.7	32.7 *10*	M2	Mult.: A_2=0.28 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.75 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
471.0 *3*	2162.4	1.46 *15*	(M1+E2)	Mult.: DCO=0.84 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
471.7 *3*	973.8	25.0 *8*	M1+E2	Mult.: A_2=−0.17 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.77 *2* in ^{103}Rh(^{12}C,3nγ)(1998La14).
478.5 *3*	1747.5	13.7 *5*	M1+E2	Mult.: A_2=−0.45 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.55 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14).
486.3 *3*	4295.5	6.7 *2*	M1+E2	Mult.: DCO=0.78 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
501.6 *3*	3726.4	3.17 *16*		
503.0 *3*	4798.6	4.74 *18*	M1+E2	Mult.: DCO=0.87 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14).
511.8 *3*	3380.9	9.9 *4*	E1	

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^{103}Rh(^{12}C,3nγ),^{90}Zr(^{31}P,2αnγ) 1998La14,1982Ma29 (continued)

γ(^{112}Sb) (continued)

Eγ[†]	E(level)	Iγ[†]	Mult.[‡]	Comments
513.9 *3*	1341.2	7.2 *10*		
527.7 *3*	2275.1	2.9 *3*	E2[§]	
527.9 *3*	5326.5	3.37 *18*	M1+E2	Mult.: DCO=0.75 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
537.0 *3*	4798.6	2.02 *13*	M1+E2	Mult.: DCO=0.86 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
561.0 *3*	x+561.0	1.04 *13*	(E2)[§]	
570.1 *3*	3794.9	1.93 *13*		
582.3 *3*	4838.0	1.04 *9*	E2[§]	
586.8 *3*	4676.5	4.4 *2*	(M1+E2)	Mult.: DCO=0.16 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
588.5 *3*	4434.3	1.88 *13*		
597.5 *3*	2482.6	10.2 *6*	(E2)	Mult.: DCO=1.24 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
607.7 *3*	2492.9	4.3 *5*		
607.9 *3*	1949.6	1.48 *18*		
613.0 *10*	y+1690.5	0.13 *11*	E2[§]	
613.2 *3*	3622.8	1.9 *2*	E2	Mult.: DCO=1.51 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
621.7 *10*	y+1372.6	0.73 *11*	E2[§]	
622.6 *3*	3224.8	9.9 *4*	E2	Mult.: DCO=1.01 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
631.6 *3*	1675.1	2.99 *15*	(M1+E2)	Mult.: DCO=0.94 *14* in ^{103}Rh(^{12}C,3nγ) (1998La14).
632.0 *3*	4122.1	11.2 *4*	E2	Mult.: DCO=1.13 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
655.8 *4*	x+1216.8	4.8 *3*	(E2)[§]	Iγ(656)/Iγ(841.3)=0.68 *10*.
664.0 *3*	2548.7	2.7 *5*	(M1+E2)	Mult.: DCO=0.61 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
673.9 *3*	y+2046.3	0.89 *11*	E2[§]	
679.1 *3*	2629.0	10.0 *4*	E2	Mult.: DCO=1.71 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
699.7 *3*	y+1077.6	1.11 *7*	E2[§]	
701.3 *3*	1675.1	18.4 *6*	E1	Mult.: A_2=0.10 *2* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.98 *3* in ^{103}Rh(^{12}C,3nγ) (1998La14).
704.0 *3*	1530.6	21.9 *13*	M1+E2	Mult.: A_2=−0.58 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=0.39 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
708.8 *3*	4089.7	16.5 *6*	E2	Mult.: DCO=1.07 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
717.1 *3*	2602.3	10.6 *6*	E2	Mult.: DCO=0.92 *6* for 717.1+718.2γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
718.2 *3*	4122.1	5.1 *2*	E2	Mult.: DCO=0.92 *6* for 717.1+718.2γ in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.12 *19*.
727.7 *3*	5161.9	3.32 *16*	E2	Mult.: DCO=1.35 *18* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.55 *10*.
734.6 *3*	3009.6	9.2 *4*	E2	Mult.: DCO=1.51 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
742.6 *3*	4864.8	11.6 *5*	E2	Mult.: DCO=1.00 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14) for 742.6+743.7γ; Pol=+0.21 *18*.
743.7 *3*	x+1960.5	5.7 *3*	E2	Iγ(744)/Iγ(841.3)=0.97 *6*. Mult.: DCO=1.00 *10* for 742.6+743.7γ in ^{103}Rh(^{12}C,3nγ) (1998La14).
747.6 *10*	y+2438.0	0.71 *9*	E2[§]	
750.6 *3*	y+750.72	2.31 *11*	E2[§]	
754.3 *3*	3383.1	6.1 *3*	E2	Mult.: DCO=1.39 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14).
761.9 *3*	3082.9	2.1 *2*	E1	
773.5 *3*	3402.3	6.0 *3*	E2	Mult.: DCO=1.55 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14).
799.7 *3*	3809.2	6.9 *3*	E2	Mult.: DCO=1.43 *9* in ^{103}Rh(^{12}C,3nγ) (1998La14).
806.5 *3*	5644.5	4.7 *7*	E2	Iγ(806)/Iγ(841.3)=0.66 *5*. Mult.: DCO=0.85 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14).
815.1 *3*	1185.2	8.5 *4*	(M1+E2)	Mult.: from DCO=0.44 *6* in ^{103}Rh(^{12}C,3nγ) (1998La14).
818.6 *3*	3687.6	9.2 *4*	E2	Mult.: DCO=1.14 *11* in ^{103}Rh(^{12}C,3nγ) (1998La14).
834.0 *3*	x+2794.5	4.2 *2*	E2	Iγ(833)/Iγ(841.3)=0.91 *6*. Mult.: DCO=0.93 *10* in ^{103}Rh(^{12}C,3nγ) (1998La14).
841.2 *1*	6003.1	6.1 *3*	E2	Mult.: DCO=0.98 *7* in ^{103}Rh(^{12}C,3nγ) (1998La14), 0.97 *5* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.41 *8*.
842.9 *3*	4223.8	5.4 *3*		
848.4 *3*	1675.1	22.8 *8*	M1+E2	Mult.: A_2=0.42 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14); DCO=1.39 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
865.4 *3*	5730.2	2.40 *16*	E2	Mult.: DCO=1.00 *8* in ^{103}Rh(^{12}C,3nγ) (1998La14); Pol=+0.2 *3*.
893.2 *3*	4295.5	2.15 *15*	E2	Mult.: DCO=2.1 *5* in ^{103}Rh(^{12}C,3nγ) (1998La14).
896.4 *3*	4277.3	3.1 *2*		
900.8 *3*	6545.3	3.08 *16*	(E2)	Iγ(901)/Iγ(841.3)=0.76 *5*.
920.8 *3*	1747.5	1.97 *13*	M1+E2	Mult.: DCO=1.44 *17* in ^{103}Rh(^{12}C,3nγ) (1998La14).
923.9 *3*	x+3718.4	1.64 *13*	(E2)[§]	Iγ(924)/Iγ(841.3)=0.91 *6*.
932.2 *2*	6935.3	3.26 *18*	E2	Iγ: Iγ(932)/Iγ(841.3)=0.96 *6* in ^{90}Zr(^{31}P,2αnγ) (1998La14). Mult.: DCO=0.98 *16* in ^{103}Rh(^{12}C,3nγ) (1998La14), 1.21 *11* in ^{90}Zr(^{31}P,2αnγ) (1998La14); Pol=+0.67 *11*.

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$^{103}Rh(^{12}C,3n\gamma),^{90}Zr(^{31}P,2\alpha n\gamma)$ 1998La14,1982Ma29 (continued)

$\gamma(^{112}Sb)$ (continued)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
940.1 *3*	4321.0	12.0 *5*	E2	Mult.: DCO=1.09 *7* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
976.0 *3*	1345.7	4.4 *2*	M1+E2	Mult.: DCO=0.56 *6* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
983.8 *3*	2869.0	28.1 *11*	E2	Mult.: A_2=0.41 *5* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=0.97 *4* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
989.8 *3*	4798.6	2.5 *2*	E2	Mult.: DCO=1.62 *9* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
990.8 *3*	7536.1	1.8 *9*	E2	Iγ(991)/Iγ(841.3)=0.81 *5*. Mult.: DCO=0.91 *7* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1002.9 *3*	7938.2	1.11 *13*	E2	Iγ: Iγ(1003)/Iγ(841.3)=0.89 *8* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14). Mult.: DCO=0.98 *7* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14); Pol=+0.52 *11*.
1007.4 *3*	3489.9	6.2 *3*	(E1)	Mult.: DCO=1.08 *14* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1015.3 *3*	x+4733.7	1.58 *13*	(E2)§	Iγ(1016)/Iγ(841.3)=0.86 *5*.
1017.6 *3*	2548.7	14.2 *6*	(E2)	Mult.: A_2=0.28 *3* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1030.8 *10*	5326.5	<0.15	E2	
1041.3 *3*	5717.8	2.64 *16*		Mult.: DCO=0.79 *8* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1058.5 *3*	1885.2	100	E2	Mult.: A_2=0.40 *3* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=1.01 *2* for 1058.5+1060.0 in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1059.0 *5*	8997.2	5.3 *6*	E2	Iγ: from Iγ(1059)/Iγ(841.3)=0.87 *9* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14). Mult.: DCO=0.99 *5* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14); Pol(1059+1059+1060)=+0.46 *11*.
1060.0 *3*	3380.9	43.1 *14*	E2	Mult.: A_2=0.40 *3* for 1058.5+1060.0γ in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=1.01 *2* for 1058.5+1060.0γ in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1080.6 *3*	8616.7	0.20 *9*	(E2)	Iγ(1081)/Iγ(841.3)=0.82 *5*.
1083.0 *3*	3403.9	6.7 *3*	M1+E2	Mult.: DCO=0.54 *3* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); Pol=−0.3 *3*.
1103.4 *3*	2988.4	16.1 *8*	E2	Mult.: DCO=1.02 *7* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1108.9 *2*	x+5842.6	4.9 *4*		Iγ: from Iγ(1109)/Iγ(841.3)=0.80 *6* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1116.8 *2*	10114.0	4.9 *3*	E2	Iγ: from Iγ(1117)/Iγ(841.3)=0.81 *4* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14). Mult.: DCO=1.27 *20* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14); Pol=+0.76 *18*.
1122.9 *3*	1949.6	19.0 *6*	M1+E2	Mult.: A_2=0.37 *5* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=1.34 *10* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1168.3 *3*	9785.0			Iγ(1168)/Iγ(841.3)=0.78 *6*.
1168.8 *3*	3489.9	6.7 *3*	M1+E2	Mult.: DCO=0.47 *5* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1183.2 *2*	11297.2	5.3 *6*	E2	Iγ: from Iγ(1183)/Iγ(841.3)=0.58 *4* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14). Mult.: DCO=1.2 *3* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14); Pol=+0.6 *3*.
1197.7 *3*	3082.9	5.9 *5*	E2	Mult.: DCO=1.01 *12* for 1197.7+1199.4γ in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1199.4 *3*	3748.1	1.8 *2*	(E2)	Mult.: DCO=1.01 *12* for 1197.7+1199.4γ in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1203.9 *3*	x+7046.5	4.4 *4*		Iγ: Iγ(1204)/Iγ(841.3)=0.72 *5* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1211.9 *3*	1345.7	4.4 *3*	E2	DCO=1.95 *16* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1238.7 *3*	3731.6	1.5 *2*		
1249.1 *3*	2075.8	4.1 *8*	(M1+E2)	Mult.: DCO=0.32 *10* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1257.0 *4*	11042.0	3.9 *4*		Iγ: from Iγ(1257)/Iγ(841.3)=0.64 *5* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1285.6 *3*	1389.5	2.3 *3*	E2	Mult.: DCO=1.76 *21* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1298.8 *2*	12596.0	2.99 *23*	E2	Iγ: from Iγ(1299)/Iγ(841.3)=0.49 *3* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14). Mult.: DCO=1.06 *22* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14); Pol=+0.3 *3*.
1299.8 *3*	x+8346.3	4.1 *4*		Iγ: from Iγ(1300)/Iγ(841.3)=0.67 *5* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1312.3 *3*	1682.4	6.1 *3*	E2	Mult.: A_2=0.7 *3* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=2.05 *12* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1321.3 *3*	1691.4	2.7 *2*	M1+E2	Mult.: DCO=0.69 *6* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1352.4 *4*	12394.4	2.1 *3*		Iγ: Iγ(1352)/Iγ(841.3)=0.35 *4* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1385.5 *3*	2570.8	1.15 *13*	E2	Mult.: A_2=0.37 *9* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=2.2 *4* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1387.0 *3*	x+9733.3	3.7 *3*		Iγ: from Iγ(1387)/Iγ(841.3)=0.61 *4* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1397.3 *10*	2582.6	0.86 *13*		A_2=0.47 *10* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=1.25 *13* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1411.3 *3*	3296.5	3.4 *4*	(E2)	Mult.: A_2=0.40 *9* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=1.0 *2* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1445.8 *5*	13840.3	1.77 *20*		Iγ: Iγ(1446)/Iγ(841.3)=0.29 *3* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1468.6 *3*	x+11202.0	2.26 *21*		Iγ: from Iγ(1469)/Iγ(841.3)=0.37 *3* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1493.6 *3*	14089.6	1.95 *16*		Iγ: Iγ(1494)/Iγ(841.3)=0.32 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14). DCO=0.83 *27* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1548.2 *6*	15388.5	1.53 *20*		Iγ: Iγ(1548)/Iγ(841.3)=0.25 *3* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1570.6 *4*	x+12772.6	2.0 *21*		Iγ: from Iγ(1571)/Iγ(841.3)=0.33 *3* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1613.2 *3*	4838.0	3.9 *2*	E2	Mult.: A_2=0.36 *5* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=1.01 *16* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).

Continued on next page (footnotes at end of table)

$^{103}Rh(^{12}C,3n\gamma),^{90}Zr(^{31}P,2\alpha n\gamma)$ 1998La14,1982Ma29 (continued)

$\gamma(^{112}Sb)$ (continued)

Eγ[†]	E(level)	Iγ[†]	Mult.[‡]	Comments
1653.3 *3*	4255.7	1.18 *16*	E2	Mult.: A_2=0.4 *1* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14); DCO=0.85 *18* in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14).
1666.0 *7*	17054.5	1.28 *14*		Iγ: from Iγ(1666)/Iγ(841.3)=0.21 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1695.5 *3*	15785.1	1.59 *14*		Iγ: from Iγ(1695)/Iγ(841.3)=0.26 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1708.0 *5*	x+14480.6	0.98 *13*		Iγ: from Iγ(1708)/Iγ(841.3)=0.16 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1810[#] *1*	18865.7?	0.85 *13*		Iγ: from Iγ(1810)/Iγ(841.3)=0.14 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1871.3 *5*	17656.5	0.98 *13*		Iγ: from Iγ(1871)/Iγ(841.3)=0.16 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
1880.8 *7*	x+16361.4	0.67 *13*		Iγ: from Iγ(1881)/Iγ(841.3)=0.11 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
2047[#] *1*	19703.2?	0.37 *6*		Iγ: from Iγ(2047)/Iγ(841.3)=0.06 *1* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).
2078 *1*	x+18439?	0.31 *12*		Iγ: from Iγ(2078)/Iγ(841.3)=0.05 *2* in $^{90}Zr(^{31}P,2\alpha n\gamma)$ (1998La14).

[†] From $^{103}Rh(^{12}C,3n\gamma)$ (1998La14), unless otherwise noted. ΔEγ=0.3 keV for Iγ>1 and ΔEγ=1 keV for Iγ<1, based on a general statement in 1998La14.
[‡] From $^{103}Rh(^{12}C,3n\gamma)$ (1998La14), based on the DCO ratios, polarization and the apparent band structures.
[§] Assignment made in $^{103}Rh(^{12}C,3n\gamma)$ (1998La14), but no DCO or A_2 values were given.
[#] Placement of transition in the level scheme is uncertain.

$^{112}Sn(p,n\gamma)$ 1997Fa08

Facility: Debrecen 103 cm isochronous cyclotron; Beam: E(p)=8.5 to 9.3 MeV; Targets: 0.5 and 2.5 mg/cm^2 enriched to 81% in ^{112}Sn; Detectors: two HPGe, one planar HPGe, LEPS, SMLS superconducting magnetic lens spectrometer, Si(Li) detectors; Measured: γ, ce, Eγ, γ, γ–γ, γ–γ(θ), α; Also, from the same collaboration: 1997FaZY, 1993GuZX.
Others: 1976Ka19, 1976Ke07, 1977KeZY.

^{112}Sb Levels

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
0.0[§]	3+	296.17[#] *4*	2+	714.76 *6*	1+
38.34[§] *5*	2+	366.3[§] *5*	6	780.92[@] *6*	2+
60.99[§] *16*	(1+)	395.88[&] *5*	3+	788.21 *6*	3+
103.83[§] *5*	4+	411.07[@] *6*	1+	804.31 *10*	3,4
129.6[§] *4*	5	502.10[#] *6*	5+	808.19 *4*	4+
167.07[#] *4*	4+	510.51 *5*	2,3+		
236.44[#] *4*	3+	672.82 *7*	3+		

[†] From a least-squares fit to Eγ.
[‡] From 1997Fa08.
[§] Probable member of the $\pi d_{5/2}\otimes\nu g_{7/2}$ split multiplet.
[#] Probable member of the $\pi d_{5/2}\otimes\nu d_{5/2}$ split multiplet.
[@] Probable member of the $\pi d_{5/2}\otimes\nu d_{3/2}$ split multiplet.
[&] Probable member of the $\pi d_{5/2}\otimes\nu s_{1/2}$ split multiplet.

$\gamma(^{112}Sb)$

Eγ[†]	E(level)	Iγ[†]	Mult.[†]	δ[†]	Comments
(22.7)	60.99				
(25.8)	129.6				
37.5 *4*	167.07	28 *15*			
38.3 *4*	38.34	113 *60*			
59.7 *1*	296.17	51 *9*			
69.39 *4*	236.44	77 *15*	M1(+E2)	+0.02 *8*	Mult.: A_2=−0.145 *103* and A_4=−0.132 *89* (1997Fa08).
99.9 *3*	395.88	7 *2*			
103.8 *1*	103.83	1000 *70*	M1(+E2)	−0.01 *4*	Mult.: A_2=−0.264 *86* and A_4=−0.042 *73* (1997Fa08).
114.9 *5*	510.51	42 *9*	M1(+E2)	+0.07 *15*	Mult.: A_2=−0.147 *135* and A_4=−0.077 *116* (1997Fa08).
[x]122.1 *1*		24 *4*			
132.59 *4*	236.44	351 *20*	M1+E2	−0.07 *6*	Mult.: α(K)exp=0.225 *44*, A_2=−0.011 *107* and A_4=0.064 *93* (1997Fa08).
159.3 *4*	395.88	42 *4*	M1+E2		Mult.: α(K)exp=0.158 *50* (1997Fa08).

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^{112}Sn(p,nγ) 1997Fa08 (continued)

γ(^{112}Sb) (continued)

Eγ†	E(level)	Iγ†	Mult.†	δ†	Comments
167.10 4	167.07	409 21	M1(+E2)	+0.01 4	Mult.: α(K)exp=0.102 30,A_2=−0.254 95 and A_4=−0.044 81 (1997Fa08).
198.08 4	236.44	110 11	M1(+E2)	−0.04 6	Mult.: α(K)exp=0.075 14, A_2=−0.243 139 and A_4=−0.133 121 (1997Fa08).
214.4 1	510.51	28 4	M1		Mult.: α(K)exp=0.055 8 (1997Fa08).
228.8 2	395.88	99 5	(M1)		Mult.: α(K)exp=0.050 5 (1997Fa08).
236.6 3	236.44	60 27	(M1+E2)		Mult.: α(K)exp=0.067 18 (1997Fa08); doublet.
236.7 3	366.3	39 18	(M1+E2)		Mult.: α(K)exp=0.067 18 (1997Fa08); doublet.
257.8 1	296.17	34 4	M1		Mult.: α(K)exp=0.039 5 (1997Fa08).
274.05 4	510.51	88 4	M1+E2		Mult.: α(K)exp=0.038 4, A_2=−0.276 166 and A_4=−0.176 146 (1997Fa08).
x279.8 1		30 9	M1+E2		Mult.: α(K)exp=0.051 2 (1997Fa08). Eγ: in coincidence with 419 γ (1997Fa08).
292.1 1	395.88	46 5	M1(+E2)	+0.07 9	Mult.: α(K)exp=0.048 2, A_2=−0.154 and A_4=0.017 111 (1997Fa08).
296.18 4	296.17	615 23	M1+E2		Mult.: α(K)exp=0.032 3, A_2=−0.006 31 and A_4=−0.036 26 (1997Fa08).
335.1 1	502.10	45 9	M1+E2	−0.14 8	Mult.: α(K)exp=0.029 9, A_2=−0.229 371 and A_4=−0.058 311 (1997Fa08).
350.0 4	411.07	123 18			
357.54 4	395.88	231 11	M1(+E2)	+0.01 5	Mult.: α(K)exp=0.017 2, A_2=−0.234 105 and A_4=−0.024 89 (1997Fa08).
369.8 1	780.92	38 4	(M1+E2)	−0.02 14	Mult.: α(K)exp=0.016 2, A_2=−0.304 219 and A_4=−0.104 183 (1997Fa08).
x370.2 5		8 2			
372.72 4	411.07	313 8	M1+E2	−0.07 4	Mult.: α(K)exp=0.017 2, A_2=−0.002 81 and A_4=−0.001 71 (1997Fa08).
x377.1 5		7 4			
x395.9 4		3 11	M1+E2		Mult.: α(K)exp=0.012 1 (1997Fa08).
398.25 4	502.10	75 11	M1+E2	−0.14 8	Mult.: α(K)exp=0.014 2, A_2=−0.508 218 and A_4=−0.010 169 (1997Fa08).
418.59 5	714.76	259 18	M1(+E2)	+0.28 56	Mult.: α(K)exp=0.012 2, A_2=−0.057 100 and A_4=−0.004 87 (1997Fa08).
436.8 4	672.82	29 2	M1+E2		Mult.: α(K)exp=0.012 2 (1997Fa08).
x448.2 1		35 5			
x450.1 1		19 7	M1+E2		Mult.: α(K)exp=0.010 1 (1997Fa08).
x458.0 3		12 2			
x471.8 1		33 11	M1+E2		Mult.: α(K)exp=0.010 2 (1997Fa08).
491.8 4	788.21	50 11	(M1+E2)		Mult.: α(K)exp=0.0082 18 (1997Fa08).
x491.9 2		21 7			Mult.: α(K)exp=0.0082 18 (1997Fa08).
505.7 5	672.82	131 35	M1+E2		Mult.: α(K)exp=0.0075 9 (1997Fa08).
510.7 3	510.51	174 35			
x531.8 2		13 3			
x534.56 9		35 7			
x539.1 2		52 4	M1(+E2)		Mult.: α(K)exp=0.0065 8 (1997Fa08).
551.6 5	788.21	19 4			
x553.9 1		47 5			
569.05 9	672.82	35 2	M1		Mult.: α(K)exp=0.0062 7 (1997Fa08).
x584.0 4		57 6	M1		Mult.: α(K)exp=0.0057 7 (1997Fa08).
x598.3 3		31 3			
x609.5 1		32 14	E2		Mult.: α(K)exp=0.0034 9 (1997Fa08).
637.2 1	804.31	61 4			
641.2 2	808.19	5 2			
653.8 2	714.76	14 3			
x661.2 4		21 4			
672.7 1	672.82	33 4			
684.6 3	788.21	14 2			
x696.4 1		17 4	M1+E2		Mult.: α(K)exp=0.0031 3 (1997Fa08).
x703.8 3		16 5			
704.3 2	808.19	53 6	(E2)		Mult.: α(K)exp=0.0031 3 (1997Fa08).
719.9 3	780.92	14 2			
x731.0 5		15 2			
742.58 4	780.92	158 12	M1		Mult.: α(K)exp=0.0040 10 (1997Fa08).
749.89 5	788.21	69 4	M1		Mult.: α(K)exp=0.0032 6 (1997Fa08).
x768.5 2		64 7	M1+E2		Mult.: α(K)exp=0.0025 3 (1997Fa08).
x770.14 8		39 8			
788.1 1	788.21	31 4			
x793.7 4		68 2	M1		Mult.: α(K)exp=0.0032 7 (1997Fa08).
x797.16 4		125 18	M1		Mult.: α(K)exp=0.0031 8 (1997Fa08).
804.6 3	804.31	52 7			
808.17 4	808.19	67 15	M1+E2	+0.25 11	Mult.: α(K)exp=0.0027 4, A_2=0.022 396 and A_4=−0.179 342 (1997Fa08).
x820.98 4		133 14	E2		Mult.: α(K)exp=0.0019 2 (1997Fa08).
x841.1 2		29 9			
x842.4 5		56 6			

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^{112}Sn(p,nγ) 1997Fa08 (continued)

γ(^{112}Sb) (continued)

Eγ†	Iγ†	Eγ†	Iγ†	Eγ†	Iγ†
ˣ846.4 *5*	49 *4*	ˣ880.6 *5*	17 *2*	ˣ933.6 *3*	100 *10*
ˣ864.2 *3*	21 *3*	ˣ897.7 *1*	35 *2*	ˣ968.1 *1*	46 *5*
ˣ870.8 *5*	10 *2*	ˣ904.5 *3*	32 *3*	ˣ970.7 *1*	41 *4*
ˣ874.4 *2*	21 *7*	ˣ924.5 *5*	53 *7*		

† From 1997Fa08.
ˣ γ ray not placed in level scheme.

^{112}Sn(^{3}He,t) 1995Ph01

Facility: Indiana University Cyclotron; Beam: E(^{3}He)=200 MeV; Target: 2.5 mg/cm^{2} enriched to 98.9% in ^{112}Sn; Detectors: K600 magnetic spectrometer, two multiwire drift chambers and two scintillation detectors. FWHM=80 keV; Measured: E, Γ, dσ/dΩ.

^{112}Sb Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
140 *30*	1+	2180 *30*	1+	4050 *30*	1+
510 *30*	1+	2410 *30*	1+	4240 *30*	1+
850 *30*	1+	2720 *30*	1+	4600 *30*	1+
1120 *30*	1+	3100 *30*	1+	4880 *30*	1+
1340 *30*	1+	3420 *30*	1+	5310 *30*	1+
1540 *30*	1+	3680 *30*	1+	5570 *30*	1+
1830 *30*	1+	3850 *30*	1+		

† From 1995Ph01.
‡ From ΔL=0 in 1995Ph01.

Adopted Levels, Gammas

Q(β⁻)=–10504 *13*; S(n)=–12051 *11*; S(p)=–4020 *12*; Q(α)=2078 *10* 2012Wa38.

^{112}Te Levels

Cross Reference (XREF) Flags

A ^{112}I ε Decay
B ^{113}Xe β⁺p Decay
C ^{112}Sn(α,4nγ)
D ^{58}Ni(^{58}Ni,4pγ),(^{60}Ni,α2pγ)

E(level)[†]	Jπ[‡]	XREF	$T_{1/2}$[§]	Comments
0.0[#]	0+	AB D	2.0 min *2*	%ε+%β⁺=100. $T_{1/2}$: From 372.7β–γ(t) in ^{112}Te ε decay (1976Wi11).
689.00[#] *20*	2+	AB D		Jπ: 689.0γ E2 to 0+; band member.
1476.1[#] *3*	4+	AB D		Jπ: 787.1γ E2 to 2+; band member.
1483.6 *6*	(2+)	B		Jπ: 794.6γ to 2+; direct feeding from the beta–delayed proton decay of ^{113}Xe (Jπ=(5/2+)) in 2005Ja10, 1985Ti02.
2261.7 *4*	(5)	D		Jπ: 784.8γ to 4+, 357.2γ from 6+.
2297.6[#] *4*	6+	D		Jπ: 821.3γ E2 to 4+; band member.
2619.7 *4*	6+	D		Jπ: 1144.5γ E2 to 4+; no decay branch to the 2+ state.
2839.0 *4*		D		
3362.3[#] *4*	8+	D		Jπ: 1064.5γ E2 to 6+; band member.
3454.3[@] *4*	(8–)	D		Jπ: 175.7γ d from (9–), 91.9γ to 8+; band member.
3512.1 *4*		D		
3629.8[@] *4*	(9–)	D		Jπ: 267.5γ D to 8+, 479.8γ from (10–).
3785.6 *4*		D		
3959.1 *4*	(9–)	D		Jπ: 266.6γ (E1) from 10+, 596.5γ to 8+.
4109.5[@] *4*	(10–)	D		Jπ: 655.1γ E2 from (8–); band member.
4225.9[#] *4*	10+	D		Jπ: 863.8γ E2 to 8+; band member.
4239.4 *5*		D		
4329.1[@] *5*	(11–)	D		Jπ: 699.3γ E2 to (9–).
4425.3 *5*		D		
4460.3[&] *4*	10+	D		Jπ: 1098.0γ E2 to 8+; band member.
4827.0[#] *5*	12+	D		Jπ: 601.2γ E2 to 10+; band member.
4864.9[@] *5*	(12–)	D		Jπ: 755.4γ E2 to (10–); band member.
5040.9 *5*		D		
5124.0[@] *5*	(13–)	D		Jπ: 794.9γ E2 to (11–); band member.
5212.1[&] *5*	12+	D		Jπ: 751.8γ E2 to 10+; band member.
5432.7[@] *5*	(14–)	D		Jπ: 567.8γ E2 to (12–); band member.
5540.0[#] *5*	14+	D		Jπ: 713.0γ E2 to 12+; band member.
5753.1 *6*		D		
5874.4[@] *5*	(15–)	D		Jπ: 750.5γ E2 to (13–); band member.
5970.8[&] *5*	14+	D		Jπ: 758.7γ E2 to 12+; band member.
6294.4[#] *5*	16+	D		Jπ: 754.4γ E2 to 14+; band member.
6439.1[@] *5*	(16–)	D		Jπ: 1006.4γ E2 to (14–); band member.
6709.4 *9*	(17+)	D		Jπ: 415γ to 16+, 925γ from 18+.
6772.4[&] *6*	16+	D		Jπ: 801.6γ E2 to 14+; band member.
6904.7? *6*	(17–)	D		Jπ: 465.6γ D to (16–).
6951.1[@] *5*	(17–)	D		Jπ: 1076.7γ E2 to (15–); band member.
7029.0? *5*	(17–)	D		Jπ: 1154.6γ to (15–).
7251.8[#] *6*	18+	D		Jπ: 957.4γ E2 to 16+; band member.
7565.1[@] *11*	(18–)	D		Jπ: 1126γ to (16–); band member.
7634.4[&] *6*	18+	D	0.21 ps *+7–4*	Jπ: 862.0γ E2 to 16+; band member.
7857.9? *6*		D		
7911.7[a] *6*	(19–)	D		Jπ: 659.8γ D to 18+, 992.5γ E2 from (21–); band member.
8117.1[@] *12*	(19–)	D		Jπ: 1166γ to (17–); band member.
8168.2[#] *6*	20+	D		Jπ: 916.4γ E2 to 18+; band member.
8211.6 *6*	20+	D		Jπ: 959.8γ E2 to 18+, 979.7γ E2 from 22+.
8491.0 *6*	(21)	D		Jπ: 279.4γ D to 20+.
8563.2[&] *6*	20+	D	0.14 ps *+4–3*	Jπ: 928.7γ to 18+; band member.
8904.3[a] *6*	(21–)	D		Jπ: 736.2γ D to 20+; band member.
9087.5[b] *8*	20+	D		Jπ: 1835γ to 18+; band member.
9191.2[#] *6*	22+	D		Jπ: 1023.0γ E2 to 20+; band member.
9493.2[b] *8*	21+	D		Jπ: 406γ to 20+, 1325γ to 20+; band member.
9561.4[&] *7*	22+	D	101 fs *+31–21*	Jπ: 998.2γ to 20+; band member.

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Adopted Levels, Gammas (continued)

^{112}Te Levels (continued)

E(level)†	Jπ‡	XREF	$T_{1/2}$§	Comments
9710.7[a] *6*	(23−)	D		Jπ: 806.3γ E2 to (21−).
9754.5[c] *6*	(23−)	D		Jπ: 563.3γ D to 22+.
9958.4[b] *8*	22+	D		Jπ: 465.1γ to 21+, 870.8γ to 20+; band member.
10054.2? *6*		D		
10393.3[#] *10*	24+	D		Jπ: 1202γ to 22+; band member.
10434.6[b] *8*	23+	D		Jπ: 476.4γ to 22+, 941.5γ to 21+; band member.
10618.1[a] *6*	(25−)	D		Jπ: 907.4γ to (23−); band member.
10633.2[&] *7*	24+	D	70 fs *+21−15*	Jπ: 1071.8γ to 22+; band member.
10930.6[b] *8*	24+	D		Jπ: 495.9γ to 23+, 972.1γ to 22+; band member.
11023.4[c] *10*	(25−)	D		Jπ: 630γ to 24+, 1269γ to (23−); band member.
11438.7[b] *8*	25+	D		Jπ: 507.9γ to 24+, 1004.4γ to 23+; band member.
11657.3[#] *12*	26+	D		Jπ: 1264γ to 24+; band member.
11779.7[&] *8*	26+	D	50 fs *+15−10*	Jπ: 1146.4γ to 24+; band member.
11968.9[b] *8*	26+	D		Jπ: 530.4γ to 25+, 1038.1γ to 24+.
11990.2[a] *11*	(27−)	D		Jπ: 1372γ to (25−); band member.
12276.3[c] *11*	(27−)	D		Jπ: 619γ to 26+, 1253γ to (25−); band member.
12517.8[b] *8*	27+	D		Jπ: 548.8γ to 26+, 1079.2γ to 25+; band member.
12997.4[&] *8*	28+	D	37 fs *+11−8*	Jπ: 1217.7γ to 26+; band member.
13080.9[b] *8*	28+	D		Jπ: 563.1γ to 27+, 1112.0γ to 26+; band member.
13455.3[a] *12*	(29−)	D		Jπ: 1179γ to (27−); band member.
13667.0[b] *8*	29+	D		Jπ: 586.0γ to 28+, 1149.1γ to 27+; band member.
13878.2 *15*		D		
13969.2 *15*		D		
14265.0[b] *8*	30+	D		Jπ: 597.8γ to 29+, 1184.3γ to 28+; band member.
14288.6[&] *8*	30+	D	27 fs *+8−6*	Jπ: 1291.2γ to 28+; band member.
14909.0[b] *8*	31+	D		Jπ: 644.3γ to 30+, 1242.1γ to 29+; band member.
14996.3[a] *16*	(31−)	D		Jπ: 1541γ to (29−); band member.
15333.2 *18*		D		
15408.2 *18*		D		Jπ: (31−) assumed in 2007Pa07.
15564.1[b] *8*	32+	D		Jπ: 655.2γ to 31+, 1298.9γ to 30+; band member.
15652.4[&] *8*	32+	D	21 fs *+6−4*	Jπ: 1363.8γ to 30+; band member.
16274.2[b] *8*	33+	D		Jπ: 710.1γ to 32+, 1365.2 γ to 31+; band member.
16998.4[b] *9*	34+	D		Jπ: 724.2γ to 33+, 1434.2γ to 32+; band member.
17153.2[&] *9*	34+	D		Jπ: 1500.8γ to 32+; band member.
17786.5[b] *9*	35+	D		Jπ: 788γ to 34+, 1512.4γ to 33+; band member.
18587.2[b] *9*	36+	D		Jπ: 801γ to 35+, 1588.7γ to 34+; band member.
18778.1[&] *10*	36+	D		Jπ: 1624.8γ to 34+; band member.
19515.8[b] *9*	37+	D		Jπ: 928γ to 36+, 1729.4γ to 35+; band member.
20442.2[b] *14*	38+	D		Jπ: 1855γ to 36+; band member.
20499.1[&] *10*	38+	D		Jπ: 1721.0γ to 36+; band member.
21523.9[b] *14*	39+	D		Jπ: 2008γ to 37+; band member.
22305.8[&] *10*	40+	D		Jπ: 1806.7γ to 38+; band member.
22556.2[b] *17*	40+	D		Jπ: 2114γ to 38+; band member.
24248.3[&] *11*	42+	D		Jπ: 1942.5γ to 40+; band member.
26353.3[&] *15*	44+	D		Jπ: 2105γ to 42+; band member.
28646.4[&] *18*	46+	D		Jπ: 2293γ to 44+; band member.
x[f]	(21+)	D		Jπ: tentative assignment based on the observed feeding to the 20+ yrast states and band interpretation.
966.0+x[f] *10*	(23+)	D		Jπ: 966γ to (21+); band member.
1985.0+x[f] *15*	(25+)	D		Jπ: 1019γ to (23+); band member.
3099.0+x[f] *18*	(27+)	D		Jπ: 1114γ to (25+); band member.
4317.9+x[f] *18*	(29+)	D		Jπ: 1218.9γ to (27+); band member.
5649.0+x[f] *18*	(31+)	D		Jπ: 1331.1γ to (29+); band member.
7119.4+x[f] *18*	(33+)	D		Jπ: 1470.4γ to (31+); band member.
8732.1+x[f] *19*	(35+)	D		Jπ: 1612.6γ to (33+); band member.
10509.7+x[f] *19*	(37+)	D		Jπ: 1777.6γ to (35+); band member.
12430.5+x[f] *19*	(39+)	D		Jπ: 1920.8γ to (37+); band member.
14501.5+x[f] *19*	(41+)	D		Jπ: 2071.0γ to (39+); band member.
y[e]	(21−)	D		Jπ: tentative assignment, based on the observed feeding to the (20+) yrast state and band interpretation.
860.0+y[e] *10*	(23−)	D		Jπ: 860γ to (21−); band member.
1451.2+y *15*		D		
1793.5+y[e] *11*	(25−)	D		Jπ: 933.5γ to (23−); band member.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{112}Te Levels (continued)

E(level)†	Jπ‡	XREF	Comments
2802.2+y[e] *11*	(27−)	D	Jπ: 1008.7γ to (25−); band member.
3926.2+y[e] *12*	(29−)	D	Jπ: 1124.0γ to (27−); band member.
5096.0+y *16*		D	
5138.3+y[e] *12*	(31−)	D	Jπ: 1212.1γ to (29−); band member.
6449.0+y[e] *12*	(33−)	D	Jπ: 1310.7γ to (31−), band member.
7843.0+y[e] *13*	(35−)	D	Jπ: 1394.0γ to (33−); band member.
9361.6+y[e] *13*	(37−)	D	Jπ: 1518.5γ to (35−); band member.
11037.7+y[e] *14*	(39−)	D	Jπ: 1676.1γ to (37−); band member.
12913.5+y[e] *14*	(41−)	D	Jπ: 1875.8γ to (39−); band member.
15019.0+y[e] *14*	(43−)	D	Jπ: 2105.5γ to (41−); band member.
17346.0+y[e] *17*	(45−)	D	Jπ: 2327γ to (43−); band member.
z[d]	(18−)	D	Jπ: tentative assignment, based on the observed feeding to the (20+) yrast state and band interpretation.
867.0+z[d] *10*	(20−)	D	Jπ: 867γ to (18−); band member.
1807.0+z[d] *15*	(22−)	D	Jπ: 940γ to (20−); band member.
2828.0+z[d] *18*	(24−)	D	Jπ: 1021γ to (22−); band member.
3930.0+z[d] *20*	(26−)	D	Jπ: 1102γ to (24−); band member.
5136.3+z[d] *21*	(28−)	D	Jπ: 1206.3γ to (26−); band member.
6427.5+z[d] *21*	(30−)	D	Jπ: 1291.2γ to (28−); band member.
7785.8+z[d] *21*	(32−)	D	Jπ: 1358.3γ to (30−); band member.
9187.7+z[d] *21*	(34−)	D	Jπ: 1401.8γ to (32−); band member.
10688.5+z[d] *21*	(36−)	D	Jπ: 1500.8γ to (34−); band member.
12328.7+z[d] *22*	(38−)	D	Jπ: 1640.2γ to (36−); band member.
14138.4+z[d] *22*	(40−)	D	Jπ: 1809.7γ to (38−); band member.
16133.2+z[d] *22*	(42−)	D	Jπ: 1994.8γ to (40−); band member.
18318.2+z[d] *24*	(44−)	D	Jπ: 2185γ to (42−); band member.

† From a least–squares fit to Eγ.
‡ From 1994Pa22 and 2007Pa07, based on deduced transition multipolarities and the apparent band structures.
§ From DSAM (centoid shift) in 2007Pa07.
\# (A): g.s. band.
@ (B): π=− band based on the (8−) state.
& (C): ΔJ=2, π=+ intruder band based on the 10+ state.
a (D): ΔJ=2, π=− band based on the (19−) state.
b (E): ΔJ=1, π=+ band based on the 20+ state.
c (F): ΔJ=2, π=− band based on the (23−) state.
d (G): ΔJ=2, π=− band based on the (18−) state.
e (H): ΔJ=2, π=− band based on the (21−) state.
f (I): ΔJ=2, π=+ band based on the (21+) state.

γ(^{112}Te)

E(level)	Eγ†	Iγ†	Mult.‡	Comments
689.00	689.0 *2*	100	E2	Mult.: DCO=1.00 *2* from (^{58}Ni,4pγ) in 1994Pa22.
1476.1	787.1 *2*	100	E2	Mult.: DCO=1.01 *2* from (^{58}Ni,4pγ) in 1994Pa22.
1483.6	794.6 *5*	100		Eγ: From 1985TI02. Other: 794.5 keV 2 (1980GoZX).
2261.7	784.8 *2*	100		
2297.6	821.3 *2*	100	E2	Mult.: DCO=0.98 *2* from (^{58}Ni,4pγ) in 1994Pa22.
2619.7	357.2 *2*	37 *5*		
	1144.5 *2*	100 *5*	E2	Mult.: DCO=1.05 *20* from (^{58}Ni,4pγ) in 1994Pa22.
2839.0	219.5 *2*	100		Mult.: DCO 1.31 *21* from (^{58}Ni,4pγ) in 1994Pa22.
3362.3	1064.5 *2*	100	E2	Mult.: DCO=0.96 *4* from (^{58}Ni,4pγ) in 1994Pa22.
3454.3	91.9 *2*	100 *5*		
	615.5 *2*	8.9		
3512.1	673.1 *2*	100		
3629.8	175.7 *2*	35.0 *8*	D	Mult.: DCO=0.85 *7* from (^{58}Ni,4pγ) in 1994Pa22.
	267.5 *2*	100 *5*	D	Mult.: DCO=0.61 *2* from (^{58}Ni,4pγ) in 1994Pa22 for the 266–keV doublet.
3785.6	423.4 *2*	100		
3959.1	173.7 *2*	35 *5*		
	596.5 *2*	100 *20*		
4109.5	479.8 *2*	7.7 *7*		

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Adopted Levels, Gammas (continued)

γ(^{112}Te) (continued)

E(level)	Eγ†	Iγ†	Mult.‡	Comments
4109.5	655.1 *2*	100 *5*	E2	Mult.: DCO=1.05 *5* from (^{58}Ni,4pγ) in 1994Pa22.
4225.9	266.6 *2*	4.47 *21*	D	Mult.: DCO=0.61 *2* from (^{58}Ni,4pγ) in 1994Pa22 for the 266-keV doublet.
	440.2 *2*	2.77 *21*		
	863.8 *2*	100 *4*	E2	Mult.: DCO=0.95 *4* from (^{58}Ni,4pγ) in 1994Pa22.
4239.4	727.3 *2*	100		
4329.1	699.3 *2*	100	E2	Mult.: DCO=1.11 *6* from (^{58}Ni,4pγ) in 1994Pa22.
4425.3	639.7 *2*	100		
4460.3	1098.0 *2*	100	E2	Mult.: DCO=0.99 *13* from (^{58}Ni,4pγ) in 1994Pa22.
4827.0	601.2 *2*	100	E2	Mult.: DCO=1.02 *3* from (^{58}Ni,4pγ) in 1994Pa22.
4864.9	755.4 *2*	100	E2	Mult.: DCO=1.03 *6* from (^{58}Ni,4pγ) in 1994Pa22.
5040.9	615.6 *2*	100		
5124.0	794.9 *2*	100	E2	Mult.: DCO=1.02 *7* from (^{58}Ni,4pγ) in 1994Pa22.
5212.1	751.8 *2*	100	E2	
	986§ *1*			
5432.7	308.6 *2*	6.7 *7*		
	567.8 *2*	100 *7*	E2	Mult.: DCO=1.11 *5* from (^{58}Ni,4pγ) in 1994Pa22.
5540.0	713.0 *2*	100	E2	Mult.: DCO=1.05 *4* from (^{58}Ni,4pγ) in 1994Pa22.
5753.1	712.2 *2*	100		
5874.4	441.6 *2*	21.8 *13*		
	750.5 *2*	100 *5*	E2	Mult.: DCO=1.02 *6* from (^{58}Ni,4pγ) in 1994Pa22.
5970.8	758.7 *2*	100 *3*	E2	Mult.: DCO=0.95 *14* from (^{58}Ni,4pγ) in 1994Pa22.
6294.4	754.4 *2*	100	E2	Mult.: DCO=0.99 *3* from (^{58}Ni,4pγ) in 1994Pa22.
6439.1	1006.4 *2*	100	E2	Mult.: DCO=1.11 *11* from (^{58}Ni,4pγ) in 1994Pa22.
6709.4	415§ *1*	100		
6772.4	801.6 *2*	100	E2	Mult.: DCO 1.06 *14* from (^{58}Ni,4pγ) in 1994Pa22.
6904.7?	465.6# *2*	100	D	Eγ: observed only in 1994Pa22; not confirmed in 2007Pa07. Mult.: DCO=0.52 *3* from (^{58}Ni,4pγ) in 1994Pa22.
6951.1	1076.7 *2*	100	E2	Mult.: DCO=0.97 *14* from (^{58}Ni,4pγ) in 1994Pa22.
7029.0?	1154.6# *2*	100	(E2)	Eγ: observed only in 1994Pa22; not confirmed in 2007Pa07. Mult.: DCO=1.07 *21* from (^{58}Ni,4pγ) in 1994Pa22.
7251.8	957.4 *2*	100	E2	Mult.: DCO=0.92 *7* from (^{58}Ni,4pγ) in 1994Pa22.
7565.1	1126§ *1*	100		
7634.4	862.0 *2*	100	E2	Mult.: DCO=0.98 *16* from (^{58}Ni,4pγ) in 1994Pa22. B(E2)(W.u.)=180 *40*.
	925§ *1*			
7857.9?	953.2# *2*	100		Eγ: observed only in 1994Pa22; not confirmed in 2007Pa07.
7911.7	659.8 *2*	100	D	Mult.: DCO=0.58 *4* from (^{58}Ni,4pγ) in 1994Pa22.
8117.1	1166§ *1*	100		
8168.2	916.4 *2*	100	E2	Mult.: DCO=0.96 *5* from (^{58}Ni,4pγ) in 1994Pa22.
8211.6	959.8 *2*	100	E2	Mult.: DCO=1.18 *21* from (^{58}Ni,4pγ) in 1994Pa22.
8491.0	279.4 *2*	100	D	Mult.: DCO=0.62 *7* from (^{58}Ni,4pγ) in 1994Pa22.
8563.2	928.7§ *3*	100	[E2]	B(E2)(W.u.)=180 *+50–40*.
8904.3	736.2 *2*	51.1 *21*	D	Mult.: DCO=0.69 *9* from (^{58}Ni,4pγ) in 1994Pa22.
	992.5 *2*	100 *4*	E2	Mult.: DCO=1.12 *8* from (^{58}Ni,4pγ) in 1994Pa22.
9087.5	1836§ *1*	100		
9191.2	979.7 *2*	54.6 *23*	E2	Mult.: DCO=0.97 *12* from (^{58}Ni,4pγ) in 1994Pa22.
	1023.0 *2*	100 *5*	E2	Mult.: DCO=0.97 *14* from (^{58}Ni,4pγ) in 1994Pa22.
9493.2	406§ *1*			
	1325§ *1*			
9561.4	998.2§ *3*	100	[E2]	B(E2)(W.u.)=180 *+40–40*.
9710.7	519.6 *2*	40.3 *16*		
	806.3 *2*	100 *5*	E2	Mult.: DCO=0.88 *8* from (^{58}Ni,4pγ) in 1994Pa22.
9754.5	563.3§ *2*	100	D	Mult.: DCO=0.63 *6* from (^{58}Ni,4pγ) in 1994Pa22.
9958.4	465.1§ *3*			
	870.8§ *3*			
10054.2?	862.7# *2*	100		Eγ: transition observed only in 1994Pa22 and not confirmed in 2007Pa07.
10393.3	1202§ *1*	100		
10434.6	476.4§ *3*			
	941.5§ *3*			
10618.1	907.4 *2*	100		
10633.2	1071.8§ *3*	100	[E2]	B(E2)(W.u.)=180 *+50–40*.
10930.6	495.9§ *3*			
	972.1§ *3*			

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Adopted Levels, Gammas (continued)

γ(^{112}Te) (continued)

E(level)	Eγ†	Iγ†	Mult.‡	Comments
11023.4	630§ *1*			
	1269§ *1*			
11438.7	507.9§ *3*			
	1004.4§ *3*			
11657.3	1264§ *1*	100		
11779.7	1146.4§ *3*	100	[E2]	B(E2)(W.u.)=180 *40*.
11968.9	530.4§ *3*			
	1038.1§ *3*			
11990.2	1372§ *1*	100		
12276.3	619§ *1*			
	1253§ *1*			
12517.8	548.8§ *3*			
	1079.2§ *3*			
12997.4	1217.7§ *1*	100	[E2]	B(E2)(W.u.)=180 *+50−40*.
13080.9	563.1§ *3*			
	1112.0§ *3*			
13455.3	1179§ *1*			
	1465§ *1*			
13667.0	586.0§ *3*			
	1149.1§ *3*			
13878.2	1888§ *1*	100		
13969.2	1979§ *1*	100		
14265.0	597.8§ *3*			
	1184.3§ *3*			
	1268§ *1*			
14288.6	1207§ *1*		[E2]	
	1291.2§ *3*	100	[E2]	B(E2)(W.u.)=180 *40*.
14909.0	619§ *1*			
	644.3§ *3*			
	1242.1§ *3*			
14996.3	1541§ *1*	100		
15333.2	1455§ *1*	100		
15408.2	1439§ *1*	100		
15564.1	655.2§ *3*			
	1298.9§ *3*			
15652.4	1363.8§ *3*	100	[E2]	B(E2)(W.u.)=180 *40*.
16274.2	710.1§ *3*			
	1365.2§ *3*			
16998.4	724.2§ *3*			
	1434.2§ *3*			
17153.2	1500.8§ *3*	100		
17786.5	788§ *1*			
	1512.4§ *3*			
18587.2	801§ *1*			
	1588.7§ *3*			
18778.1	1624.8§ *3*	100		
19515.8	928§ *1*			
	1729.4§ *3*			
20442.2	1855§ *1*	100		
20499.1	1721.0§ *3*	100		
21523.9	2008§ *1*	100		
22305.8	1806.7§ *3*	100		
22556.2	2114§ *1*	100		
24248.3	1942.5§ *3*	100		
26353.3	2105§ *1*	100		
28646.4	2293§ *1*	100		
966.0+x	966§ *1*			
1985.0+x	1019§ *1*			
3099.0+x	1114§ *1*			
4317.9+x	1218.9§ *3*			
5649.0+x	1331.1§ *3*			
7119.4+x	1470.4§ *3*			
8732.1+x	1612.6§ *3*			

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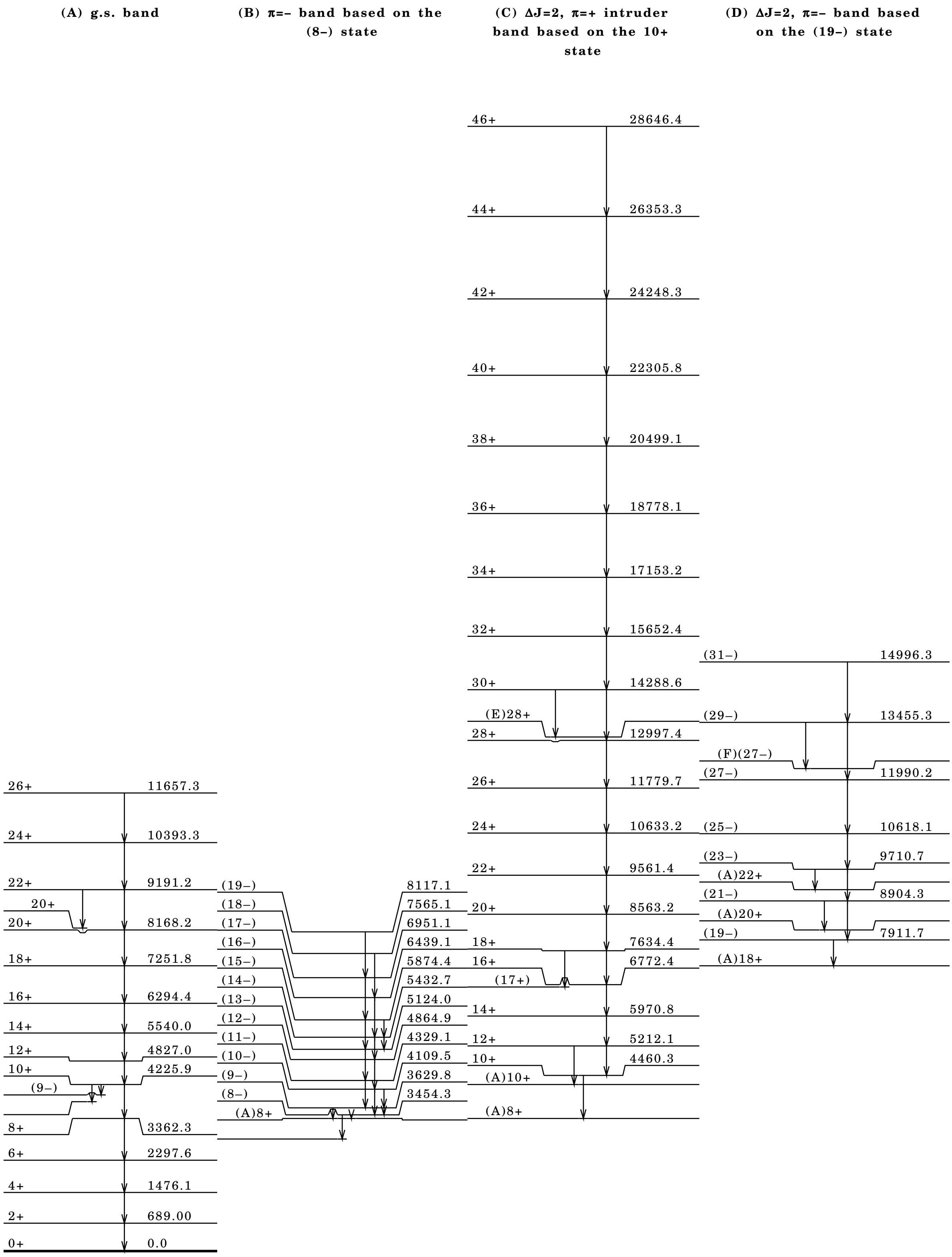
Adopted Levels, Gammas (continued)

γ(^{112}Te) (continued)

E(level)	Eγ[†]	E(level)	Eγ[†]	E(level)	Eγ[†]
10509.7+x	1777.6[§] *3*	6449.0+y	1353[§] *1*	3930.0+z	1102[§] *1*
12430.5+x	1920.8[§] *3*	7843.0+y	1394.0[§] *3*	5136.3+z	1206.3[§] *3*
14501.5+x	2071.0[§] *3*	9361.6+y	1518.5[§] *3*	6427.5+z	1291.2[§] *3*
860.0+y	860[§] *1*	11037.7+y	1676.1[§] *3*	7785.8+z	1358.3[§] *3*
1793.5+y	933.5[§] *3*	12913.5+y	1875.8[§] *3*	9187.7+z	1401.8[§] *3*
2802.2+y	1008.7[§] *3*	15019.0+y	2105.5[§] *3*	10688.5+z	1500.8[§] *3*
	1351[§] *1*	17346.0+y	2327[§] *1*	12328.7+z	1640.2[§] *3*
3926.2+y	1124.0[§] *3*	867.0+z	867[§] *1*	14138.4+z	1809.7[§] *3*
5138.3+y	1212.1[§] *3*	1807.0+z	940[§] *1*	16133.2+z	1994.8[§] *3*
6449.0+y	1310.7[§] *3*	2828.0+z	1021[§] *1*	18318.2+z	2185[§] *1*

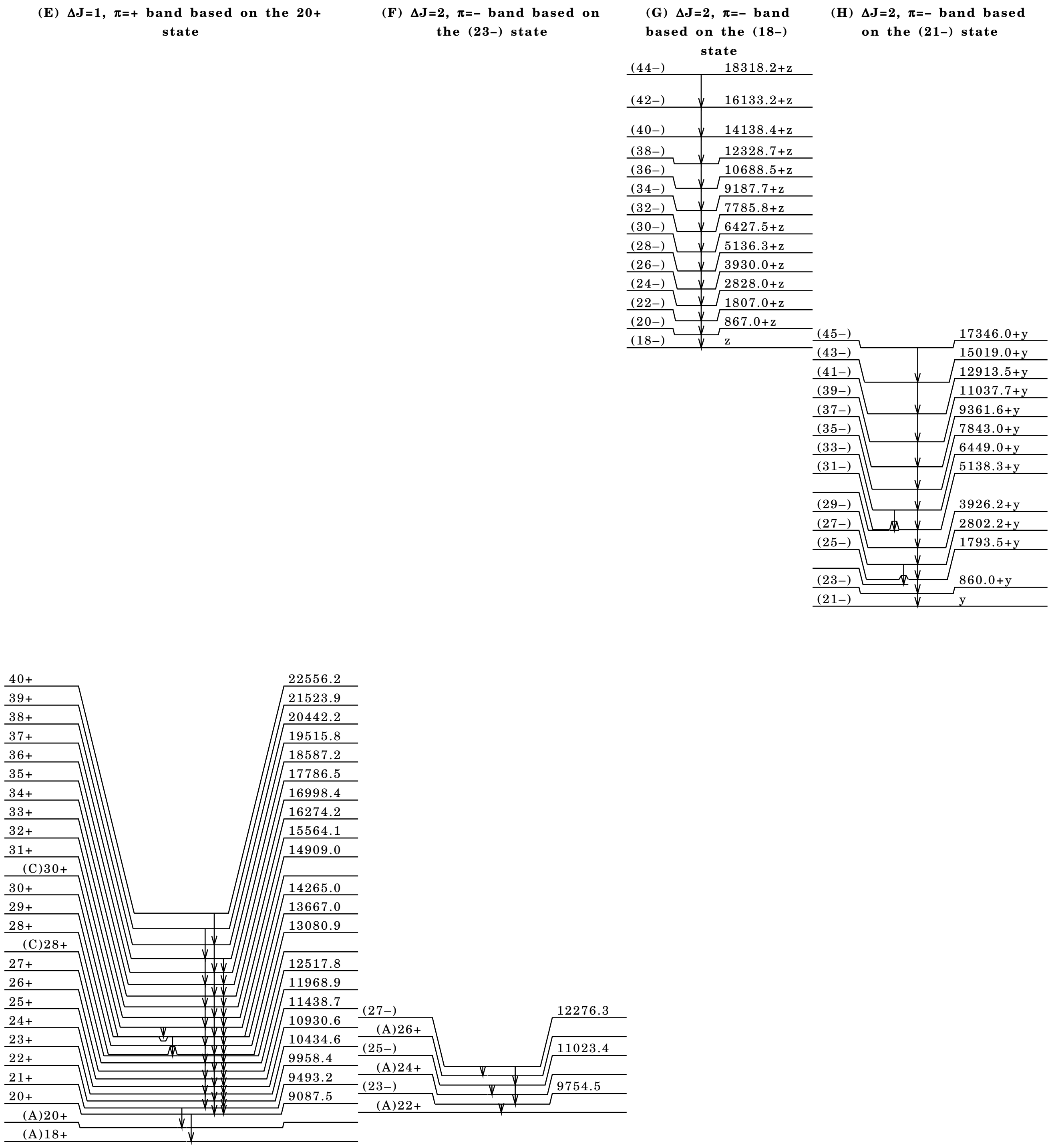
† From 1994Pa22, unless otherwise noted.
‡ From DCO ratios in 1994Pa22 and the apparent band structures in 1994Pa22 and 2007Pa07.
§ From 2007Pa07.
# Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas (continued)



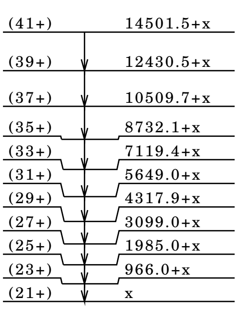
$^{112}_{52}Te_{60}$

Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)

(I) ΔJ=2, π=+ band based on the (21+) state



$^{112}_{52}Te_{60}$

^{112}I ε Decay 1977Ki11

Parent ^{112}I: E=0.0; Jπ=(1+); $T_{1/2}$=3.34 s *8*; Q(g.s.)=10504 *13*; %ε+%β^+ decay≈100.
1977Ki11: Facility: GSI; Source: mass–separated ^{112}I from $^{58}Ni(^{58}Ni,\alpha p)$ and $^{58}Ni(^{63}Cu$, 2an); Beam: E(^{58}Ni)=290 MeV; Targets: 3 mg/cm^2 ^{58}Ni and ^{63}Cu; Detectors: GSI Fragment separator, mylar tape, one plastic scintillator, one Ge(Li), one x–ray detector, one telescope; measured: β, γ, x–rays, Eγ, $T_{1/2}$.

The decay scheme is incomplete (Q(ε)=10504 *13* keV).

^{112}Te Levels

E(level)†	Jπ‡
0.0	0+
688.9 *6*	2+
1475.8 *9*	4+

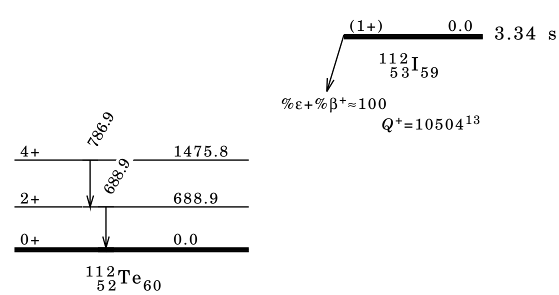
† From a least–squares fit to Eγ.
‡ From the adopted levels.

γ(^{112}Te)

Eγ†	E(level)
688.9 *6*	688.9
786.9 *6*	1475.8

† From 1977Ki11.

Decay Scheme



^{113}Xe β^+p Decay 2005Ja10

Parent ^{113}Xe: E=0.0; Jπ=(5/2+); $T_{1/2}$=2.74 s *8*; Q(g.s.)=8075 *11*; %β^+p decay=7 *4*.
^{113}Xe: Q(g.s.)=Q(εp) from 2012Wa38.
2005Ja10: Facility: GSI; Source: mass–separated ^{113}Xe from $^{58}Ni(^{58}Ni$,2pn); Beam: E(^{58}Ni)=275 MeV; Target: 3.7 mg/cm^2 thick ^{58}Ni; Detectors: Nb/Ta catcher, ion source, transport tape, total absorption spectrometer comprising one large–volume NaI(Tl) crystal, one germanium x–ray detector, one 600–μm thick silicon β–particle counter and one telescope for β–delayed particles; Measured: γ, p, β, β–p.
Others: 1985Ti02, 1981TiZY, 1980GoZX.

^{112}Te Levels

E(level)†	Jπ‡
0.0	0+
688.7 *5*	2+
1475.3 *7*	4+
1483.3 *7*	(2+)

† From a least–squares fit to Eγ.
‡ From the adopted levels.

$^{58}Ni(^{58}Ni,4p\gamma),(^{60}Ni,\alpha 2p\gamma)$ 1994Pa22,2007Pa07

1994Pa22: Facility: Daresbury Nuclear Structure Facility; Beam: E(^{58}Ni)=240 MeV; Target: 440 μg/cm^2 self–supporting ^{58}Ni; Detectors: EUROGAM array, comprising 45 Compton–suppressed HPGe detectors, Daresbury recoil separator; Measured: γ–γ–γ, Eγ, Iγ; Facility: TASCC Facility at Chalk River; Beam: E(^{58}Ni)=250 MeV; Targets: stack of two 450–μg/cm^2 thick self–supporting ^{60}Ni foils. One 1 mg/cm^2 ^{58}Ni with 10 mg/cm^2 Au backing; Detectors: 8π spectrometer, comprising 20 HPGe detectors, and 71–element inner–ball calorimeter; Measured: γ–γ, γ–γ(θ), Eγ, Iγ; Deduced: level scheme. Also, from the same collaboration: 1993PaZX.

2007Pa07: Facility: 88–inch cyclotron at LBNL; Beam: E(^{58}Ni)=240 and 250 MeV; Targets: one thin target and one 1 mg/cm^2 on 15 mg/cm^2 ^{208}Pb backing; Detectors: GAMMASPHERE, Microball charged–particle detector, and array of 15 neutron detectors; Measured: γ–γ–γ– charged particle coinc., Eγ, Iγ; Deduced: level scheme, band structure, Doppler corrections, $T_{1/2}$; Also, from the same collaboration: 2006Ev01.

Other: 1998StZZ.

^{112}Te Levels

E(level)†	Jπ‡	$T_{1/2}$§	Comments
0.0#	0+		
689.00# *20*	2+		
1476.1# *3*	4+		
2261.7 *4*	(5)		Jπ: From adopted levels.
2297.6# *4*	6+		
2619.7 *4*	6+		
2839.0 *4*			
3362.3# *4*	8+		
3454.3@ *4*	8−		
3512.1 *4*			
3629.8@ *4*	9−		
3785.6 *4*			
3959.1 *4*	9−		
4109.5@ *4*	10−		
4225.9# *4*	10+		
4239.4 *5*			
4329.1@ *5*	11−		
4425.3 *5*			
4460.3& *4*	10+		
4827.1# *5*	12+		
4864.9@ *5*	12−		
5040.9 *5*			
5124.0@ *5*	13−		
5212.1& *5*	12+		
5432.7@ *5*	14−		
5540.1# *5*	14+		
5753.1 *6*			
5874.4@ *5*	15−		
5970.8& *5*	14+		
6294.5# *5*	16+		
6439.1@ *5*	16−		
6709.4 *9*	(17+)		
6772.4& *6*	16+		
6904.7? *6*	17−		
6951.1@ *5*	17−		
7029.0? *5*	17−		
7251.9# *6*	18+		
7565.1@ *11*	18−		
7634.4& *6*	18+	0.21 ps *+7−4*	
7857.9? *6*			
7911.8a *6*	19−		
8117.1@ *12*	19−		
8168.2# *6*	20+		
8211.6 *6*	20+		
8491.0 *6*	21		
8563.1& *7*	20+	0.14 ps *+4−3*	
8904.4a *6*	21−		
9087.2b *9*	20+		
9191.2# *6*	22+		
9492.9b *9*	21+		
9561.3& *7*	22+	101 fs *+31−21*	

Continued on next page (footnotes at end of table)

^{58}Ni(^{58}Ni,4pγ),(^{60}Ni,α2pγ) 1994Pa22,2007Pa07 (continued)

^{112}Te Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[§]
9710.8[a] *6*	23–	
9754.2[c] *10*	23–	
9958.1[b] *9*	22+	
10054.2? *6*		
10393.2[#] *10*	24+	
10434.3[b] *9*	23+	
10618.2[a] *7*	25–	
10633.1[&] *8*	24+	70 fs *+21–15*
10930.4[b] *9*	24+	
11023.2[c] *11*	25–	
11438.4[b] *9*	25+	
11657.2[#] *12*	26+	
11779.5[&] *8*	26+	50 fs *+15–10*
11968.7[b] *9*	26+	
11990.2[a] *11*	27–	
12276.2[c] *12*	27–	
12517.6[b] *9*	27+	
12997.2[&] *9*	28+	37 fs *+11–8*
13080.6[b] *9*	28+	
13455.2[a] *12*	29–	
13666.7[b] *9*	29+	
13878.2 *15*		
13969.2 *15*		
14264.7[b] *9*	30+	
14288.5[&] *10*	30+	27 fs *+8–6*
14908.8[b] *9*	31+	
14996.2[a] *16*	31–	
15333.2 *18*		
15408.2 *18*	31–	
15563.8[b] *9*	32+	
15652.3[&] *10*	32+	21 fs *+6–4*
16273.9[b] *9*	33+	
16998.1[b] *9*	34+	
17153.1[&] *10*	34+	
17786.2[b] *10*	35+	
18586.9[b] *10*	36+	
18777.9[&] *11*	36+	
19515.6[b] *10*	37+	
20441.9[b] *14*	38+	
20498.9[&] *11*	38+	
21523.6[b] *14*	39+	
22305.6[&] *12*	40+	
22556.0[b] *17*	40+	

E(level)[†]	Jπ[‡]
24248.1[&] *12*	42+
26353.2[&] *16*	44+
28646.2[&] *19*	46+
x[f]	(21+)
966.0+x[f] *10*	(23+)
1985.0+x[f] *15*	(25+)
3099.0+x[f] *18*	(27+)
4317.9+x[f] *18*	(29+)
5649.0+x[f] *18*	(31+)
7119.4+x[f] *18*	(33+)
8732.1+x[f] *19*	(35+)
10509.7+x[f] *19*	(37+)
12430.5+x[f] *19*	(39+)
14501.5+x[f] *19*	(41+)
y[e]	(21–)
860.0+y[e] *10*	(23–)
1451.2+y *15*	
1793.5+y[e] *11*	(25–)
2802.2+y[e] *11*	(27–)
3926.2+y[e] *12*	(29–)
5096.0+y *16*	
5138.3+y[e] *12*	(31–)
6449.0+y[e] *12*	(33–)
7843.0+y[e] *13*	(35–)
9361.6+y[e] *13*	(37–)
11037.7+y[e] *14*	(39–)
12913.5+y[e] *14*	(41–)
15019.0+y[e] *14*	(43–)
17346.0+y[e] *17*	(45–)
z[d]	(18–)
867.0+z[d] *10*	(20–)
1807.0+z[d] *15*	(22–)
2828.0+z[d] *18*	(24–)
3930.0+z[d] *20*	(26–)
5136.3+z[d] *21*	(28–)
6427.5+z[d] *21*	(30–)
7785.8+z[d] *21*	(32–)
9187.7+z[d] *21*	(34–)
10688.5+z[d] *21*	(36–)
12328.7+z[d] *22*	(38–)
14138.4+z[d] *22*	(40–)
16133.2+z[d] *22*	(42–)
18318.2+z[d] *24*	(44–)

† From a least–squares fit to Eγ.
‡ From 1994Pa22 and 2007Pa07, based on deduced transition multipolarities and the apparent band structures.
§ From DSAM (centoid shift) in 2007Pa07.
\# (A): g.s. band.
@ (B): π=– band based on the 8– state.
& (C): ΔJ=2, π=+ intruder band based on the 10+ state.
a (D): ΔJ=2, π=– band based on the 18– state.
b (E): ΔJ=1, π=+ band based on the 20+ state.
c (F): ΔJ=2, π=– band based on the 23– state.
d (G): ΔJ=2, π=– band based on the (18–) state.
e (H): ΔJ=2, π=– band based on the (21–) state.
f (I): ΔJ=2, π=+ band based on the (21+) state.

^{58}Ni(^{58}Ni,4pγ),(^{60}Ni,α2pγ) 1994Pa22,2007Pa07 (continued)

γ(^{112}Te)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
91.9 *2*	3454.3	10.1 *5*		
173.7 *2*	3959.1	0.7 *1*		
175.7 *2*	3629.8	4.2 *1*	(M1)	Mult.: DCO=0.85 *7* from (^{58}Ni,4pγ) in 1994Pa22.
219.5 *2*	2839.0	1.2 *6*		Mult.: DCO 1.31 *21* from (^{58}Ni,4pγ) in 1994Pa22.
266.6 *2*	4225.9	2.1 *1*	(E1)	Mult.: DCO=0.61 *2* from (^{58}Ni,4pγ) in 1994Pa22 for the 266-keV doublet.
267.5 *2*	3629.8	12.0 *6*	(E1)	Mult.: DCO=0.61 *2* from (^{58}Ni,4pγ) in 1994Pa22 for the 266-keV doublet.
279.4 *2*	8491.0	1.00 *5*	D	Mult.: DCO=0.62 *7* from (^{58}Ni,4pγ) in 1994Pa22.
308.6 *2*	5432.7	0.9 *1*		
357.2 *2*	2619.7	0.7 *1*		
406§ *1*	9492.9			
415§ *1*	6709.4			
423.4 *2*	3785.6	2.1 *1*		
440.2 *2*	4225.9	1.3 *1*		
441.6 *2*	5874.4	1.7 *1*		
465.1§ *3*	9958.1			
465.6# *2*	6904.7?	5.1 *3*	M1	Eγ: observed only in 1994Pa22; not confirmed in 2007Pa07. Mult.: DCO=0.52 *3* from (^{58}Ni,4pγ) in 1994Pa22.
476.4§ *3*	10434.3			
479.8 *2*	4109.5	1.1 *1*		
495.9§ *3*	10930.4			
507.9§ *3*	11438.4			
519.6 *2*	9710.8	2.5 *1*		
530.4§ *3*	11968.7			
548.8§ *3*	12517.6			
563.1§ *3*	13080.6			
563.3§ *2*	9754.2	3.2 *2*	(E1)	Mult.: DCO=0.63 *6* from (^{58}Ni,4pγ) in 1994Pa22.
567.8 *2*	5432.7	13.5 *7*	E2	Mult.: 1.11 *5* from (^{58}Ni,4pγ) in 1994Pa22.
586.0§ *3*	13666.7			
596.5 *2*	3959.1	2.0 *4*		
597.8§ *3*	14264.7			
601.2 *2*	4827.1	48 *2*	E2	Mult.: DCO=1.02 *3* from (^{58}Ni,4pγ) in 1994Pa22.
615.5 *2*	3454.3	0.9		
615.6 *2*	5040.9	0.6 *1*		
619§ *1*	12276.2			
	14908.8			
630§ *1*	11023.2			
639.7 *2*	4425.3	1.0		
644.3§ *3*	14908.8			
655.1 *2*	4109.5	14.3 *7*	E2	Mult.: DCO=1.05 *5* from (^{58}Ni,4pγ) in 1994Pa22.
655.2§ *3*	15563.8			
659.8 *2*	7911.8	8.3 *17*	(E1)	Mult.: DCO=0.58 *4* from (^{58}Ni,4pγ) in 1994Pa22.
673.1 *2*	3512.1	1.0 *1*		
689.0 *2*	689.00	100 *5*	E2	Mult.: DCO=1.00 *2* from (^{58}Ni,4pγ) in 1994Pa22.
699.3 *2*	4329.1	13.2 *7*	E2	Mult.: DCO=1.11 *6* from (^{58}Ni,4pγ) in 1994Pa22.
710.1§ *3*	16273.9			
712.2 *2*	5753.1	1.1 *1*		
713.0 *2*	5540.1	45 *2*	E2	Mult.: DCO=1.05 *4* from (^{58}Ni,4pγ) in 1994Pa22.
724.2§ *3*	16998.1			
727.3 *2*	4239.4	0.4 *1*		
736.2 *2*	8904.4	2.4 *1*	(E1)	Mult.: DCO=0.69 *9* from (^{58}Ni,4pγ) in 1994Pa22.
750.5 *2*	5874.4	7.8 *4*	E2	Mult.: DCO=1.02 *6* from (^{58}Ni,4pγ) in 1994Pa22.
751.8 *2*	5212.1	7.2 *4*	E2	
754.4 *2*	6294.5	41 *2*	E2	Mult.: DCO=0.99 *3* from (^{58}Ni,4pγ) in 1994Pa22.
755.4 *2*	4864.9	15.4 *8*	E2	Mult.: DCO=1.03 *6* from (^{58}Ni,4pγ) in 1994Pa22.
758.7 *2*	5970.8	5.7 *3*	E2	Mult.: DCO=0.95 *14* from (^{58}Ni,4pγ) in 1994Pa22.
784.8 *2*	2261.7	4.5 *2*		
787.1 *2*	1476.1	98 *5*	E2	Mult.: DCO=1.01 *2* from (^{58}Ni,4pγ) in 1994Pa22.
788§ *1*	17786.2			
794.9 *2*	5124.0	10.6 *5*	E2	Mult.: DCO=1.02 *7* from (^{58}Ni,4pγ) in 1994Pa22.
801§ *1*	18586.9			
801.6 *2*	6772.4	3.6 *2*	E2	Mult.: DCO 1.06 *14* from (^{58}Ni,4pγ) in 1994Pa22.
806.3 *2*	9710.8	6.2 *3*	E2	Mult.: DCO=0.88 *8* from (^{58}Ni,4pγ) in 1994Pa22.
821.3 *2*	2297.6	91 *5*	E2	Mult.: DCO=0.98 *2* from (^{58}Ni,4pγ) in 1994Pa22.

Continued on next page (footnotes at end of table)

^{58}Ni(^{58}Ni,4pγ),(^{60}Ni,α2pγ) 1994Pa22,2007Pa07 (continued)

γ(^{112}Te) (continued)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
860§ *1*	860.0+y			
862.0 *2*	7634.4	3.0 *2*	E2	Mult.: DCO=0.98 *16* from (^{58}Ni,4pγ) in 1994Pa22.
862.7# *2*	10054.2?	1.0 *1*		Eγ: transition observed only in 1994Pa22 and not confirmed in 2007Pa07.
863.8 *2*	4225.9	47 *2*	E2	Mult.: 0.95 *4* from (^{58}Ni,4pγ) in 1994Pa22.
867§ *1*	867.0+z			
870.8§ *3*	9958.1			
907.4 *2*	10618.2	3.2 *2*		
916.4 *2*	8168.2	11.9 *6*	E2	Mult.: DCO=0.96 *5* from (^{58}Ni,4pγ) in 1994Pa22.
925§ *1*	7634.4			
928§ *1*	19515.6			
928.7§ *3*	8563.1			
933.5§ *3*	1793.5+y			
940§ *1*	1807.0+z			
941.5§ *3*	10434.3			
953.2# *2*	7857.9?	2.1 *1*		Eγ: observed only in 1994Pa22; not confirmed in 2007Pa07.
957.4 *2*	7251.9	31.4 *16*	E2	Mult.: DCO=0.92 *7* from (^{58}Ni,4pγ) in 1994Pa22.
959.8 *2*	8211.6	8.5 *4*	E2	Mult.: DCO=1.18 *21* from (^{58}Ni,4pγ) in 1994Pa22.
966§ *1*	966.0+x			
972.1§ *3*	10930.4			
979.7 *2*	9191.2	2.4 *1*	E2	Mult.: DCO=0.97 *12* from (^{58}Ni,4pγ) in 1994Pa22.
986§ *1*	5212.1			
992.5 *2*	8904.4	4.7 *2*	E2	Mult.: DCO=1.12 *8* from (^{58}Ni,4pγ) in 1994Pa22.
998.2§ *3*	9561.3			
1004.4§ *3*	11438.4			
1006.4 *2*	6439.1	7.8 *4*	E2	Mult.: DCO=1.11 *11* from (^{58}Ni,4pγ) in 1994Pa22.
1008.7§ *3*	2802.2+y			
1019§ *1*	1985.0+x			
1021§ *1*	2828.0+z			
1023.0 *2*	9191.2	4.4 *2*	E2	Mult.: DCO=0.97 *14* from (^{58}Ni,4pγ) in 1994Pa22.
1038.1§ *3*	11968.7			
1064.5 *2*	3362.3	78 *4*	E2	Mult.: DCO=0.96 *4* from (^{58}Ni,4pγ) in 1994Pa22.
1071.8§ *3*	10633.1			
1076.7 *2*	6951.1	2.4 *1*	E2	Mult.: DCO=0.97 *14* from (^{58}Ni,4pγ) in 1994Pa22.
1079.2§ *3*	12517.6			
1098.0 *2*	4460.3	4.4 *2*	E2	Mult.: DCO=0.99 *13* from (^{58}Ni,4pγ) in 1994Pa22.
1102§ *1*	3930.0+z			
1112.0§ *3*	13080.6			
1114§ *1*	3099.0+x			
1124.0§ *3*	3926.2+y			
1126§ *1*	7565.1			
1144.5 *2*	2619.7	1.9 *1*	E2	Mult.: DCO=1.05 *20* from (^{58}Ni,4pγ) in 1994Pa22.
1146.4§ *3*	11779.5			
1149.1§ *3*	13666.7			
1154.6# *2*	7029.0?	1.3 *7*	(E2)	Eγ: observed only in 1994Pa22; not confirmed in 2007Pa07. Mult.: DCO=1.07 *21* from (^{58}Ni,4pγ) in 1994Pa22.
1166§ *1*	8117.1			
1179§ *1*	13455.2			
1184.3§ *3*	14264.7			
1202§ *1*	10393.2			
1206.3§ *3*	5136.3+z			
1207§ *1*	14288.5			
1212.1§ *3*	5138.3+y			
1217.7§ *1*	12997.2			
1218.9§ *3*	4317.9+x			
1242.1§ *3*	14908.8			
1253§ *1*	12276.2			
1264§ *1*	11657.2			
1268§ *1*	14264.7			
1269§ *1*	11023.2			
1291.2§ *3*	14288.5			
	6427.5+z			
1298.9§ *3*	15563.8			
1310.7§ *3*	6449.0+y			

Continued on next page (footnotes at end of table)

^{58}Ni(^{58}Ni,4pγ),(^{60}Ni,α2pγ) 1994Pa22,2007Pa07 (continued)

γ(^{112}Te) (continued)

Eγ†	E(level)	Eγ†	E(level)	Eγ†	E(level)
1325§ 1	9492.9	1500.8§ 3	10688.5+z	1875.8§ 3	12913.5+y
1331.1§ 3	5649.0+x	1512.4§ 3	17786.2	1888§ 1	13878.2
1351§ 1	2802.2+y	1518.5§ 3	9361.6+y	1920.8§ 3	12430.5+x
1353§ 1	6449.0+y	1541§ 1	14996.2	1942.5§ 3	24248.1
1358.3§ 3	7785.8+z	1588.7§ 3	18586.9	1979§ 1	13969.2
1363.8§ 3	15652.3	1612.6§ 3	8732.1+x	1994.8§ 3	16133.2+z
1365.2§ 3	16273.9	1624.8§ 3	18777.9	2008§ 1	21523.6
1372§ 1	11990.2	1640.2§ 3	12328.7+z	2071.0§ 3	14501.5+x
1394.0§ 3	7843.0+y	1676.1§ 3	11037.7+y	2105§ 1	26353.2
1401.8§ 3	9187.7+z	1721.0§ 3	20498.9	2105.5§ 3	15019.0+y
1434.2§ 3	16998.1	1729.4§ 3	19515.6	2114§ 1	22556.0
1439§ 1	15408.2	1777.6§ 3	10509.7+x	2185§ 1	18318.2+z
1455§ 1	15333.2	1806.7§ 3	22305.6	2293§ 1	28646.2
1465§ 1	13455.2	1809.7§ 3	14138.4+z	2327§ 1	17346.0+y
1470.4§ 3	7119.4+x	1835§ 1	9087.2		
1500.8§ 3	17153.1	1855§ 1	20441.9		

† From 1994Pa22, unless otherwise noted.
‡ From DCO ratios in 1994Pa22 and the apparent band structures in 1994Pa22 and 2007Pa07.
§ From 2007Pa07.
# Placement of transition in the level scheme is uncertain.

^{112}Sn(α,4nγ) 1970Wa13

Facility: Davis 76–in AVF cyclotron, University of California; Beam: E(α)=70 MeV, pulsed; Target: 25 mg of isotopically enriched SnO_2 and glued on a 6.3 μm Mylar; Detectors: Si detector, planar Ge(Li), and co–axial Ge(Li); Measured: γ, γ(t), γ(θ), Eγ, Iγ; Deduced: $^{112-126}$Te level schemes.

γ(^{112}Te)

Eγ	Comments
ˣ720	Eγ: assumed to be the 2+ to 0+ transition in 1970Wa13, but it is in disagreement with the adopted levels.
ˣ1060	

ˣ γ ray not placed in level scheme.

Adopted Levels, Gammas

$Q(\beta^-)$=−7037 *13*; S(n)=−10181 *11*; S(p)=−765 *12*; $Q(\alpha)$=2957 *12* 2012Wa38.

^{112}I Levels

Cross Reference (XREF) Flags

A ^{58}Ni(^{58}Ni,3pnγ)

E(level)†	Jπ	XREF	$T_{1/2}$	Comments
0.0	(1+)	A	3.34 s *8*	%ε+%β$^+$≈100; %α≈0.0012; %εp=0.88 *10*; %εα=0.104 *12*. %α: from 1978Ro19. %εp,%εα: from %εp/%α=735 *80* and %εp/%εα=8.5 *2* in 1985Ti02. Jπ: from the predicted π1/2+[420]($d_{5/2}$) and ν3/2+[422]($g_{7/2}$) orbitals near the Fermi surface in 1997Mo25. Note, that Jπ=1/2+ and configuration=π1/2+[420]($d_{5/2}$) in ^{109}I. Assignment is tentative. $T_{1/2}$: weighted average of 3.42 s *11* from β+p(t) in 1985Ti02, 2.80 s *25* from β+α(t) in 1985Ti02, 3.3 s *2* from K_α(t) in 1977Ki11, 3.3 s *3* from 688.9γ(t) and 786.9γ(t) in 1977Ki11, and 3.7 s *3* from p(t) in 1977Ki11. configuration: probably π1/2+[420]($d_{5/2}$)⊗ν3/2+[422]($g_{7/2}$). The assignment is tentative.
55.0 *5*		A		
124.3 *3*		A		
188.7 *4*		A		
245.9 *5*		A		
291.5 *4*		A		
296.4? *5*		A		
350.7? *4*		A		
440.9 *4*		A		
576.6? *5*		A		
643.4 *4*		A		
853.0 *5*		A		
1186.0‡ *6*		A		
1737.7‡ *7*		A		
1841.0 *7*		A		
2380.3‡ *7*		A		
3082.9‡ *8*		A		
3137.2 *8*		A		
3816.6‡ *9*		A		
4665.1 *9*		A		
4812.5‡ *9*		A		
5727.3 *9*		A		
5799.6‡ *9*		A		
6625.9‡ *10*		A		
7371.8‡ *10*		A		
7990.6‡ *11*		A		
8712.2‡ *11*		A		
x§		A	>25 ps	$T_{1/2}$: from 1998StZY.
133.0+x§ *8*		A		
551.9+x§ *9*		A		
656.1+x§ *8*		A		
1254.6+x§ *12*		A		
1310.1+x§ *10*		A		
1988.6+x§ *14*		A		
2067.4+x§ *12*		A		
2936.5+x§ *14*		A		
2984.6+x§ *17*		A		
3899.6+x§ *20*		A		
4899.6+x§ *22*		A		

† From a least–squares fit to Eγ.
‡ (A): Member of a ΔJ=2 band. Probable configuration=π$g_{7/2}$⊗ν$h_{11/2}$.
§ (B): Member of a ΔJ=2/ΔJ=1 band. Probable configuration=π$h_{11/2}$⊗ν$h_{11/2}$.

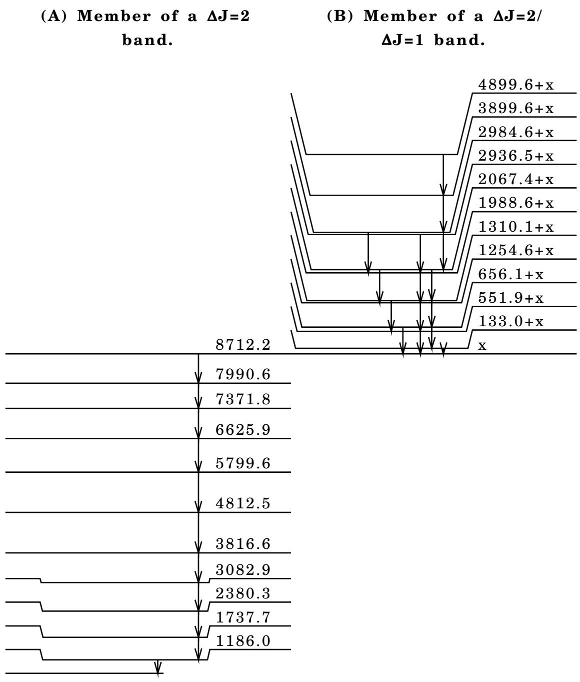
Adopted Levels, Gammas (continued)

$\gamma(^{112}I)$

E(level)	Eγ†	Iγ†	Mult.‡	Comments
124.3	124.3 *3*	100		
188.7	64.6 *3*	100		
245.9	190.6 *3*	100		
291.5	167.0 *3*			
	236.8 *3*			
296.4?	241.4 *3*	100		
350.7?	226.4 *3*	100		
440.9	194.9 *3*			
	252.4 *3*			
576.6?	280.2 *3*	100		
643.4	202.6 *3*	100 *10*	(D)	Mult.: R_{DCO}=0.77 *11* (1995Pa26).
	292.7 *3*	41 *3*		
	352.0 *3*	55 *7*		
	397.3 *3*	45 *3*		
853.0	209.6 *3*	100	(D)	Mult.: R_{DCO}=0.85 *10* (1995Pa26).
	276.4 *3*	16.3 *13*		
1186.0	333.0 *3*	100	(D)	Mult.: R_{DCO}=0.64 *7* (1995Pa26).
1737.7	551.7 *3*	100	E2	Mult.: R_{DCO}=1.03 *7* (1995Pa26).
1841.0	655.0 *3*	100		
2380.3	642.6 *3*	100	E2	Mult.: R_{DCO}=1.04 *8* (1995Pa26).
3082.9	702.6 *3*	100	E2	Mult.: R_{DCO}=1.04 *8* (1995Pa26).
3137.2	756.9 *3*	100		
3816.6	733.7 *3*	100	E2	Mult.: R_{DCO}=1.13 *14* (1995Pa26).
4665.1	848.0 *3*	100		
4812.5	996.4 *3*	100	E2	Mult.: R_{DCO}=1.20 *21* (1995Pa26).
5727.3	915.2 *3*	100 *7*		
	1061.7 *3*	71 *7*		
5799.6	987.0 *3*	100	E2	Mult.: R_{DCO}=0.99 *15* (1995Pa26).
6625.9	826.3 *3*	100		
7371.8	745.9 *3*	100		
7990.6	618.8 *3*	100		
8712.2	721.6 *3*	100		
133.0+x	133§ *1*	100	(M1+E2)§	
551.9+x	552§ *1*	100	(E2)§	
656.1+x	523§ *1*		(E2)§	
	656§ *1*		(M1+E2)§	
1254.6+x	703§ *1*	100	(E2)§	
1310.1+x	654§ *1*		(E2)§	
	758§ *1*		(M1+E2)§	
1988.6+x	734§ *1*	100	(E2)§	
2067.4+x	757§ *1*		(E2)§	
	813§ *1*		(M1+E2)§	
2936.5+x	869§ *1*		(E2)§	
	948§ *1*		(M1+E2)§	
2984.6+x	996§ *1*	100	(E2)§	
3899.6+x	915§ *1*	100	(E2)§	
4899.6+x	1000§ *1*	100	(E2)§	

† From 1995Pa26, unless otherwise noted.
‡ From angular correlations and DCO measurements in 1995Pa26, unless otherwise noted. For the chosen geometry, R_{DCO} approx. equals to 1 for stretched quadrupole transitions and approx. 0.65 for stretched dipole transitions (1995Pa26).
§ From 1998StZY. Uncertainty in Eγ is estimated by the evaluators.

Adopted Levels, Gammas (continued)



$^{112}_{53}I_{59}$

$^{58}Ni(^{58}Ni,3pn\gamma)$ 1995Pa26,1998StZY

1995Pa26: Facility: Daresbury Nuclear Structure Facility; Beam: E(^{58}Ni)=240 MeV; Target: 440 μg/cm^2 ^{58}Ni; Detectors: EUROGAM array consisting of 45 HPGe detectors, Daresbury recoil separator; Measured: γ–γ–γ, γ(θ), Eγ, Iγ; Deduced: ^{112}I level scheme, R_{DCO}.
1998StZY: Facility: LBL; Beam: E(^{58}Ni)=250 MeV; Target: ^{58}Ni; Detectors: GAMMASPHERE, comprising 83 HPGe detectors, MICROBALL, and an array of 15 neutron scintillator detectors; Measured: γ–γ–γ, γ–γ–p(n), γ(θ), Eγ, Iγ; Deduced: level scheme, band structure, R_{DCO}, $T_{1/2}$.
Other: 1987RuZZ.

^{112}I Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	(1+)	3.34 s *8*	Jπ,$T_{1/2}$: From Adopted levels.
55.0 *5*			
124.3 *3*			
188.7 *4*			
245.9 *5*			
291.5 *4*			
296.4? *5*			
350.7? *4*			
440.9 *4*			
576.6? *5*			
643.4 *4*			
853.0 *5*			
1186.0§ *6*	(7−)		
1737.7§ *7*	(9−)		
1841.0 *7*			
2380.3§ *7*	(11−)		

Continued on next page (footnotes at end of table)

$^{58}Ni(^{58}Ni,3pn\gamma)$ 1995Pa26,1998StZY (continued)

^{112}I Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	Comments
3082.9§ *8*	(13−)		
3137.2 *8*			
3816.6§ *9*	(15−)		
4665.1 *9*			
4812.5§ *9*	(17−)		
5727.3 *9*			
5799.5§ *9*	(19−)		
6625.8§ *10*	(21−)		
7371.8§ *10*	(23−)		
7990.6§ *11*	(25−)		
8712.2§ *11*	(27−)		
x#	(11+)	>25 ps	$T_{1/2}$: from 1998StZY.
133.0+x# *8*	(10+)		
551.9+x# *9*	(13+)		
656.1+x# *8*	(12+)		
1254.6+x# *12*	(15+)		
1310.1+x# *10*	(14+)		
1988.6+x# *14*	(17+)		
2067.4+x# *12*	(16+)		
2936.5+x# *14*	(18+)		
2984.6+x# *17*	(19+)		
3899.6+x# *20*	(21+)		
4899.6+x# *22*	(23+)		

† From a least-squares fit to Eγ.
‡ From the proposed Jπ=(7−) to the 1186-keV level, the apparent band band structure and the measured γ-ray transition multipolarities in 1995Pa26. The assignment for the π=+ band is from 1998StZY.
§ (A): Member of a ΔJ=2 band; Probable configuration=$\pi g_{7/2}\otimes\nu h_{11/2}$.
# (B): Member of a ΔJ=2/ΔJ=1 band; Probable configuration=$\pi h_{11/2}\otimes\nu h_{11/2}$.

$\gamma(^{112}I)$

Eγ†	E(level)	Iγ†	Mult.‡	Comments
64.6 *3*	188.7	<10		
124.3 *3*	124.3	<10		
133§ *1*	133.0+x		(M1+E2)§	
167.0 *3*	291.5	<10		
190.6 *3*	245.9	12 *1*		
194.9 *3*	440.9	<10		
202.6 *3*	643.4	29 *3*	(D)	Mult.: R_{DCO}=0.77 *11* (1995Pa26).
209.6 *3*	853.0	80 *8*	(D)	Mult.: R_{DCO}=0.85 *10* (1995Pa26).
226.4 *3*	350.7?	<10		
236.8 *3*	291.5	<10		
241.4 *3*	296.4?	14 *1*		
252.4 *3*	440.9	<10		
276.4 *3*	853.0	13 *1*		
280.2 *3*	576.6?	13 *1*		
292.7 *3*	643.4	12 *1*		
333.0 *3*	1186.0	100	D	Mult.: R_{DCO}=0.64 *7* (1995Pa26).
352.0 *3*	643.4	16 *2*		
397.3 *3*	643.4	13 *1*		
523§ *1*	656.1+x		(E2)§	
551.7 *3*	1737.7	97 *10*	(E2)	Mult.: R_{DCO}=1.03 *7* (1995Pa26).
552§ *1*	551.9+x		(E2)§	
618.8 *3*	7990.6	17 *2*		
642.6 *3*	2380.3	90 *10*	(E2)	Mult.: R_{DCO}=1.04 *8* (1995Pa26).
654§ *1*	1310.1+x		(E2)§	
655.0 *3*	1841.0	11 *1*		
656§ *1*	656.1+x		(M1+E2)§	
702.6 *3*	3082.9	81 *8*	(E2)	Mult.: R_{DCO}=1.04 *8* (1995Pa26).
703§ *1*	1254.6+x		(E2)§	

Continued on next page (footnotes at end of table)

$^{58}Ni(^{58}Ni,3pn\gamma)$ 1995Pa26,1998StZY (continued)

$\gamma(^{112}I)$ (continued)

Eγ†	E(level)	Iγ†	Mult.‡	Comments
721.6 *3*	8712.2	10 *1*		
733.7 *3*	3816.6	65 *7*	(E2)	Mult.: R_{DCO}=1.13 *14* (1995Pa26).
734§ *1*	1988.6+x		(E2)§	
745.9 *3*	7371.8	26 *3*		
756.9 *3*	3137.2	17 *2*		
757§ *1*	2067.4+x		(E2)§	
758§ *1*	1310.1+x		(M1+E2)§	
813§ *1*	2067.4+x		(M1+E2)§	
826.3 *3*	6625.8	31 *3*		
848.0 *3*	4665.1	15 *2*		
869§ *1*	2936.5+x		(E2)§	
915§ *1*	3899.6+x		(E2)§	
915.2 *3*	5727.3	14 *1*		
948§ *1*	2936.5+x		(M1+E2)§	
987.0 *3*	5799.5	39 *4*	(E2)	Mult.: R_{DCO}=0.99 *15* (1995Pa26).
996§ *1*	2984.6+x		(E2)§	
996.4 *3*	4812.5	53 *5*	(E2)	Mult.: R_{DCO}=1.20 *21* (1995Pa26).
1000§ *1*	4899.6+x		(E2)§	
1061.7 *3*	5727.3	10 *1*		

† From 1995Pa26, unless otherwise noted.
‡ From angular correlations and DCO measurements in 1995Pa26, unless otherwise noted. For the chosen geometry, R_{DCO} approx. equals to 1 for stretched quadrupole transitions and approx. 0.65 for stretched dipole transitions (1995Pa26).
§ From 1998StZY. Uncertainty in Eγ is estimated by the evaluators.

Adopted Levels, Gammas

Q(β^-)=−13739 *87*; S(n)=−13705 *87*; S(p)=−2362 *10*; Q(α)=3330 *6* 2012Wa38.

^{112}Xe Levels

Cross Reference (XREF) Flags

A ^{58}Ni(^{58}Ni,2p2nγ)
B ^{113}Cs p Decay (18.3 μs)

E(level)†	Jπ‡	XREF	$T_{1/2}$	Comments
0.0§	0+	AB	2.7 s *8*	%ε+%β⁺=98.8 *8*; %α=1.2 *8*. %α: symmetrized from %α=0.8 +1.1−0.5 (1994Pa12) using the procedure adopted in 2012Wa38. Other: ≈0.84 in 1978Ro19, but this value is tentative. $T_{1/2}$: from 3185α(t) in 1979Sc22. Other: 2.8 s *2* from (ε+β⁺)−delayed α(t) in 1978Ro19, but this value is more uncertain given the complexity of the spectra, as discussed in 1979Sc22.
466.00§ *20*	2+	A		Jπ: first−excited member of the g.s. band of an even−even nuclide.
1122.1§ *3*	4+	A		Jπ: 656.1γ E2 to 2+; band member.
1649.5?# *5*	(3−)	A		Jπ: 1183.0γ to 2+; band member; systematics in neighbouring nuclei.
1906.9§ *4*	6+	A		Jπ: 784.8γ E2 to 4+; band member.
2021.9# *4*	(5−)	A		Jπ: 900.0γ D to 4+, 372.0γ to (3−); band member.
2594.1# *4*	(7−)	A		Jπ: 572.2γ E2 to (5−), 687.1γ to 6+; band member.
2777.5§ *4*	8+	A		Jπ: 870.6γ E2 to 6+; band member.
3189.1# *7*	(9−)	A		Jπ: 595.0γ to (7−); band member.
3549.6§ *5*	10+	A		Jπ: 772.1γ to 8+; band member.
3852.3# *8*	(11−)	A		Jπ: 663.2γ to (9−); band member.
4447.3?# *10*	(13−)	A		Jπ: 595γ to (11−); band member.
4469.1§ *5*	12+	A		Jπ: 919.5γ to 10+; band member.

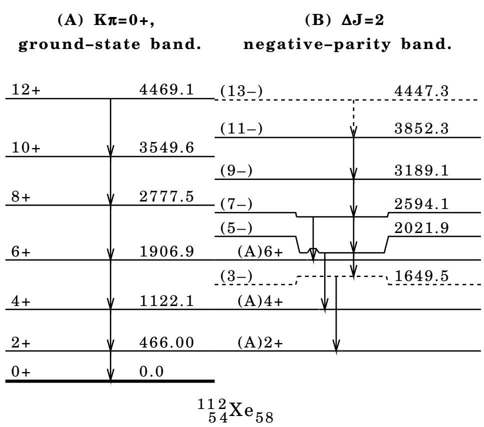
† From a least−squares fit to Eγ.
‡ From the deduced γ−ray multipolarities, the observed apparent band structures and systematics in neighbouring nuclei in ^{58}Ni(^{58}Ni,2p2nγ) (2001Sm13).
§ (A): Kπ=0+, ground−state band.
\# (B): ΔJ=2 negative−parity band.

γ(^{112}Xe)

E(level)	Eγ†	Iγ	Mult.‡	Comments
466.00	466.0 *2*	100		
1122.1	656.1 *2*	100	E2	Mult.: R_{DCO}=1.33 *15* (2001Sm13).
1649.5?	1183.0 *6*	100		
1906.9	784.8 *2*	100	E2	Mult.: R_{DCO}=1.3 *2* (2001Sm13).
2021.9	372.0 *6*			
	900.0 *2*		D	Mult.: R_{DCO}=0.88 *13* (2001Sm13).
2594.1	572.2 *2*		E2	Mult.: R_{DCO}=1.3 *2* (2001Sm13).
	687.1 *2*			
2777.5	870.6 *2*	100	E2	Mult.: R_{DCO}=1.24 *15* (2001Sm13).
3189.1	595.0 *6*	100		
3549.6	772.1 *2*	100		
3852.3	663.2 *2*	100		
4447.3?	595§ *1*	100		
4469.1	919.5 *2*	100		

† From ^{58}Ni(^{58}Ni,2p2nγ) (2001Sm13).
‡ From the measured asymmetry ratio R_{DCO}=Iγ(30°or150°)/Iγ(90°) in ^{58}Ni(^{58}Ni,2p2nγ) (2001Sm13). A value of R_{DCO}≈1.0 would be expected for a stretched−dipole transition and ≈1.4 for a stretched−quadruple transition. Those were confirmed for known ΔJ=1 333γ (R_{DCO}=0.97 *7*) and ΔJ=2 642γ (R_{DCO}=1.33 *10*) in ^{112}I, observed in ^{58}Ni(^{58}Ni,2p2nγ) (2001Sm13).
§ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas (continued)



^{113}Cs p Decay (18.3 μs) 1998GrZZ,1994Pa12

Parent ^{113}Cs: E=0; Jπ=(3/2+); $T_{1/2}$=18.3 μs *3*; Q(g.s.)=973.5 *26*; %p decay=100.

^{113}Cs–$T_{1/2}$: from 1998GrZZ, based on observed 5500 proton events. Note that 16.7 μs 7 from (1998Ba13), based on observed 600 proton events by the same group. Others: 0.9 μs +1.3–0.4 (1984Fa04), 33 μs 7 (1987Gi07), 22 μs 8 (1993HeZV), and 28 μs 7 (1995Ho26).

^{113}Cs–J: from the proposed π3/2[411] configuration, based on a comparison between the measured proton–decay $T_{1/2}$ and theoretical values.

^{113}Cs–Q(g.s.): from 2012Wa38.

1998GrZZ: ^{113}Cs produced by ^{58}Ni(^{58}Kr,p2n) at E=230 MeV. Measured E(p), implant–decay time and spatial correlations, $T_{1/2}$.

1994Pa12: Facility: Daresbury, UK; Beam: E(^{58}Ni)=529 MeV; Target: 520 μg/cm^2 isotopically enriched in ^{58}Ni; Detectors: Daresbury Recoil Mass Sseparator, one DSSSD; Measured: E(p), E(α), implant–decay time and spatial correlations, $T_{1/2}$.

Others: 1984Fa04, 1987Gi07, 1993HeZV, 1994Pa12, 1995Ho26, 1998Ba13, 2012Wa10.

^{112}Xe Levels

E(level)	Jπ
0.0	0+

Protons

E(p)	E(^{112}Xe)	Comments
960 *3*	0.0	E(p): From 1995Ho26. Others: 959 keV 6 (1994Pa12), 980 keV 80 (1987Gi07, 1984Fa04), 974 keV 4 (1993HeZV), and 900 keV (2012Wa10).

$^{58}Ni(^{58}Ni,2p2n\gamma)$ 2001Sm13

Facility: 88–inch cyclotron at LBNL; Beam: E(^{58}Ni)=250 MeV; Target: two, stacked, 500–μg/cm^2 thick, self–supporting ^{58}Ni foils; Detectors: GAMMASPHERE consisting of 83 HPGe detectors, MICROBALL array comprising 95 CsI(Tl) detectors for charged particles and Manchester–Pennsylvania array of 15 NE213 neutron detectors; Measured: γ–γ–γ, γ(θ), pγ, nγ, Eγ, Iγ, n–tof; Deduced: ^{112}Ce level scheme; Other: 1998SmZY from the same collaboration.

^{112}Xe Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0§	0+	2021.9# *4*	(5−)	3852.3# *8*	(11−)
466.00§ *20*	2+	2594.1# *4*	(7−)	4447.3?# *10*	(13−)
1122.1§ *3*	4+	2777.5§ *4*	8+	4469.1§ *5*	12+
1649.5?# *5*	(3−)	3189.1# *7*	(9−)		
1906.9§ *4*	6+	3549.6§ *5*	10+		

† From a least–squares fit to Eγ.
‡ From the deduced γ–ray multipolarities, the observed apparent band structures and systematics in neighbouring nuclei in 2001Sm13.
§ (A): Kπ=0+, ground–state band.
# (B): ΔJ=2 negative–parity band.

γ(^{112}Xe)

Eγ†	E(level)	Mult.‡	Comments
372.0 *6*	2021.9		
466.0 *2*	466.00		
572.2 *2*	2594.1	E2	Mult.: R_{DCO}=1.3 *2* (2001Sm13).
595.0 *6*	3189.1		
595§ *1*	4447.3?		
656.1 *2*	1122.1	E2	Mult.: R_{DCO}=1.33 *15* (2001Sm13).
663.2 *2*	3852.3		
687.1 *2*	2594.1		
x722 *1*			Eγ: observed in coincidence with 466.0γ, 656.1γ and 784.8γ, but not placed in the level scheme by the authors (2001Sm13).
772.1 *2*	3549.6		
784.8 *2*	1906.9	E2	Mult.: R_{DCO}=1.3 *2* (2001Sm13).
x818 *1*			Eγ: observed in coincidence with the 595.0γ and 900.0γ, but not placed in the level scheme by the authors (2001Sm13).
870.6 *2*	2777.5	E2	Mult.: R_{DCO}=1.24 *15* (2001Sm13).
900.0 *2*	2021.9	(E1)	Mult.: R_{DCO}=0.88 *13* (2001Sm13).
919.5 *2*	4469.1		
x964 *1*			Eγ: observed in coincidence with 466.0γ and 572.2γ, but not placed in the level scheme by the authors (2001Sm13).
1183.0 *6*	1649.5?		

† From 2001Sm13.
‡ From the measured asymmetry ratio R_{DCO}=Iγ(30°or150°)/Iγ(90°) in 2001Sm13. A value of R_{DCO}≈1.0 would be expected for a stretched–dipole transition and ≈1.4 for a stretched–quadruple transition. Those were confirmed for known ΔJ=1 333γ (R_{DCO}=0.97 *7*) and ΔJ=2 642γ (R_{DCO}=1.33 *10*) in ^{112}I, observed in the same experiment (2001Sm13).
§ Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

Adopted Levels, Gammas

S(p)=816.3 *41*; Q(α)=3934 *123* 2012Wa38.

^{112}Cs Levels

Cross Reference (XREF) Flags

A ^{58}Ni(^{58}Ni,p3nγ)

E(level)†	Jπ	XREF	$T_{1/2}$	Comments
0.0	(1+)	A	0.49 ms *3*	%p=100; %α<0.26. Jπ: Assignment is tentative. The observed $T_{1/2}$ can only be explained with the involvement of the π3/2[411] ($d_{5/2+}$) and ν3/2[422] ($g_{7/2+}$) orbitals (2001Fe05). In accordance with the Gallagher–Moskowski rule, the $K^{\pi}=0^{+}$ state should be lower in energy compared to the $K^{\pi}=3^{+}$ one within the π3/2[411]⊗ν3/2[422] configuration. Given the observed ^{111}Xe α–decays to the J^{π}=5/2+ and 7/2+ states in ^{107}Te, one would expect $J^{\pi}=5/2^{+}$ for the ^{111}Xe ground state, and hence, $J^{\pi}=1^{+}$ for the ^{112}Cs parent–decaying state. The assignment is consistent with the proposed configuration, given the expected Newby shift for the $K^{\pi}=0^{+}$ state, that may favor $J^{\pi}=1^{+}$ over 0^{+} for the bandhead. $T_{1/2}$: weighted average of 0.47 ms *5* (2012Wa10), 0.506 ms *55* (2012Ca03) and 0.50 ms *10* (1994Pa12), deduced from HI(implant)–p(decay)(Δt) spectra. E(p)=807 keV *7* (1994Pa12) and 810 keV *5* (2012Wa10). %α: No Eα was observed in 2012Ca03. The value is an upper limit. configuration: $K^{\pi}=0^{+}$, π3/2[411] ($d_{5/2+}$) ⊗ ν3/2[422] ($g_{7/2+}$).
0+x		A		Jπ: a tentative Jπ=(10+) is proposed in 2012Wa10, but this assignment is unlikely, given the proposed configuration for the band associated with the 272.1+x keV level. It seems possible that this level coincides with the ^{112}Cs ground state. See the comments for the ground state and the 272.1+x keV level for additional details.
272.1+x‡ *12*		A		Jπ: a tentative Jπ=(11+) and configuration=$\pi h_{11/2}\otimes\nu h_{11/2}$ are proposed in 2012Wa10. Since low–Ω, $h_{11/2}$ orbitals (π1/2[550] and ν1/2[550], and ν3/2[541]) are expected at relatively low excitation energies, it is unlikely that the corresponding π1/2[550]⊗ν1/2[550] and π1/2[550]⊗ν3/2[541] configurations can lead to a bandhead spin of 11+.
707.7+x‡ *14*		A		
1351.4+x‡ *17*		A		
2143.4+x‡ *20*		A		

† From a least–squares fit to Eγ.

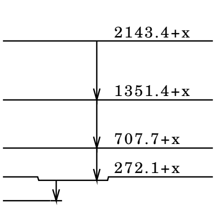
‡ (A): rotational band with a tentative configuration=$\pi h_{11/2}\otimes\nu h_{11/2}$ assignment.

γ(^{112}Cs)

E(level)	Eγ†	Iγ†
272.1+x	272.1 *12*	100
707.7+x	435.6 *6*	100
1351.4+x	643.7 *10*	100
2143.4+x	792 *1*	100

† From 2012Wa10.

(A) rotational band



$^{112}_{55}Cs_{57}$

^{58}Ni(^{58}Ni,p3nγ) 2012Wa10,2012Ca03,1994Pa12

2012Wa10: Facility: ATLAS at ANL; Beam: E(^{58}Ni)=260 MeV; Target: 565 μg/cm^2 thick, self–supporting ^{58}Ni; Detectors: GAMMASPHERE comprising 101 HPGe, FMA, parallel–grid avalanche counter, DSSD; Measured: E(p), E(α), implant–decay time and spatial correlations, Eγ, Iγ, recoil–γ–γ coin, proton–γ–γ coin, $T_{1/2}$.

2012Ca03: Facility: HRIBF facility at ORNL; Beam: E(^{58}Ni)=250 MeV; Target: rotating 300 μg/cm^2 thick ^{58}Ni; Detectors: Recoil Mass Spectrometer, microchannel plate detector, DSSD, Si–box detector consisting of four Si detectors, one 5–mm thick Si(Li) detector; Measured: E(p), E(α), implant–decay time and spatial correlations, $T_{1/2}$.

1994Pa12: Facility: Daresbury, UK; Beam: E(^{58}Ni)=529 MeV; Target: 520 μg/cm^2 isotopically enriched in ^{58}Ni; Detectors: Daresbury Recoil Mass Sseparator, one DSSSD; Measured: E(p), E(α), implant–decay time and spatial correlations, $T_{1/2}$.

^{112}Cs Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0		0.49 ms *3*	%p=100; %α<0.26. $T_{1/2}$: weighted average of 0.47 ms *5* (2012Wa10), 0.506 ms *55* (2012Ca03) and 0.50 ms *10* (1994Pa12), deduced from HI(implant)–p(decay)(Δt) spectra. E(p)=807 keV *7* (1994Pa12) and 810 keV *5* (2012Wa10). %α: No Eα was observed in 2012Ca03. The value is an upper limit.
0+x	(10+)		
272.1+x§ *12*	(11+)		
707.7+x§ *14*	(13+)		
1351.4+x§ *17*	(15+)		
2143.4+x§ *20*	(17+)		

† From a least–squares fit to Eγ.
‡ Tentative assignments from 2012Wa10.
§ (A): rotational band with a tentative configuration=$\pi h_{11/2} \otimes \nu h_{11/2}$ assignment.

γ(^{112}Cs)

Eγ†	E(level)	Iγ†	Comments
x154.6 *6*		5 *2*	
272.1 *12*	272.1+x	9 *3*	
435.6 *6*	707.7+x	7 *3*	
643.7 *10*	1351.4+x	5 *2*	
792 *1*	2143.4+x	4 *2*	
x818 *1*		3 *2*	Eγ: assignment to ^{112}Cs is tentative.

† From 2012Wa10.
x γ ray not placed in level scheme.

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