^{116}Cd(^{23}Na,p4nγ):XUNDL-3 2011Pa27

Compiled (unevaluated) dataset from 2011Pa27: Phys Rev C 84, 047302 (2011).
Compiled by B. Singh (McMaster), Oct 17, 2011.
E=115 MeV; Measured Eγ, Iγ, $\gamma\gamma$ coin using the Gammasphere array with 99 Compton-suppressed HPGe detectors at LBNL cyclotron facility. Comparison with cranking shell-model calculations.

^{134}Ce Levels

E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$
0.0‡	0$^+$	3718.9‡ *7*	10$^+$	7581.2‡ *10*	20$^+$	12761.0‡ *12*	30$^+$
409.0‡ *3*	2$^+$	4183.0‡ *8*	12$^+$	8583.1‡ *10*	22$^+$	14005.8‡ *12*	32$^+$
1049.2‡ *5*	4$^+$	4907.9‡ *8*	14$^+$	9535.9‡ *11*	24$^+$	15328.9‡ *13*	34$^+$
1862.9‡ *6*	6$^+$	5725.0‡ *9*	16$^+$	10525.9‡ *11*	26$^+$	16666.9‡ *16*	(36$^+$)
2810.9‡ *6*	8$^+$	6596.7‡ *9*	18$^+$	11599.7‡ *12*	28$^+$	18016.9‡ *19*	(38$^+$)

† From Eγ's.
‡ Band(A): g.s. band.

γ(^{134}Ce)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
409.0 *3*	409.0	2$^+$	0.0	0$^+$	984.5 *3*	7581.2	20$^+$	6596.7	18$^+$
464.1 *3*	4183.0	12$^+$	3718.9	10$^+$	990.0 *3*	10525.9	26$^+$	9535.9	24$^+$
640.2 *3*	1049.2	4$^+$	409.0	2$^+$	1001.9 *3*	8583.1	22$^+$	7581.2	20$^+$
724.9 *3*	4907.9	14$^+$	4183.0	12$^+$	1073.8 *3*	11599.7	28$^+$	10525.9	26$^+$
813.7 *3*	1862.9	6$^+$	1049.2	4$^+$	1161.3 *3*	12761.0	30$^+$	11599.7	28$^+$
817.1 *3*	5725.0	16$^+$	4907.9	14$^+$	1244.7 *3*	14005.8	32$^+$	12761.0	30$^+$
871.7 *3*	6596.7	18$^+$	5725.0	16$^+$	1323.1 *3*	15328.9	34$^+$	14005.8	32$^+$
908.0 *3*	3718.9	10$^+$	2810.9	8$^+$	1338 *1*	16666.9	(36$^+$)	15328.9	34$^+$
948.0 *3*	2810.9	8$^+$	1862.9	6$^+$	1350† *1*	18016.9	(38$^+$)	16666.9	(36$^+$)
952.8 *3*	9535.9	24$^+$	8583.1	22$^+$					

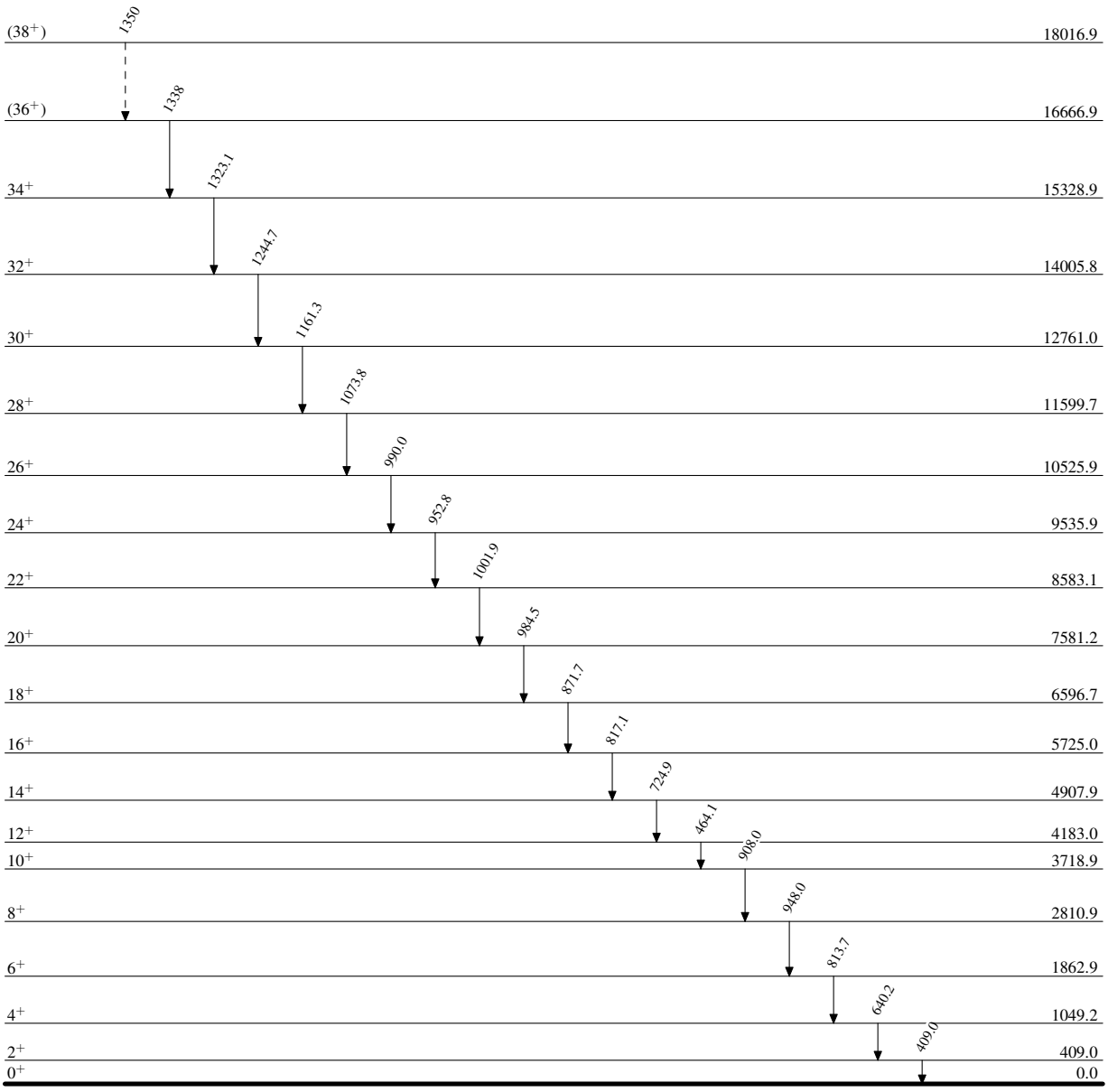
† Placement of transition in the level scheme is uncertain.

Legend

^{116}Cd(^{23}Na,p4nγ):XUNDL-3 2011Pa27

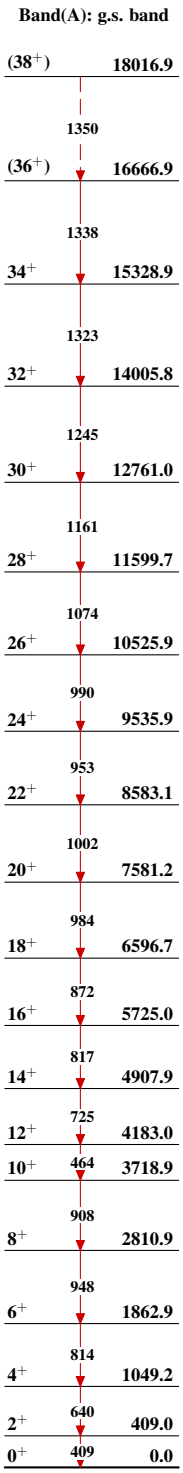
Level Scheme

γ Decay (Uncertain)



$^{134}_{58}Ce_{76}$

^{116}Cd(^{23}Na,p4nγ):XUNDL-3 2011Pa27



$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

Compiled (unevaluated) dataset from 2016Pe09: Phys Rev C93, 064305 (2016).
Compiled by B. Singh (McMaster), June 28, 2016.
2016Pe09: E=112 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, $\gamma\gamma(\theta)$ using Gammasphere array at ATLAS facility in ANL. Target=1.48 mg/cm^2 thick enriched ^{116}Cd foil sandwiched between 50 μg/cm^2 front layer of aluminum and 150 μg/cm^2 thick gold backing. Second experiment used a target of 1.48 mg/cm^2 thickness evaporated on a 55 μg/cm^2 Au foil. Deduced high-spin levels, J^π, SD and triaxial bands, triaxiality. Comparison with cranked Nilsson-Strutinsky (CNS) calculations.

^{134}Ce Levels

From cranked Nilsson Strutinsky (CNS) calculations, proposed band configurations are given by 2016Pe09 in terms of valence orbitals for protons and neutrons, treating doubly-magic nucleus ^{132}Sn as core. The valence orbitals are $d_{5/2}$ or $g_{7/2}$, $g_{9/2}$ and $h_{11/2}$ for protons and $s_{1/2}$ or $d_{3/2}$, $h_{11/2}$, $h_{9/2}$ or $f_{7/2}$, and $i_{13/2}$ for neutrons, and written in abbreviated form as $[(p_1)p_2p_3;n_1n_2(n_3n_4)]$, where p_1=number of holes in $\pi g_{9/2}$ orbital, p_2=number of particles in $\pi d_{5/2}$ or $\pi g_{7/2}$orbital, p_3=number of particles in $\pi h_{11/2}$ orbital, n_1=number of holes in $\nu s_{1/2}$ or $\nu d_{3/2}$ orbital, n_2=number of holes in $\nu h_{11/2}$ orbital, n_3=number of particles in $\nu h_{9/2}$ or $\nu f_{7/2}$ orbital, and n_4=number of particles in $\nu i_{13/2}$ orbital. Further + sign with an orbital indicates α=+1/2 signature, and − sign for α=−1/2.

E(level)†	J$^\pi$#	T$_{1/2}$	Comments
0.0&	0$^+$		
409.13& *16*	2$^+$		
964.88c *16*	2$^+$		
1048.88& *19*	4$^+$		
1382.36a *18*	3$^+$		
1643.46c *19*	4$^+$		
1811.93 *19*	4$^+$		
1863.40& *21*	6$^+$		
2026.99 *19*	5$^+$		
2049.07a *23*	5$^+$		
2174.09f *20*	5$^-$		
2246.11 *21*	5$^-$		
2303.31c *22*	6$^+$		
2358.68h *21*	6$^-$		
2473.51g *21*	6$^-$		
2565.73h *21*	7$^-$		
2706.23f *21*	7$^-$		
2770.60 *21*	7$^-$		
2811.23& *25*	8$^+$		
2896.12g *21*	8$^-$		
2924.5a *3*	7$^+$		
2969.4 *3*	(8)		
3017.14c *25*	8$^+$		
3158.06f *22*	9$^-$		
3208.1@ *3*	10$^+$	308 ns *5*	%IT=100 T$_{1/2}$: from ^{134}Ce Adopted Levels in the ENSDF database (July 2004 update).
3233.5h *3*	9$^-$		
3405.53g *24*	10$^-$		
3718.96d *25*	10$^+$		
3752.5f *3*	11$^-$		
3817.7& *3*	10$^+$		
3856.3a *4*	9$^+$		
4005.8@ *3*	12$^+$		

Continued on next page (footnotes at end of table)

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

^{134}Ce Levels (continued)

E(level)[†]	J$^{\pi}$[#]
4105.4[h] 3	11$^-$
4144.0[g] 3	12$^-$
4183.0[d] 3	12$^+$
4238.8[‡] 4	
4357.8[‡] 4	
4383.8[e] 3	11$^+$
4394.3 3	10$^+$
4398.7 3	
4541.7[f] 3	13$^-$
4559.7[j] 3	11$^+$
4756.1[i] 3	12$^+$
4761.5[@] 3	14$^+$
4907.3[d] 4	14$^+$
4923.9[e] 3	13$^+$
4954.6[h] 4	13$^-$
4995.0[j] 3	13$^+$
5021.2[g] 4	14$^-$
5270.3[i] 3	14$^+$
5488.2[f] 4	15$^-$
5492.0 4	15$^+$
5497.4 3	15$^-$
5593.6[k] 4	14$^-$
5602.3[j] 4	15$^+$
5716.9[e] 4	(15$^+$)
5724.5[d] 4	16$^+$
5749.2[l] 3	15$^-$
5864.0[@] 4	16$^+$
5969.0[k] 4	16$^-$
6001.4[i] 4	16$^+$
6027.7[g] 7	16$^-$
6078.2 4	16$^+$
6095.5 4	16$^+$
6309.3[l] 4	17$^-$
6421.5[j] 4	17$^+$
6523.0 4	
6538.2 5	17$^+$
6567.7[f] 7	(17$^-$)
6596.6[d] 5	18$^+$
6745.6[n] 4	17$^+$
6765.0 4	17$^+$
6766.9[k] 4	18$^-$
6775.6[@] 5	18$^+$
6873.0 7	
6897.3[i] 4	18$^+$
7049.6[m] 4	18$^+$
7072.1[g] 8	18$^-$
7286.8[l] 4	19$^-$
7315.3 5	19$^-$
7338.5 5	19$^-$
7390.7[n] 4	19$^+$

Continued on next page (footnotes at end of table)

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

^{134}Ce Levels (continued)

E(level)[†]	J$^{\pi}$[#]	Comments
7395.3[j] 4	19$^+$	
7550.3[@] 5	(20$^+$)	
7580.7[d] 5	20$^+$	
7700.7 7	(20$^+$)	J$^{\pi}$: from level-scheme Fig. 1 in 2016Pe09.
7770.5[m] 4	20$^+$	
7776.2[k] 5	20$^-$	
7870.7 5		
7910.2 5		
7915.2[i] 4	20$^+$	
8190.0[n] 4	21$^+$	
8298.4[l] 5	(21$^-$)	
8476.3 7	(22$^+$)	J$^{\pi}$: from level-scheme Fig. 1 in 2016Pe09.
8582.9[d] 7	22$^+$	
8640.1[m] 4	22$^+$	
8905.3[i] 5	22$^+$	
8964.6[k] 5	(22$^-$)	
9122.8[n] 5	23$^+$	
9536.2[o] 8	24$^+$	
9633.2[m] 5	24$^+$	
9731.4[i] 5	24$^+$	
10179.4[n] 5	25$^+$	
10526.7[o] 8	26$^+$	
10752.4[m] 5	26$^+$	
11347.0[n] 5	27$^+$	
11601.2[o] 9	28$^+$	
11958.4[m] 6	28$^+$	
12762.7[o] 11	30$^+$	
14008.2[o] 15	32$^+$	
15331.2[o] 18	34$^+$	
16670.8[o] 21	36$^+$	
18003.3[o] 23	38$^+$	
19422.8[o] 25	40$^+$	
20931.0[o] 27	42$^+$	
22561.0[o] 29	44$^+$	
24288.5[o] 30	46$^+$	
x[t]	(22$^+$)	Additional information 1.
805.0+x[t] 2	(24$^+$)	
1670.5+x[t] 3	(26$^+$)	
2598.5+x[t] 4	(28$^+$)	
3587.0+x[t] 4	(30$^+$)	
4637.0+x[t] 7	(32$^+$)	
5749.0+x[t] 9	(34$^+$)	
6923.5+x[t] 10	(36$^+$)	
8160.5+x[t] 14	(38$^+$)	
9460.5+x[t] 17	(40$^+$)	
10825.5+x[t] 20	(42$^+$)	
12255.6+x[t] 23	(44$^+$)	
13755.1+x[t] 25	(46$^+$)	
15330.6+x[t] 27	(48$^+$)	
16986.1+x[t] 29	(50$^+$)	

Continued on next page (footnotes at end of table)

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

^{134}Ce Levels (continued)

E(level)[†]	Jπ[#]	Comments
18724.1+x[t] *30*	(52$^+$)	
20545+x[t] *3*	(54$^+$)	
22452+x[t] *3*	(56$^+$)	
y[b]	(17$^-$)	Additional information 2.
272.6+y[b] *2*	(18$^-$)	
581.8+y[b] *3*	(19$^-$)	
916.3+y[b] *4*	(20$^-$)	
1337.5+y[b] *4*	(21$^-$)	
1820.0+y[b] *5*	(22$^-$)	
2367.8+y[b] *5*	(23$^-$)	
2999.6+y[b] *6*	(24$^-$)	
z[p]	(22$^-$)	Additional information 3.
876.5+z[p] *2*	(24$^-$)	
1826.0+z[p] *3*	(26$^-$)	
2869.5+z[p] *6*	(28$^-$)	
4005.5+z[p] *8*	(30$^-$)	
5228.0+z[p] *13*	(32$^-$)	
6540.5+z[p] *16*	(34$^-$)	
7880.0+z[p] *19*	(36$^-$)	
9249.5+z[p] *22*	(38$^-$)	
10632.6+z[p] *24*	(40$^-$)	
12109.1+z[p] *26*	(42$^-$)	
13631+z[p] *3*	(44$^-$)	
15237+z[p] *3*	(46$^-$)	
u	(19$^-$)	Additional information 4.
892.5+u[q] *2*	(21$^-$)	
1732.5+u[q] *3*	(23$^-$)	
2644.5+u[q] *4*	(25$^-$)	
3656.5+u[q] *6*	(27$^-$)	
4767.0+u[q] *8*	(29$^-$)	
5979.0+u[q] *13*	(31$^-$)	
7305.0+u[q] *17*	(33$^-$)	
8747.0+u[q] *19*	(35$^-$)	
10310.5+u[q] *22*	(37$^-$)	
11987.6+u[q] *24*	(39$^-$)	
v[r]	(26$^+$)	Additional information 5.
1042.5+v[r] *5*	(28$^+$)	
2184.5+v[r] *7*	(30$^+$)	
3431.5+v[r] *13*	(32$^+$)	
4781.0+v[r] *16*	(34$^+$)	
6230.5+v[r] *19*	(36$^+$)	
7740.5+v[r] *22*	(38$^+$)	
9305.6+v[r] *24*	(40$^+$)	
w[s]	(21$^+$)	Additional information 6.
822.0+w[s] *2*	(23$^+$)	
1770.0+w[s] *3*	(25$^+$)	
2825.0+w[s] *6*	(27$^+$)	
3978.5+w[s] *8*	(29$^+$)	
5229.0+w[s] *13*	(31$^+$)	
6582.5+w[s] *16*	(33$^+$)	

Continued on next page (footnotes at end of table)

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

^{134}Ce Levels (continued)

E(level)[†]	Jπ[#]
8039.5+w[s] *19*	(35$^+$)
9608.0+w[s] *22*	(37$^+$)
11275.1+w[s] *24*	(39$^+$)
13037+w[s] *3*	(41$^+$)

† From least-squares fit (by compiler) to Eγ data.
‡ No deexciting γ rays known from this level.
# As proposed by 2016Pe09 based on their $\gamma(\theta)$ and $\gamma\gamma(\theta)$ measurements combined with band associations, and with previous assignments for low-lying levels.
@ Band(A): Band 8, based on 10$^+$.
& Band(B): Band 1, based on 0$^+$, g.s.
a Band(C): Band 2, based on 3$^+$.
b Band(D): Band D4, based on (17$^-$). First three members of this band are shown to decay to bands 8 and 9 by unknown transitions in Fig. 1 of 2016Pe09. Configuration in CNS calculations=[62;3$^{(-)}$3$^{(+)}$(00)].
c Band(E): Band 3, based on 2$^+$.
d Band(F): Band 9, based on 10$^+$. Configuration in CNS calculations [80,24(00)].
e Band(G): Band 7, based on 11$^+$.
f Band(H): Band 4, based on 5$^-$.
g Band(I): Band 5, based on 6$^-$.
h Band(J): Band 6, based on 6$^-$.
i Band(K): Band D1, based on 12$^+$,α=0. Configuration in CNS calculations=[7$^{(+)}$1$^{(-)}$;3$^{(-)}$3$^{(+)}$(00)]. Results for this band in 2016Pe09 are different from those in 2004La03.
j Band(k): Band D1, based on 11$^+$,α=1. Configuration in CNS calculations=[7$^{(+)}$1$^{(-)}$;3$^{(-)}$3$^{(-)}$(00)].
k Band(L): Band D2, based on 14$^-$,α=0. Configuration in CNS calculations=[62;3$^{(+)}$3$^{(+)}$(00)].
l Band(l): Band D2, based on 15$^-$,α=1. Configuration in CNS calculations=[62;3$^{(+)}$3$^{(-)}$(00)].
m Band(M): Band D3, based on 18$^+$,α=0. Configuration in CNS calculations=[62;43$^{(+)}$(1$^{(-)}$0)].
n Band(m): Band D3, based on 17$^+$,α=1. Configuration in CNS calculations=[62;43$^{(-)}$(1$^{(-)}$0)].
o Band(N): Triaxial band T1, based on 24$^+$. This band is a continuation of band 9. Configuration for lower members in CNS calculations [62;24(00)].
p Band(O): Triaxial band T2, based on (22$^-$). Configuration in CNS calculations [62;3$^{(+)}$3$^{(-)}$(00)] for lower members, [5$^{(-)}$3$^{(+)}$,5$^{(-)}$4(21)] for higher levels.
q Band(P): Triaxial band T3, based on (21$^-$). Configuration in CNS calculations [5$^{(+)}$3$^{(+)}$;3$^{(+)}$3$^{(+)}$(00)].
r Band(Q): Triaxial band T4, based on (22$^-$). Configuration in CNS calculations [5$^{(-)}$3$^{(+)}$;3$^{(+)}$3$^{(+)}$(00)].
s Band(R): Triaxial band T5, based on (21$^+$). Configuration in CNS calculations [5$^{(-)}$3$^{(-)}$;3$^{(+)}$3$^{(+)}$(00)].
t Band(S): SD band based on (22$^+$). Configuration in CNS calculations [(2)64,84(42)]. Configuration in spherical notation= $\pi[g_{9/2}^{-2}(d_{5/2}g_{7/2})^6h_{11/2}^4] \otimes \nu[h_{9/2}f_{7/2})^4i_{13/2}^2]$.

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$

Relative gamma-ray intensities are not provided in the paper.

The two-dimensional angular correlation ratio $R_{ac}=I\gamma(\theta_{f/b},any)/I\gamma(\theta_{\approx 90^\circ},any)$, where $I\gamma(\theta_x,any)$ is the γ-ray intensity obtained by placing gates on the corresponding Eγ(any) axis, f/b is forward/backward angles. The detectors were at angles of 31.7°, 37.4°, 142.6°, 148.3°, and 162.7° for Eγ(f/b) versus Eγ(any); and at 79.2°, 80.7°, 90.0°, 99.3°, and 100.8° for Eγ(≈90°) versus Eγ(any). The values of R_{ac} were established to be >1.0 for stretched-quadrupole and <0.8 for stretched-dipole transitions. This definition is not given by 2016Pe09, but has been taken from authors′ companion paper 2016Ay04: Phys. Rev. C93, 054317.

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[d]	Comments
125.5 *2*	2896.12	8$^-$	2770.60	7$^-$	[M1+E2]	0.77 *15*	α(K)=0.57 *5*; α(L)=0.157 *85*; α(M)=0.034 *20* α(N)=0.0074 *41*; α(O)=0.00109 *55*; α(P)=3.7×10^{-5} *4*
140.8 *2*	2706.23	7$^-$	2565.73	7$^-$	[M1+E2]	0.53 *9*	α(K)=0.405 *22*; α(L)=0.100 *48*; α(M)=0.022 *11* α(N)=0.0047 *23*; α(O)=7.0×10^{-4} *31*; α(P)=2.7×10^{-5} *3*
155.6 *2*	5749.2	15$^-$	5593.6	14$^-$	M1+E2[b]	0.39 *5*	α(K)=0.300 *11*; α(L)=0.068 *29*; α(M)=0.0148 *66* α(N)=0.0032 *14*; α(O)=4.8×10^{-4} *19*; α(P)=2.03×10^{-5} *22*
161.0 *2*	4559.7	11$^+$	4398.7				
165.4 *2*	4559.7	11$^+$	4394.3	10$^+$	M1+E2[b]	0.32 *4*	α(K)=0.250 *7*; α(L)=0.054 *21*; α(M)=0.0117 *48* α(N)=0.0026 *10*; α(O)=3.8×10^{-4} *14*; α(P)=1.70×10^{-5} *20*
168.4 *2*	1811.93	4$^+$	1643.46	4$^+$	M1+E2[a]	0.30 *3*	α(K)=0.237 *6*; α(L)=0.051 *19*; α(M)=0.0110 *44* α(N)=0.00239 *92*; α(O)=3.6×10^{-4} *13*; α(P)=1.62×10^{-5} *19*
184.6 *2*	2358.68	6$^-$	2174.09	5$^-$	M1+E2[@]	0.227 *15*	α(K)=0.181 *3*; α(L)=0.036 *12*; α(M)=0.0078 *27* α(N)=0.00170 *57*; α(O)=2.59×10^{-4} *75*; α(P)=1.24×10^{-5} *16*
189.9 *2*	2896.12	8$^-$	2706.23	7$^-$	M1+E2[@]	0.208 *12*	α(K)=0.166 *3*; α(L)=0.033 *11*; α(M)=0.0071 *24* α(N)=0.00154 *49*; α(O)=2.34×10^{-4} *64*; α(P)=1.15×10^{-5} *15*
191.2 *2*	3208.1	10$^+$	3017.14	8$^+$	E2[@]	0.214	α(K)=0.1610 *24*; α(L)=0.0417 *6*; α(M)=0.00911 *14* α(N)=0.00197 *3*; α(O)=0.000290 *5*; α(P)=9.79×10^{-6} *14*
196.4 *2*	4756.1	12$^+$	4559.7	11$^+$	M1+E2[b]	0.187 *9*	α(K)=0.150 *4*; α(L)=0.0291 *85*; α(M)=0.0063 *20* α(N)=0.00137 *41*; α(O)=2.08×10^{-4} *53*; α(P)=1.04×10^{-5} *14*
201.9 *2*	4559.7	11$^+$	4357.8				
207.1 *2*	2565.73	7$^-$	2358.68	6$^-$	M1+E2	0.159 *5*	A_2=−0.44 *3*; A_4=+0.08 *5* α(K)=0.129 *5*; α(L)=0.0241 *63*; α(M)=0.0052 *15* α(N)=0.00113 *31*; α(O)=0.00017 *4*; α(P)=9.0×10^{-6} *13* R_{ac}=0.69 *5*.
215.1 *2*	2026.99	5$^+$	1811.93	4$^+$	M1+E2[@]	0.142 *3*	α(K)=0.115 *5*; α(L)=0.021 *5*; α(M)=0.0045 *12* α(N)=0.00099 *25*; α(O)=0.00015 *4*; α(P)=8.0×10^{-6} *12*
219.8 *2*	5969.0	16$^-$	5749.2	15$^-$	M1+E2[b]	0.1330 *22*	α(K)=0.108 *5*; α(L)=0.020 *5*; α(M)=0.0042 *11* α(N)=0.00092 *22*; α(O)=0.00014 *3*; α(P)=7.6×10^{-6} *12*
227.4 *2*	2473.51	6$^-$	2246.11	5$^-$	[M1+E2]	0.1200 *18*	α(K)=0.098 *6*; α(L)=0.017 *4*; α(M)=0.0037 *9* α(N)=0.00082 *18*; α(O)=0.000126 *23*; α(P)=6.9×10^{-6} *11*

$^{134}_{58}Ce_{76}$-6

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

γ(^{134}Ce) (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[d]	Comments
232.7 *2*	2706.23	7^-	2473.51	6^-	M1+E2[@]	0.1120 *20*	α(K)=0.092 *6*; α(L)=0.016 *4*; α(M)=0.0035 *8* α(N)=0.00076 *16*; α(O)=0.000117 *20*; α(P)=6.4×10^{-6} *10*
239.0 *2*	4995.0	13^+	4756.1	12^+	M1+E2[b]	0.1034 *25*	α(K)=0.085 *6*; α(L)=0.015 *3*; α(M)=0.0032 *7* α(N)=0.00069 *14*; α(O)=0.000107 *17*; α(P)=6.0×10^{-6} *10*
247.6 *2*	3405.53	10^-	3158.06	9^-	[M1+E2]	0.093 *3*	α(K)=0.076 *6*; α(L)=0.0131 *22*; α(M)=0.0028 *5* α(N)=0.00061 *11*; α(O)=9.5×10^{-5} *13*; α(P)=5.4×10^{-6} *9*
251.8 *2*	5749.2	15^-	5497.4	15^-	E2	0.0855	A_2=+0.27 *4*; A_4=+0.17 *5* α(K)=0.0673 *10*; α(L)=0.01435 *21*; α(M)=0.00311 *5* α(N)=0.000675 *10*; α(O)=0.0001014 *15*; α(P)=4.31×10^{-6} *7* Mult.: ΔJ=0 transition. R_{ac}=1.13 *10*.
262.0 *2*	3158.06	9^-	2896.12	8^-	M1+E2	0.079 *4*	A_2=−0.23 *8*; A_4=+0.08 *11* α(K)=0.065 *6*; α(L)=0.0109 *15*; α(M)=0.0023 *4* α(N)=0.00051 *8*; α(O)=7.9×10^{-5} *9*; α(P)=4.6×10^{-6} *8* R_{ac}=0.80 *7*.
262.5 *2*	2565.73	7^-	2303.31	6^+	E1[@]	0.01760	α(K)=0.01510 *22*; α(L)=0.00198 *3*; α(M)=0.000412 *6* α(N)=9.08×10^{-5} *13*; α(O)=1.448×10^{-5} *21*; α(P)=1.014×10^{-6} *15*
272.6 *2*	272.6+y	(18^-)	y	(17^-)			
275.4 *2*	5270.3	14^+	4995.0	13^+	M1+E2[b]	0.068 *5*	α(K)=0.056 *6*; α(L)=0.0093 *11*; α(M)=0.00197 *25* α(N)=0.00043 *5*; α(O)=6.8×10^{-5} *6*; α(P)=4.0×10^{-6} *8*
284.6 *2*	7049.6	18^+	6765.0	17^+			
297.1 *2*	2770.60	7^-	2473.51	6^-			
299.4 *2*	2473.51	6^-	2174.09	5^-	M1+E2[@]	0.053 *5*	α(K)=0.044 *6*; α(L)=0.0071 *6*; α(M)=0.00151 *13* α(N)=0.00033 *3*; α(O)=5.20×10^{-5} *24*; α(P)=3.2×10^{-6} *6*
304.0 *2*	7049.6	18^+	6745.6	17^+	M1+E2	0.051 *5*	A_2=−0.31 *5*; A_4=+0.06 *7* α(K)=0.043 *5*; α(L)=0.0068 *5*; α(M)=0.00144 *12* α(N)=0.000316 *23*; α(O)=4.96×10^{-5} *20*; α(P)=3.1×10^{-6} *6* R_{ac}=0.80 *6*.
309.2 *2*	581.8+y	(19^-)	272.6+y	(18^-)	M1+E2	0.049 *5*	A_2=−0.36 *3*; A_4=+0.11 *4* α(K)=0.041 *5*; α(L)=0.0064 *4*; α(M)=0.00136 *10* α(N)=0.000300 *19*; α(O)=4.71×10^{-5} *16*; α(P)=2.9×10^{-6} *6* R_{ac}=0.73 *8*.
309.6 *2*	2358.68	6^-	2049.07	5^+	E1[@]	0.01149	
310.7 *2*	2174.09	5^-	1863.40	6^+			
320.9 *2*	4559.7	11^+	4238.8				
330.3 *2*	2896.12	8^-	2565.73	7^-			
331.7 *2*	2358.68	6^-	2026.99	5^+	E1[@]	0.00965	
331.9 *2*	5602.3	15^+	5270.3	14^+	M1+E2[b]	0.040 *5*	α(K)=0.033 *5*; α(L)=0.00517 *16*; α(M)=0.00109 *5* α(N)=0.000241 *9*; α(O)=3.79×10^{-5} *6*; α(P)=2.4×10^{-6} *5*
333.5 *2*	1382.36	3^+	1048.88	4^+			
334.5 *2*	916.3+y	(20^-)	581.8+y	(19^-)	M1+E2	0.039 *5*	A_2=−0.61 *6*; A_4=−0.13 *8*

$^{134}_{58}Ce_{76}$-7

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ [c]	α [d]	Comments
								α(K)=0.033 *5*; α(L)=0.00504 *14*; α(M)=0.00107 *4* α(N)=0.000235 *8*; α(O)=3.70×10^{-5} *6*; α(P)=2.4×10^{-6} *5* R_{ac}=0.67 *5*. Negative sign of A_4 is inconsistent with ΔJ=1 transition (compiler's note).
340.3 *2*	6309.3	17$^-$	5969.0	16$^-$	M1+E2[b]		0.037 *5*	α(K)=0.031 *5*; α(L)=0.00479 *11*; α(M)=0.00101 *4* α(N)=0.000223 *6*; α(O)=3.52×10^{-5} *6*; α(P)=2.3×10^{-6} *5*
341.1 *2*	7390.7	19$^+$	7049.6	18$^+$	M1+E2		0.037 *5*	A_2=−0.67 *6*; A_4=+0.23 *8* α(K)=0.031 *5*; α(L)=0.00475 *10*; α(M)=0.00101 *3* α(N)=0.000221 *6*; α(O)=3.49×10^{-5} *6*; α(P)=2.2×10^{-6} *5* R_{ac}=0.56 *4*.
346.5 *2*	5270.3	14$^+$	4923.9	13$^+$	M1+E2	−2.05 *48*	0.0328 *10*	A_2=−0.76 *4*; A_4=+0.24 *5* α(K)=0.0270 *9*; α(L)=0.00456 *7*; α(M)=0.000971 *15* α(N)=0.000213 *3*; α(O)=3.30×10^{-5} *5*; α(P)=1.88×10^{-6} *9* R_{ac}=0.49 *4*.
346.9 *2*	3752.5	11$^-$	3405.53	10$^-$				
372.0 *2*	5864.0	16$^+$	5492.0	15$^+$				
372.3 *2*	4756.1	12$^+$	4383.8	11$^+$	M1+E2	−2.23 *53*	0.0264 *8*	A_2=−0.72 *3*; A_4=+0.16 *4* α(K)=0.0218 *8*; α(L)=0.00361 *6*; α(M)=0.000768 *11* α(N)=0.0001684 *25*; α(O)=2.62×10^{-5} *5*; α(P)=1.52×10^{-6} *7* R_{ac}=0.52 *4*.
379.8 *2*	7770.5	20$^+$	7390.7	19$^+$	M1+E2		0.027 *4*	A_2=−0.69 *8*; A_4=+0.14 *11* α(K)=0.023 *4*; α(L)=0.00345 *11*; α(M)=0.000727 *15* α(N)=0.000160 *5*; α(O)=2.54×10^{-5} *13*; α(P)=1.7×10^{-6} *4* R_{ac}=0.59 *5*.
383.5 *2*	2026.99	5$^+$	1643.46	4$^+$	M1+E2[@]		0.027 *4*	α(K)=0.022 *4*; α(L)=0.00335 *11*; α(M)=0.000707 *17* α(N)=0.000156 *5*; α(O)=2.47×10^{-5} *13*; α(P)=1.6×10^{-6} *4*
387.5 *2*	3158.06	9$^-$	2770.60	7$^-$				
391.7 *2*	2565.73	7$^-$	2174.09	5$^-$	E2[@]		0.0216	α(K)=0.01772 *25*; α(L)=0.00303 *5*; α(M)=0.000647 *10* α(N)=0.0001416 *20*; α(O)=2.19×10^{-5} *3*; α(P)=1.214×10^{-6} *17*
396.8 *2*	3208.1	10$^+$	2811.23	8$^+$	E2[@]		0.0208	α(K)=0.01707 *24*; α(L)=0.00291 *4*; α(M)=0.000620 *9* α(N)=0.0001357 *20*; α(O)=2.10×10^{-5} *3*; α(P)=1.172×10^{-6} *17*
399.1 *2*	6001.4	16$^+$	5602.3	15$^+$	M1+E2[b]		0.024 *4*	α(K)=0.020 *4*; α(L)=0.00298 *14*; α(M)=0.000628 *23* α(N)=0.000139 *6*; α(O)=2.20×10^{-5} *15*; α(P)=1.5×10^{-6} *4*
402.8 *2*	2706.23	7$^-$	2303.31	6$^+$				
403.7 *2*	2969.4	(8)	2565.73	7$^-$				
409.1 *2*	409.13	2$^+$	0.0	0$^+$	E2[#]		0.0190	α(K)=0.01565 *22*; α(L)=0.00263 *4*; α(M)=0.000561 *8* α(N)=0.0001228 *18*; α(O)=1.90×10^{-5} *3*; α(P)=1.078×10^{-6} *16*
417.4 *2*	1382.36	3$^+$	964.88	2$^+$	M1+E2[&]		0.021 *4*	α(K)=0.018 *4*; α(L)=0.00262 *16*; α(M)=0.00055 *3* α(N)=0.000122 *7*; α(O)=1.94×10^{-5} *15*; α(P)=1.3×10^{-6} *3*
419.5 *2*	8190.0	21$^+$	7770.5	20$^+$	M1+E2		0.021 *4*	A_2=−0.70 *6*; A_4=+0.08 *8*

$^{134}_{58}Ce_{76}$-8

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[c]	α[d]	Comments
								α(K)=0.018 *3*; α(L)=0.00258 *16*; α(M)=0.00054 *3* α(N)=0.000120 *7*; α(O)=1.91×10^{-5} *16*; α(P)=1.3×10^{-6} *3* R_{ac}=0.56 *5*.
420.1 *2*	6421.5	17$^+$	6001.4	16$^+$	M1+E2[b]		0.021 *4*	α(K)=0.018 *3*; α(L)=0.00257 *16*; α(M)=0.00054 *3* α(N)=0.000119 *7*; α(O)=1.90×10^{-5} *16*; α(P)=1.3×10^{-6} *3*
421.2 *2*	1337.5+y	(21$^-$)	916.3+y	(20$^-$)	M1+E2		0.021 *4*	A_2=−0.90 *5*; A_4=+0.20 *7* α(K)=0.017 *3*; α(L)=0.00255 *16*; α(M)=0.00054 *3* α(N)=0.000119 *7*; α(O)=1.89×10^{-5} *16*; α(P)=1.3×10^{-6} *3* R_{ac}=0.45 *3*.
422.6 *2*	2896.12	8$^-$	2473.51	6$^-$	E2[#]		0.01728	α(K)=0.01428 *20*; α(L)=0.00237 *4*; α(M)=0.000505 *8* α(N)=0.0001106 *16*; α(O)=1.718×10^{-5} *25*; α(P)=9.87×10^{-7} *14*
429.5 *2*	1811.93	4$^+$	1382.36	3$^+$	M1+E2[@]		0.020 *4*	α(K)=0.017 *3*; α(L)=0.00241 *17*; α(M)=0.00051 *3* α(N)=0.000112 *8*; α(O)=1.78×10^{-5} *16*; α(P)=1.2×10^{-6} *3*
434.2 *2*	2246.11	5$^-$	1811.93	4$^+$				
446.5 *2*	2473.51	6$^-$	2026.99	5$^+$	E1[@]		0.00467	
450.1 *2*	8640.1	22$^+$	8190.0	21$^+$				
451.9 *2*	3158.06	9$^-$	2706.23	7$^-$	E2[#]		0.01428	α(K)=0.01184 *17*; α(L)=0.00192 *3*; α(M)=0.000408 *6* α(N)=8.95×10^{-5} *13*; α(O)=1.395×10^{-5} *20*; α(P)=8.24×10^{-7} *12*
457.6 *2*	6766.9	18$^-$	6309.3	17$^-$	M1+E2[b]		0.017 *3*	α(K)=0.014 *3*; α(L)=0.00202 *18*; α(M)=0.00042 *4* α(N)=9.4×10^{-5} *8*; α(O)=1.49×10^{-5} *16*; α(P)=1.03×10^{-6} *24*
460.0 *2*	6538.2	17$^+$	6078.2	16$^+$	M1+E2		0.016 *3*	A_2=−0.33 *2*; A_4=+0.03 *3* α(K)=0.014 *3*; α(L)=0.00199 *18*; α(M)=0.00042 *4* α(N)=9.2×10^{-5} *8*; α(O)=1.47×10^{-5} *16*; α(P)=1.02×10^{-6} *24* R_{ac}=0.76 *7*.
460.1 *2*	2706.23	7$^-$	2246.11	5$^-$				
464.1 *2*	4183.0	12$^+$	3718.96	10$^+$				
471.6 *2*	5969.0	16$^-$	5497.4	15$^-$	M1+E2	−2.52 *25*	0.01339 *24*	A_2=−0.65 *5*; A_4=+0.20 *7* α(K)=0.01120 *21*; α(L)=0.00173 *3*; α(M)=0.000366 *6* α(N)=8.05×10^{-5} *12*; α(O)=1.266×10^{-5} *20*; α(P)=7.96×10^{-7} *16* R_{ac}=0.56 *4*.
475.8 *2*	6897.3	18$^+$	6421.5	17$^+$	M1+E2[b]		0.015 *3*	α(K)=0.0127 *24*; α(L)=0.00181 *18*; α(M)=0.00038 *4* α(N)=8.4×10^{-5} *8*; α(O)=1.34×10^{-5} *15*; α(P)=9.3×10^{-7} *22*
477.0 *2*	5969.0	16$^-$	5492.0	15$^+$				
482.5 *2*	1820.0+y	(22$^-$)	1337.5+y	(21$^-$)	M1+E2		0.014 *3*	A_2=−0.80 *8*; A_4=−0.03 *10* α(K)=0.0122 *24*; α(L)=0.00174 *18*; α(M)=0.00037 *4* α(N)=8.1×10^{-5} *8*; α(O)=1.29×10^{-5} *15*; α(P)=9.0×10^{-7} *21* R_{ac}=0.53 *6*.
482.7 *2*	9122.8	23$^+$	8640.1	22$^+$				
489.4 *2*	7776.2	20$^-$	7286.8	19$^-$	M1+E2		0.0139 *25*	A_2=−0.27 *2*; A_4=+0.05 *3* α(K)=0.0118 *23*; α(L)=0.00167 *18*; α(M)=0.00035 *4*

$^{134}_{58}Ce_{76}$-9

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[d]	Comments
							α(N)=7.8×10^{-5} *8*; α(O)=1.24×10^{-5} *15*; α(P)=8.7×10^{-7} *20* R_{ac}=0.78 *5*.
498.0 *2*	7395.3	19$^+$	6897.3	18$^+$	M1+E2	0.0133 *24*	A_2=−0.53 *7*; A_4=+0.19 *9* α(K)=0.0113 *22*; α(L)=0.00160 *17*; α(M)=0.00034 *4* α(N)=7.4×10^{-5} *8*; α(O)=1.18×10^{-5} *15*; α(P)=8.3×10^{-7} *20* R_{ac}=0.60 *4*.
509.2 *2*	3405.53	10$^-$	2896.12	8$^-$	E2[#]	0.01026	
510.4 *2*	9633.2	24$^+$	9122.8	23$^+$			
514.0 *2*	5270.3	14$^+$	4756.1	12$^+$	E2	0.01001	
519.9 *2*	7286.8	19$^-$	6766.9	18$^-$	M1+E2[b]	0.0119 *22*	α(K)=0.0101 *20*; α(L)=0.00142 *17*; α(M)=0.00030 *4* α(N)=6.6×10^{-5} *8*; α(O)=1.05×10^{-5} *14*; α(P)=7.4×10^{-7} *18*
519.9 *2*	7915.2	20$^+$	7395.3	19$^+$			
522.2 *2*	8298.4	(21$^-$)	7776.2	20$^-$			
524.5 *2*	2770.60	7$^-$	2246.11	5$^-$			
530.6 *2*	2174.09	5$^-$	1643.46	4$^+$	E1	0.00313	A_2=−0.09 *1*; A_4=−0.01 *2* R_{ac}=0.95 *7*.
532.1 *2*	2706.23	7$^-$	2174.09	5$^-$	E2[#]	0.00912	
532.2 *2*	7870.7		7338.5	19$^-$			
537.4 *2*	2896.12	8$^-$	2358.68	6$^-$	E2[@]	0.00888	
540.2 *2*	4923.9	13$^+$	4383.8	11$^+$			
546.2 *2*	10179.4	25$^+$	9633.2	24$^+$			
547.8 *2*	2367.8+y	(23$^-$)	1820.0+y	(22$^-$)	M1+E2	0.0104 *20*	A_2=−0.16 *9*; A_4=+0.05 *12* R_{ac}=0.80 *6*.
548.4 *2*	7315.3	19$^-$	6766.9	18$^-$	M1+E2	0.0104 *20*	A_2=−0.58 *5*; A_4=+0.04 *7* R_{ac}=0.59 *5*.
555.4 *2*	7870.7		7315.3	19$^-$			
555.8 *2*	964.88	2$^+$	409.13	2$^+$	M1+E2[&]	0.0100 *20*	
560.9 *2*	3718.96	10$^+$	3158.06	9$^-$			
571.6 *2*	7338.5	19$^-$	6766.9	18$^-$	M1+E2	0.0093 *18*	A_2=−0.17 *5*; A_4=+0.03 *6* R_{ac}=0.86 *6*.
573.0 *2*	10752.4	26$^+$	10179.4	25$^+$			
576.6 *2*	4394.3	10$^+$	3817.7	10$^+$			
581.0 *2*	4398.7		3817.7	10$^+$			
586.2 *2*	6078.2	16$^+$	5492.0	15$^+$	M1+E2	0.0088 *17*	A_2=−0.14 *4*; A_4=+0.14 *5* R_{ac}=0.83 *6*.
594.5 *2*	3752.5	11$^-$	3158.06	9$^-$	E2[b]	0.00682	
594.6 *2*	1643.46	4$^+$	1048.88	4$^+$	M1+E2[&]	0.0085 *17*	
594.6 *2*	11347.0	27$^+$	10752.4	26$^+$			
594.9 *2*	7910.2		7315.3	19$^-$			
596.5 *2*	2770.60	7$^-$	2174.09	5$^-$			
603.5 *2*	6095.5	16$^+$	5492.0	15$^+$	M1+E2	0.0082 *16*	A_2=−0.55 *9*; A_4=+0.61 *13* R_{ac}=0.56 *6*.

$^{134}_{58}Ce_{76}$-10

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[c]	α[d]	Comments
607.3 *2*	5602.3	15^+	4995.0	13^+				
611.4 *2*	11958.4	28^+	11347.0	27^+				
623.4 *2*	7910.2		7286.8	19^-				
625.7 *2*	7390.7	19^+	6765.0	17^+				
631.8 *2*	2999.6+y	(24^-)	2367.8+y	(23^-)				
639.0 *2*	5593.6	14^-	4954.6	13^-				
639.7 *2*	1048.88	4^+	409.13	2^+	E2[@]		0.00567	
644.6 *2*	2026.99	5^+	1382.36	3^+	E2[@]		0.00556	
645.1 *2*	7390.7	19^+	6745.6	17^+				
659.0 *2*	6523.0		5864.0	16^+				
659.9 *2*	2303.31	6^+	1643.46	4^+	E2[@]		0.00525	
664.8 *2*	4383.8	11^+	3718.96	10^+	M1+E2	−2.13 *48*	0.00561 *24*	A_2=−0.87 *14*; A_4=+0.19 *18* R_{ac}=0.34 *4*.
666.2 *2*	8964.6	(22^-)	8298.4	(21^-)				
666.7 *2*	2049.07	5^+	1382.36	3^+	E2[@]		0.00512	
667.8 *2*	3233.5	9^-	2565.73	7^-	E2		0.00509	A_2=+0.36 *5*; A_4=−0.03 *6* R_{ac}=1.34 *9*.
675.3 *2*	4394.3	10^+	3718.96	10^+				
678.5 *2*	1643.46	4^+	964.88	2^+	E2[@]		0.00490	
679.7 *2*	4398.7		3718.96	10^+				
701.7 *2*	3718.96	10^+	3017.14	8^+	E2[@]		0.00452	
703.4 *2*	4559.7	11^+	3856.3	9^+	E2		0.00449	A_2=+0.22 *5*; A_4=+0.05 *6* R_{ac}=1.12 *8*.
713.9 *2*	3017.14	8^+	2303.31	6^+	E2[@]		0.00433	
720.9 *2*	7770.5	20^+	7049.6	18^+				
724.3 *2*	4907.3	14^+	4183.0	12^+				
730.5 *2*	5492.0	15^+	4761.5	14^+	M1+E2		0.0051 *11*	A_2=−0.23 *2*; A_4=+0.04 *2* R_{ac}=0.82 *5*.
731.0 *2*	6001.4	16^+	5270.3	14^+				
735.9 *2*	5497.4	15^-	4761.5	14^+				
738.5 *2*	4144.0	12^-	3405.53	10^-	E2[#]		0.00400	
740.9 *2*	4923.9	13^+	4183.0	12^+	M1+E2	−1.73 *52*	0.0045 *4*	A_2=−0.76 *3*; A_4=+0.18 *4* R_{ac}=0.50 *6*.
742.0 *2*	4559.7	11^+	3817.7	10^+				
755.8 *2*	4761.5	14^+	4005.8	12^+	E2		0.00378	A_2=+0.13 *2*; A_4=−0.12 *8* R_{ac}=1.09 *7*.
763.0 *2*	1811.93	4^+	1048.88	4^+	M1+E2[@]		0.0046 *10*	
774.7 *2*	7550.3	(20^+)	6775.6	18^+				
775.6 *2*	8476.3	(22^+)	7700.7	(20^+)				
789.1 *2*	4541.7	13^-	3752.5	11^-	E2[b]		0.00342	
793.0 *2*	5716.9	(15^+)	4923.9	13^+				

$^{134}_{58}Ce_{76}$-11

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [d]	Comments
797.7 *2*	4005.8	12^+	3208.1	10^+	E2	0.00334	A_2=+0.36 *3*; A_4=−0.02 *4* R_{ac}=1.31 *8*.
799.3 *2*	8190.0	21^+	7390.7	19^+			
805.0 *2*	805.0+x	(24^+)	x	(22^+)			
812.0 *2*	4995.0	13^+	4183.0	12^+			
814.5 *2*	1863.40	6^+	1048.88	4^+	E2 [@]	0.00318	
817.2 *2*	5724.5	16^+	4907.3	14^+			
819.2 *2*	6421.5	17^+	5602.3	15^+			
822.0 *2*	822.0+w	(23^+)	w	(21^+)			
826.1 *2*	9731.4	24^+	8905.3	22^+	E2	0.00308	A_2=+0.63 *6*; A_4=−0.51 *17* R_{ac}=1.98 *45*.
840.0 *2*	1732.5+u	(23^-)	892.5+u	(21^-)	E2	0.00296	A_2=+0.50 *12*; A_4=−0.06 *16* R_{ac}=1.42 *12*.
840.7 *2*	4559.7	11^+	3718.96	10^+	M1+E2	0.0037 *8*	A_2=−0.92 *21*; A_4=+0.32 *27* R_{ac}=0.34 *4*.
842.8 *2*	2706.23	7^-	1863.40	6^+			
847.3 *2*	1811.93	4^+	964.88	2^+	E2 [@]	0.00291	
849.2 *2*	4954.6	13^-	4105.4	11^-	E2	0.00289	A_2=+0.17 *4*; A_4=−0.14 *6* R_{ac}=1.19 *10*.
865.5 *2*	1670.5+x	(26^+)	805.0+x	(24^+)			
869.6 *2*	8640.1	22^+	7770.5	20^+	E2	0.00274	A_2=+0.25 *5*; A_4=−0.05 *7* R_{ac}=1.21 *7*.
871.8 *2*	4105.4	11^-	3233.5	9^-	E2	0.00273	A_2=+0.31 *2*; A_4=−0.17 *2* R_{ac}=1.20 *10*.
872.1 *2*	6596.6	18^+	5724.5	16^+			
875.4 *2*	2924.5	7^+	2049.07	5^+			
876.5 *2*	876.5+z	(24^-)	z	(22^-)			
877.2 *2*	5021.2	14^-	4144.0	12^-	E2 [b]	0.00269	
892.5 *2*	892.5+u	(21^-)	u	(19^-)			
895.9 *2*	6897.3	18^+	6001.4	16^+			
907.2 *2*	2770.60	7^-	1863.40	6^+			
907.8 *2*	3718.96	10^+	2811.23	8^+	E2 [@]	0.00249	
911.6 *2*	6775.6	18^+	5864.0	16^+	E2	0.00247	A_2=+0.42 *7*; A_4=−0.08 *9* R_{ac}=1.38 *9*.
912.0 *2*	2644.5+u	(25^-)	1732.5+u	(23^-)	E2	0.00246	A_2=+0.42 *8*; A_4=+0.06 *11* R_{ac}=1.31 *10*.
928.0 *2*	2598.5+x	(28^+)	1670.5+x	(26^+)			
932.8 *2*	9122.8	23^+	8190.0	21^+			
946.5 *2*	5488.2	15^-	4541.7	13^-	E2	0.00227	A_2=+0.35 *4*; A_4=−0.15 *5* R_{ac}=1.37 *9*.
947.8 *2*	2811.23	8^+	1863.40	6^+	E2 [@]	0.00227	
948.0 *2*	1770.0+w	(25^+)	822.0+w	(23^+)			

$^{134}_{58}Ce_{76}$-12

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[d]	Comments
949.5 *2*	1826.0+z	(26$^-$)	876.5+z	(24$^-$)	E2	0.00226	A_2=+0.35 *4*; A_4=−0.19 *5* R_{ac}=1.36 *11*.
953.3 *2*	9536.2	24$^+$	8582.9	22$^+$	E2	0.00224	A_2=+0.60 *5*; A_4=+0.04 *7* R_{ac}=1.59 *15*.
955.7 *2*	5497.4	15$^-$	4541.7	13$^-$	E2	0.00222	A_2=+0.43 *8*; A_4=+0.06 *11* R_{ac}=1.33 *11*.
964.9 *2*	964.88	2$^+$	0.0	0$^+$	E2[@]	0.00218	
969.2 *2*	7390.7	19$^+$	6421.5	17$^+$			
973.2 *2*	1382.36	3$^+$	409.13	2$^+$	M1+E2[&]	0.0026 *5*	
973.8 *2*	7395.3	19$^+$	6421.5	17$^+$			
977.5 *2*	7286.8	19$^-$	6309.3	17$^-$			
978.1 *2*	2026.99	5$^+$	1048.88	4$^+$	M1+E2[&]	0.0026 *5*	
984.1 *2*	7580.7	20$^+$	6596.6	18$^+$	E2	0.00209	A_2=+0.41 *2*; A_4=−0.11 *3* R_{ac}=1.46 *10*.
987.7 *2*	5749.2	15$^-$	4761.5	14$^+$			
988.5 *2*	3587.0+x	(30$^+$)	2598.5+x	(28$^+$)			
990.1 *2*	8905.3	22$^+$	7915.2	20$^+$	E2	0.00206	A_2=+0.69 *11*; A_4=+0.23 *14* R_{ac}=1.60 *16*. Positive sign of A_4 is inconsistent with stretched quadrupole (compiler's note).
990.5 *2*	10526.7	26$^+$	9536.2	24$^+$	E2	0.00206	A_2=+0.48 *3*; A_4=+0.03 *4* R_{ac}=1.42 *11*.
993.1 *2*	9633.2	24$^+$	8640.1	22$^+$			
1000.2 *5*	2049.07	5$^+$	1048.88	4$^+$	M1+E2[a]	0.0025 *5*	
1002.2 *5*	8582.9	22$^+$	7580.7	20$^+$	E2	0.00201	A_2=+0.51 *8*; A_4=−0.13 *11* R_{ac}=1.61 *12*.
1006.5 *5*	3817.7	10$^+$	2811.23	8$^+$	E2[@]	0.00199	
1006.5 *5*	6027.7	16$^-$	5021.2	14$^-$	E2[b]	0.00199	
1009.0 *5*	6873.0		5864.0	16$^+$			
1009.3 *5*	7776.2	20$^-$	6766.9	18$^-$			
1011.6 *5*	8298.4	(21$^-$)	7286.8	19$^-$			
1012.0 *5*	3656.5+u	(27$^-$)	2644.5+u	(25$^-$)	E2	0.00197	A_2=+0.32 *7*; A_4=−0.10 *9* R_{ac}=1.27 *10*.
1017.9 *5*	7915.2	20$^+$	6897.3	18$^+$	E2	0.00194	A_2=+0.38 *19*; A_4=−0.10 *25* R_{ac}=1.18 *10*.
1021.1 *5*	6745.6	17$^+$	5724.5	16$^+$	M1+E2	0.0024 *5*	A_2=−0.34 *7*; A_4=+0.20 *9* R_{ac}=0.73 *6*.
1031.0 *5*	6523.0		5492.0	15$^+$			
1040.5 *5*	6765.0	17$^+$	5724.5	16$^+$	M1+E2	0.0023 *4*	A_2=−0.40 *9*; A_4=+0.26 *12* R_{ac}=0.63 *5*.
1042.5 *5*	1042.5+v	(28$^+$)	v	(26$^+$)			
1043.5 *5*	2869.5+z	(28$^-$)	1826.0+z	(26$^-$)	E2	0.00184	A_2=+0.26 *8*; A_4=−0.07 *10* R_{ac}=1.16 *10*.

$^{134}_{58}Ce_{76}$-13

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [d]	Comments
1044.3 *5*	7072.1	18^-	6027.7	16^-	E2 [b]	0.00184	
1045.2 *5*	3856.3	9^+	2811.23	8^+	M1+E2	0.0022 *4*	A_2=−0.42 *4*; A_4=+0.08 *5* R_{ac}=0.73 *5*.
1050.0 *5*	4637.0+x	(32^+)	3587.0+x	(30^+)			
1055.0 *5*	2825.0+w	(27^+)	1770.0+w	(25^+)			
1056.6 *5*	10179.4	25^+	9122.8	23^+			
1061.1 [e] *5*	2924.5	7^+	1863.40	6^+			
1074.5 *5*	11601.2	28^+	10526.7	26^+	E2	1.73×10^{-3}	A_2=+0.46 *3*; A_4=−0.05 *4* R_{ac}=1.51 *10*.
1079.5 *5*	6567.7	(17^-)	5488.2	15^-			
1102.5 *5*	5864.0	16^+	4761.5	14^+	E2	1.64×10^{-3}	A_2=+0.24 *3*; A_4=−0.06 *4* R_{ac}=1.22 *8*.
1104.1 *5*	7700.7	(20^+)	6596.6	18^+			
1110.5 *5*	4767.0+u	(29^-)	3656.5+u	(27^-)	E2	1.62×10^{-3}	A_2=+0.34 *5*; A_4=−0.12 *6* R_{ac}=1.39 *9*.
1112.0 *5*	5749.0+x	(34^+)	4637.0+x	(32^+)			
1119.2 *5*	10752.4	26^+	9633.2	24^+			
1125.2 *5*	2174.09	5^-	1048.88	4^+	E1		A_2=−0.18 *3*; A_4=+0.05 *4* R_{ac}=0.83 *5*.
1136.0 *5*	4005.5+z	(30^-)	2869.5+z	(28^-)	E2	1.54×10^{-3}	A_2=+0.38 *3*; A_4=+0.03 *3* R_{ac}=1.36 *13*.
1142.0 *5*	2184.5+v	(30^+)	1042.5+v	(28^+)			
1153.5 *5*	3978.5+w	(29^+)	2825.0+w	(27^+)			
1161.5 *5*	12762.7	30^+	11601.2	28^+	E2	1.48×10^{-3}	A_2=+0.27 *9*; A_4=−0.02 *12* R_{ac}=1.21 *21*.
1167.6 *5*	11347.0	27^+	10179.4	25^+			
1174.5 *5*	6923.5+x	(36^+)	5749.0+x	(34^+)			
1197.2 *5*	2246.11	5^-	1048.88	4^+	E1		A_2=−0.14 *5*; A_4=+0.03 *7* R_{ac}=0.91 *8*.
1206.0 *10*	11958.4	28^+	10752.4	26^+			
1212.0 *10*	5979.0+u	(31^-)	4767.0+u	(29^-)			
1222.5 *10*	5228.0+z	(32^-)	4005.5+z	(30^-)	E2	1.34×10^{-3}	A_2=+0.13 *3*; A_4=−0.04 *4* R_{ac}=1.10 *10*.
1234.3 *10*	1643.46	4^+	409.13	2^+	E2 [@]	1.31×10^{-3}	
1237.0 *10*	8160.5+x	(38^+)	6923.5+x	(36^+)			
1245.5 *10*	14008.2	32^+	12762.7	30^+	E2	1.29×10^{-3} *2*	A_2=+0.42 *8*; A_4=+0.12 *10* R_{ac}=1.25 *9*.
1247.0 *10*	3431.5+v	(32^+)	2184.5+v	(30^+)			
1250.5 *10*	5229.0+w	(31^+)	3978.5+w	(29^+)			
1300.0 *10*	9460.5+x	(40^+)	8160.5+x	(38^+)			
1312.5 *10*	6540.5+z	(34^-)	5228.0+z	(32^-)			
1323.0 *10*	15331.2	34^+	14008.2	32^+			
1326.0 *10*	7305.0+u	(33^-)	5979.0+u	(31^-)			

$^{134}_{58}Ce_{76}$-14

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

$\gamma(^{134}Ce)$ (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [d]	Comments
1332.5 *10*	18003.3	38^+	16670.8	36^+			
1339.5 *10*	7880.0+z	(36^-)	6540.5+z	(34^-)			
1339.5 *10*	16670.8	36^+	15331.2	34^+			
1349.5 *10*	4781.0+v	(34^+)	3431.5+v	(32^+)			
1351.7 *10*	4559.7	11^+	3208.1	10^+			
1353.5 *10*	6582.5+w	(33^+)	5229.0+w	(31^+)			
1365.0 *10*	10825.5+x	(42^+)	9460.5+x	(40^+)			
1369.5 *10*	9249.5+z	(38^-)	7880.0+z	(36^-)			
1383.0 *10*	10632.6+z	(40^-)	9249.5+z	(38^-)			
1419.5 *10*	19422.8	40^+	18003.3	38^+			
1430.0 *10*	12255.6+x	(44^+)	10825.5+x	(42^+)			
1442.0 *10*	8747.0+u	(35^-)	7305.0+u	(33^-)			
1449.4 *10*	5593.6	14^-	4144.0	12^-	E2	1.01×10^{-3}	A_2=+0.56 *10*; A_4=+0.05 *13* R_{ac}=1.55 *50*.
1449.5 *10*	6230.5+v	(36^+)	4781.0+v	(34^+)			
1457.0 *10*	8039.5+w	(35^+)	6582.5+w	(33^+)			
1476.5 *10*	12109.1+z	(42^-)	10632.6+z	(40^-)			
1499.5 *10*	13755.1+x	(46^+)	12255.6+x	(44^+)			
1508.5 *10*	20931.0	42^+	19422.8	40^+			
1510 *1*	7740.5+v	(38^+)	6230.5+v	(36^+)			
1522 *1*	13631+z	(44^-)	12109.1+z	(42^-)			
1563.5 *10*	10310.5+u	(37^-)	8747.0+u	(35^-)			
1565 *1*	9305.6+v	(40^+)	7740.5+v	(38^+)			
1568.5 *10*	9608.0+w	(37^+)	8039.5+w	(35^+)			
1575.5 *10*	15330.6+x	(48^+)	13755.1+x	(46^+)			
1606 *1*	15237+z	(46^-)	13631+z	(44^-)			
1630.0 *10*	22561.0	44^+	20931.0	42^+			
1655.5 *10*	16986.1+x	(50^+)	15330.6+x	(48^+)			
1667 *1*	11275.1+w	(39^+)	9608.0+w	(37^+)			
1677.0 *10*	11987.6+u	(39^-)	10310.5+u	(37^-)			
1727.5 *10*	24288.5	46^+	22561.0	44^+			
1738.0 *10*	18724.1+x	(52^+)	16986.1+x	(50^+)			
1762 *1*	13037+w	(41^+)	11275.1+w	(39^+)			
1821 *1*	20545+x	(54^+)	18724.1+x	(52^+)			
1907 *1*	22452+x	(56^+)	20545+x	(54^+)			

[†] Based on a general comment in 2016Pe09, 0.2 keV uncertainty is assigned for Eγ<1000 keV, 0.5 keV for Eγ=1000-1200 keV and 1 keV for Eγ>1200 keV.

[‡] From 2016Pe09, based on $\gamma(\theta)$ and $\gamma\gamma(\theta)$ data. When such data are not given in 2016Pe09, authors take assignments from literature (2004La03: Phys. Rev. C69, 014319; 2000Ga24: Nucl. Phys. A673, 45; and 1984Mu08: Nucl. Phys. A417, 189), as indicated. Assignments given in square brackets are assumed by the compiler.

$^{134}_{58}Ce_{76}$-15

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)

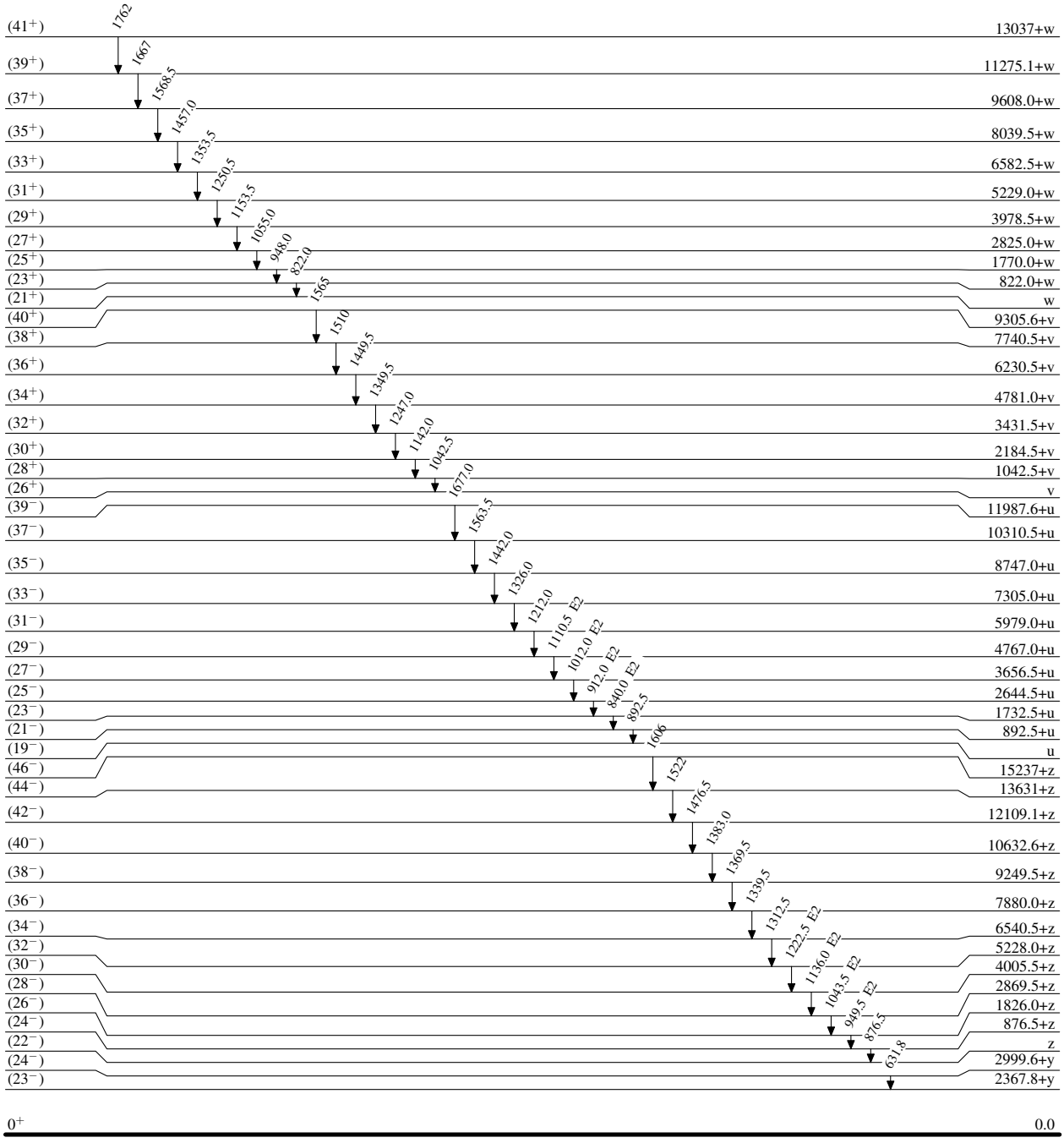
$\gamma(^{134}Ce)$ (continued)

[#] From 1984Mu08: Nucl. Phys. A417, 189 and 2004La03: Phys. Rev. C69, 014319.
[@] From 1984Mu08: Nucl. Phys. A417, 189.
[&] From 1984Mu08: Nucl. Phys. A417, 189 and 2000Ga24: Nucl. Phys. A673, 45.
[a] From 2000Ga24: Nucl. Phys. A673, 45.
[b] From 2004La03: Phys. Rev. C69, 014319.
[c] Sign convention is not given by 2016Pe09 but seems to be Krane-Steffen, the same as adopted in the ENSDF database.
[d] Deduced by compiler from BrIcc v2.3b (16-Dec-2014) 2008Ki07, "frozen orbitals" approximation. For M1+E2, α overlaps M1 and E2.
[e] Placement of transition in the level scheme is uncertain.

$^{134}_{58}Ce_{76}$-16

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

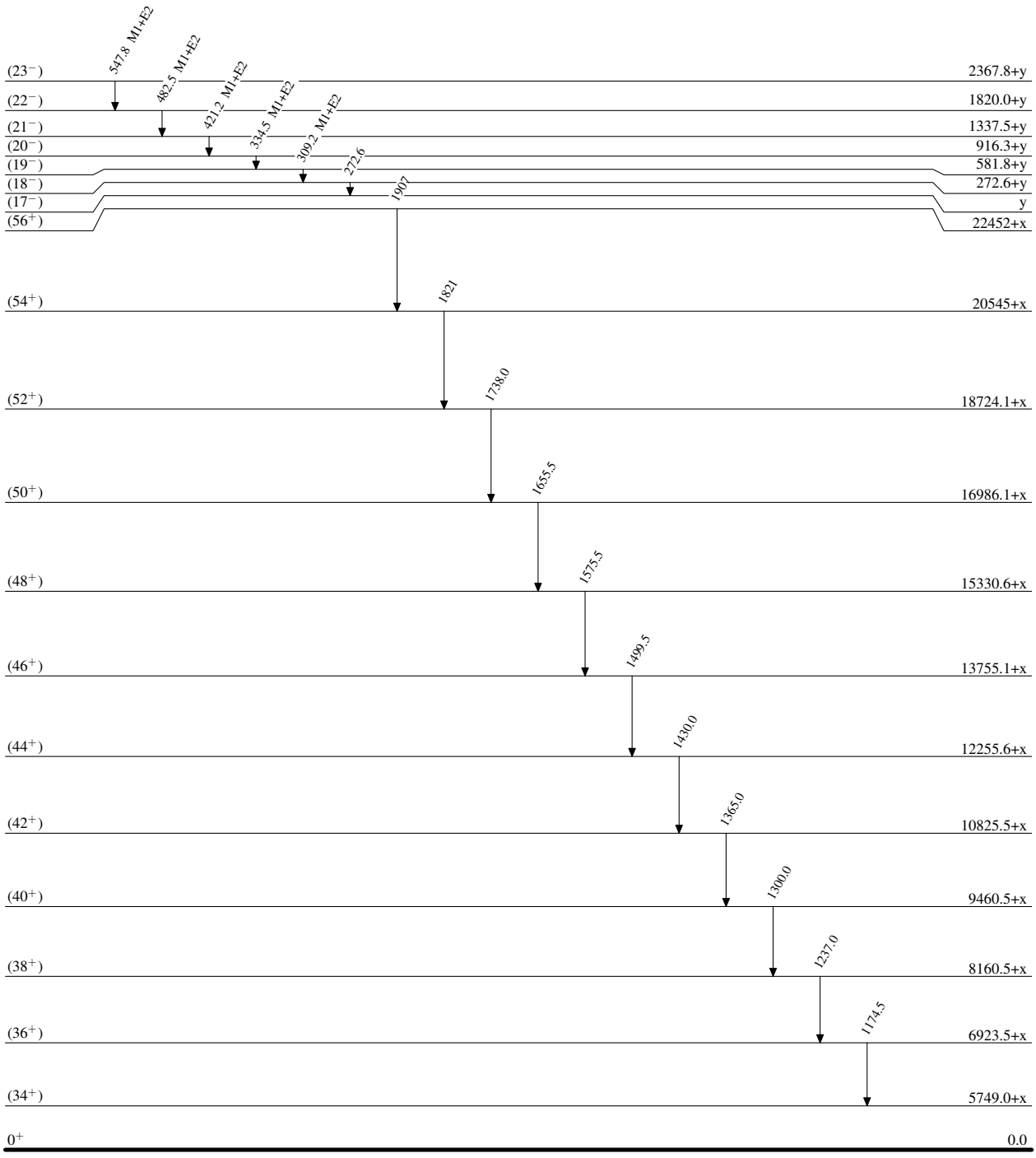
Level Scheme



$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

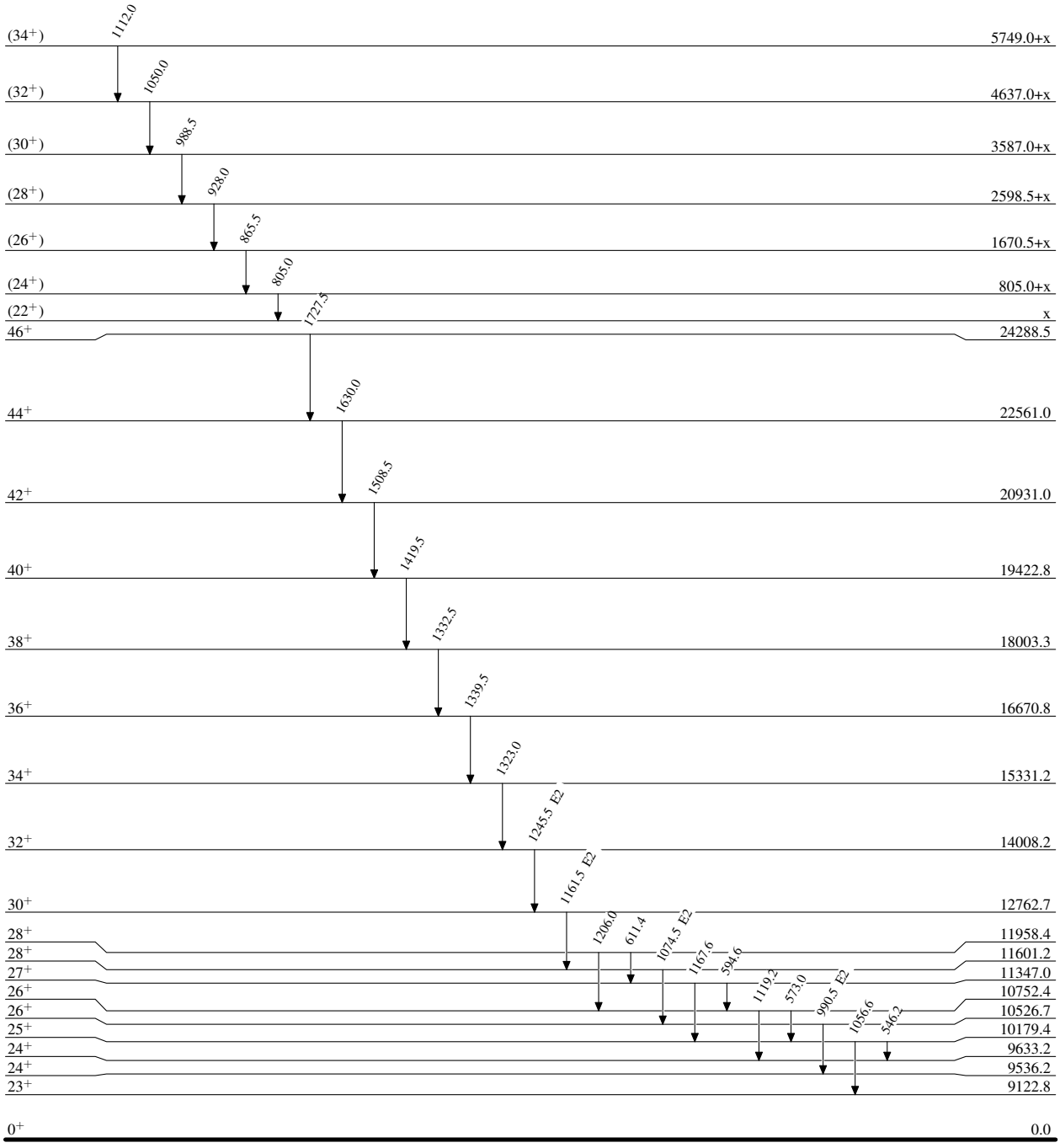
Level Scheme (continued)



$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

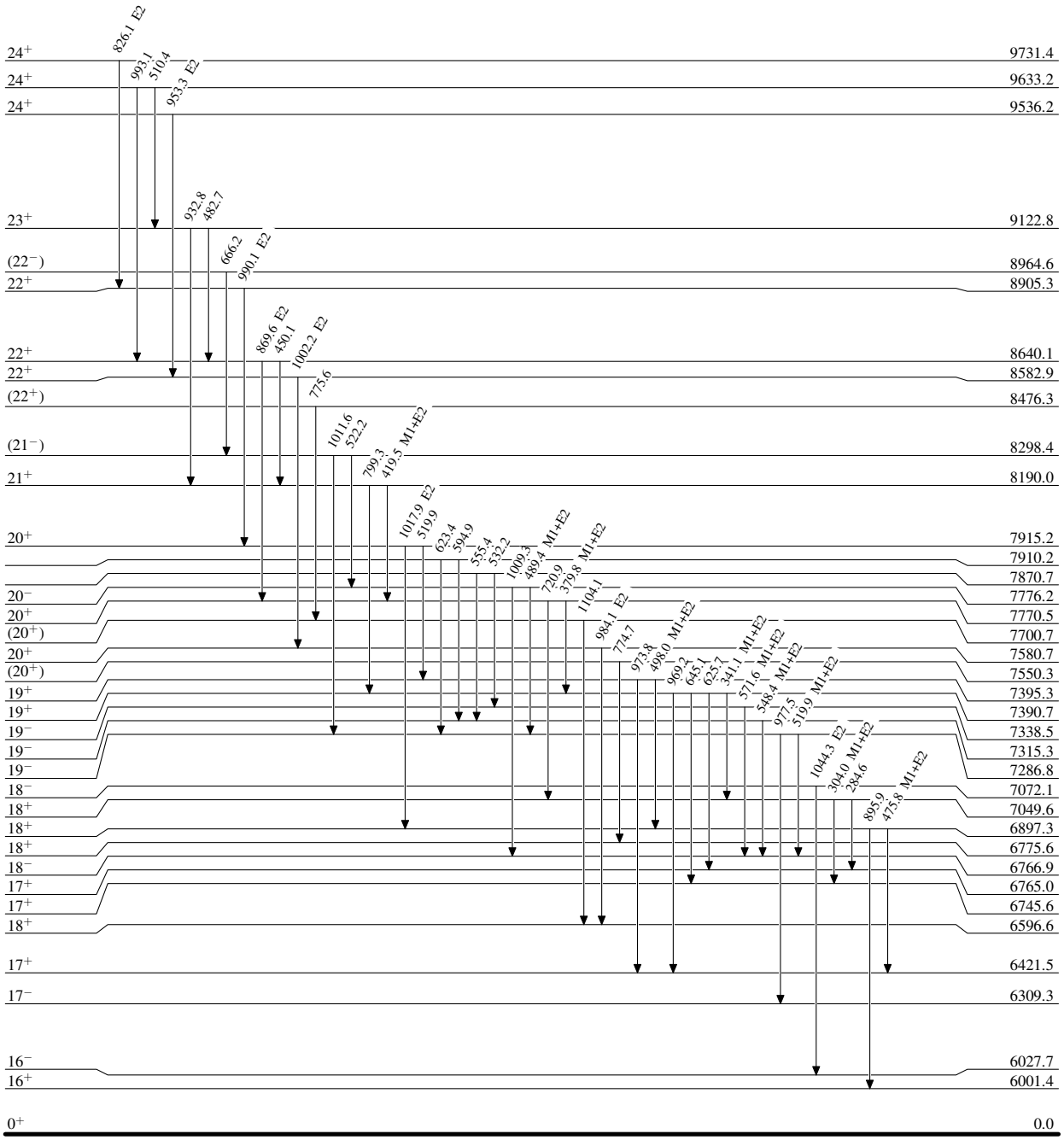
Level Scheme (continued)



$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

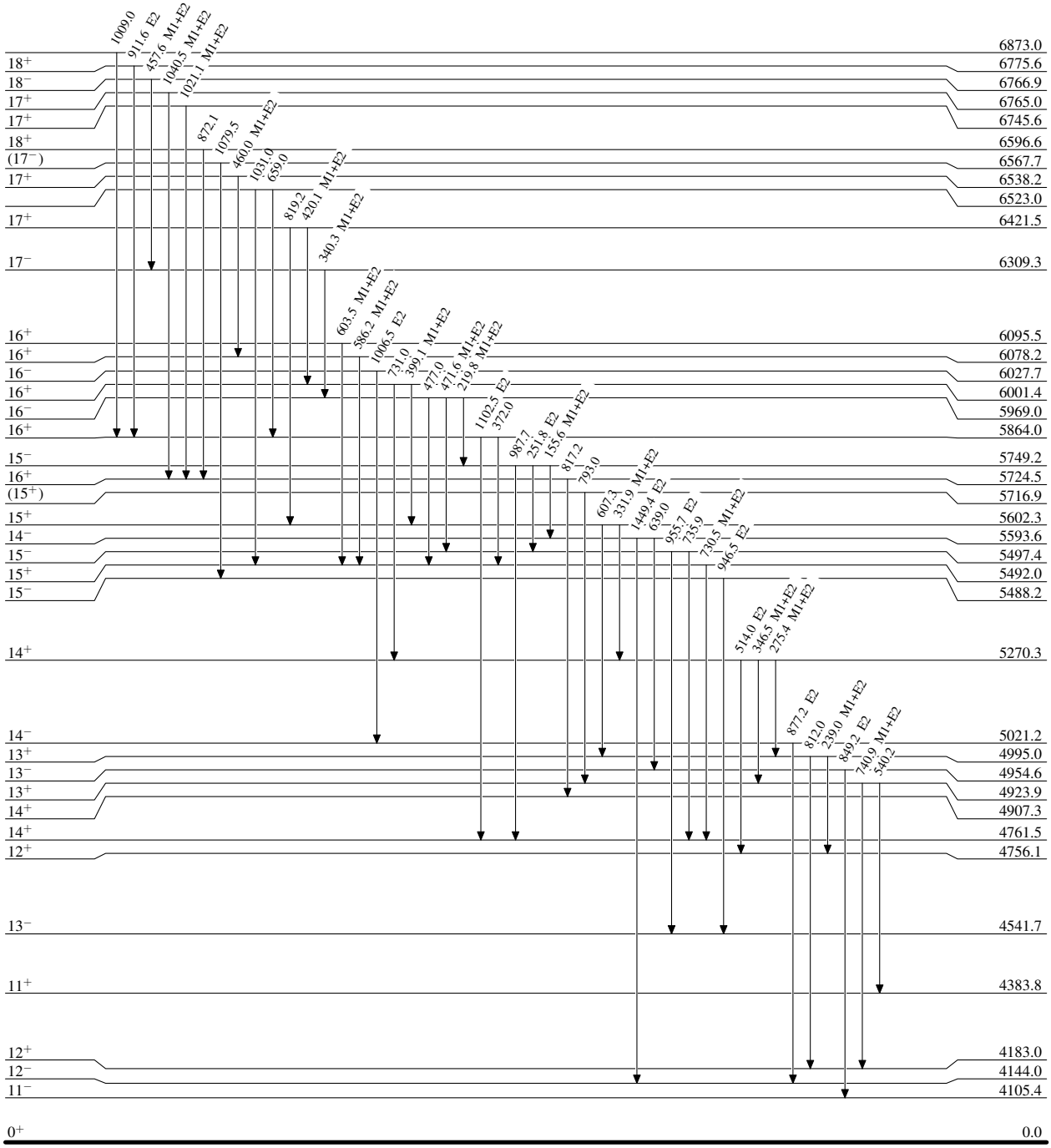
Level Scheme (continued)



$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

Level Scheme (continued)



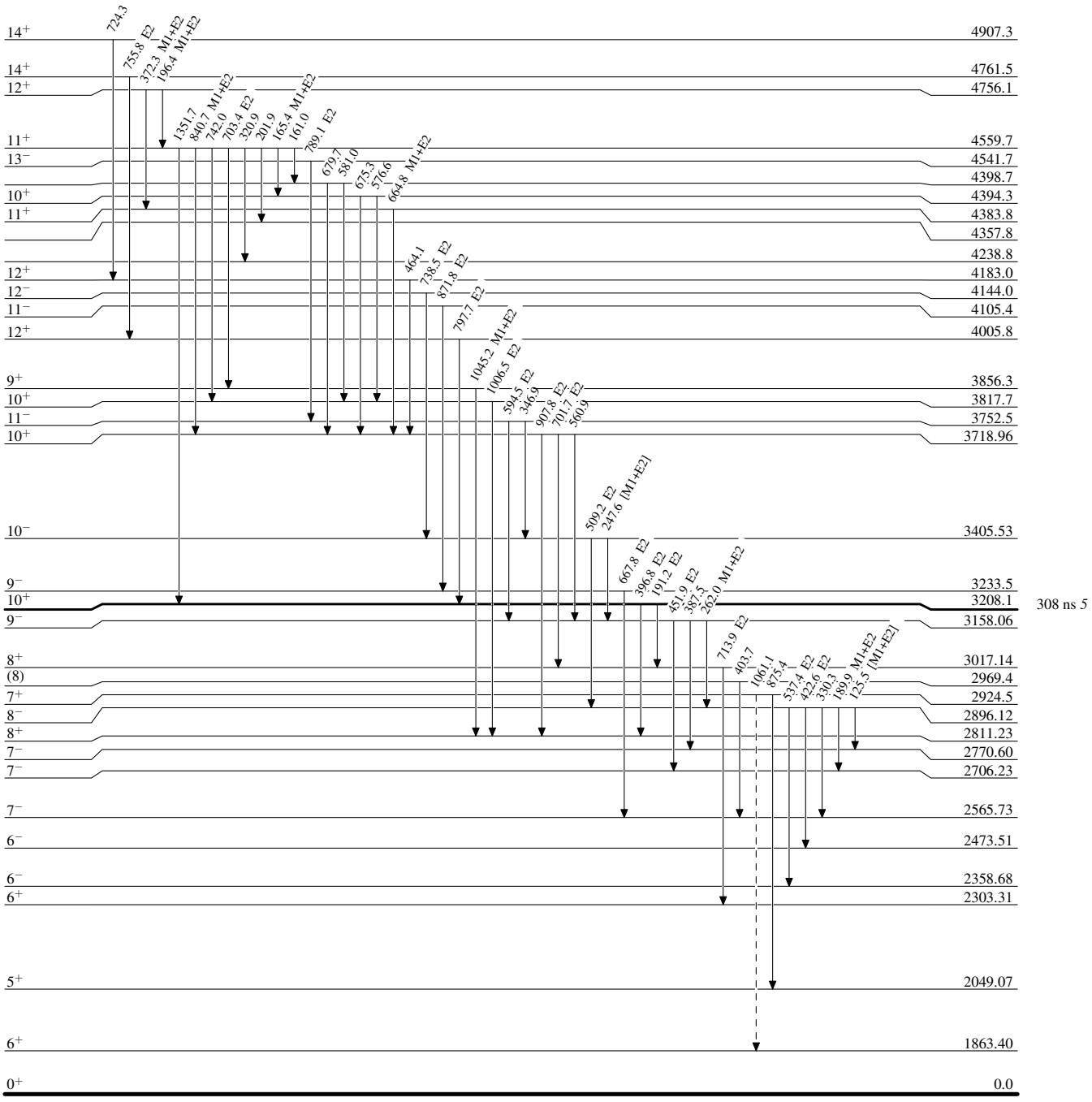
$^{134}_{58}Ce_{76}$

Legend

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

Level Scheme (continued)

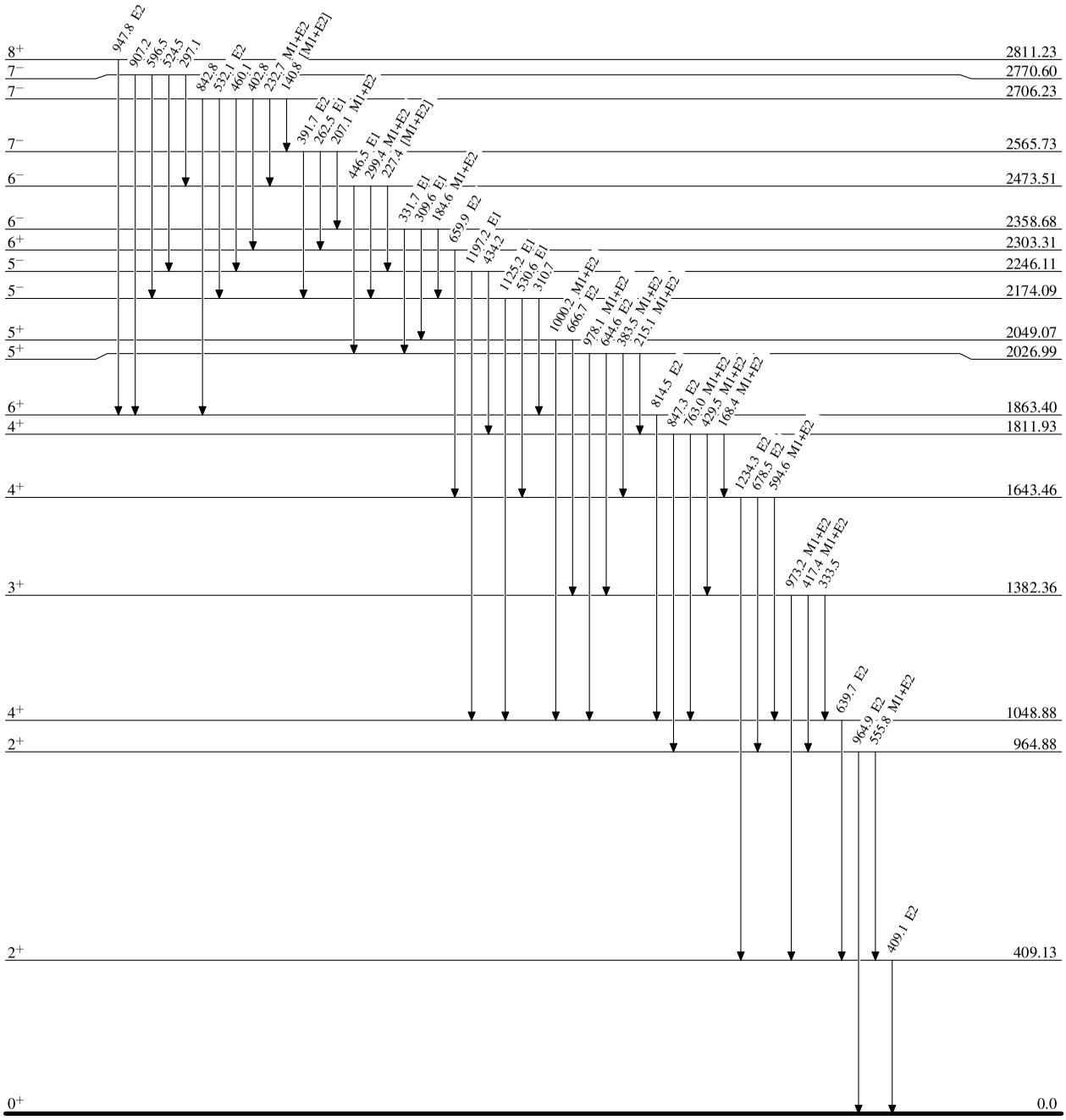
γ Decay (Uncertain)



$^{134}_{58}Ce_{76}$

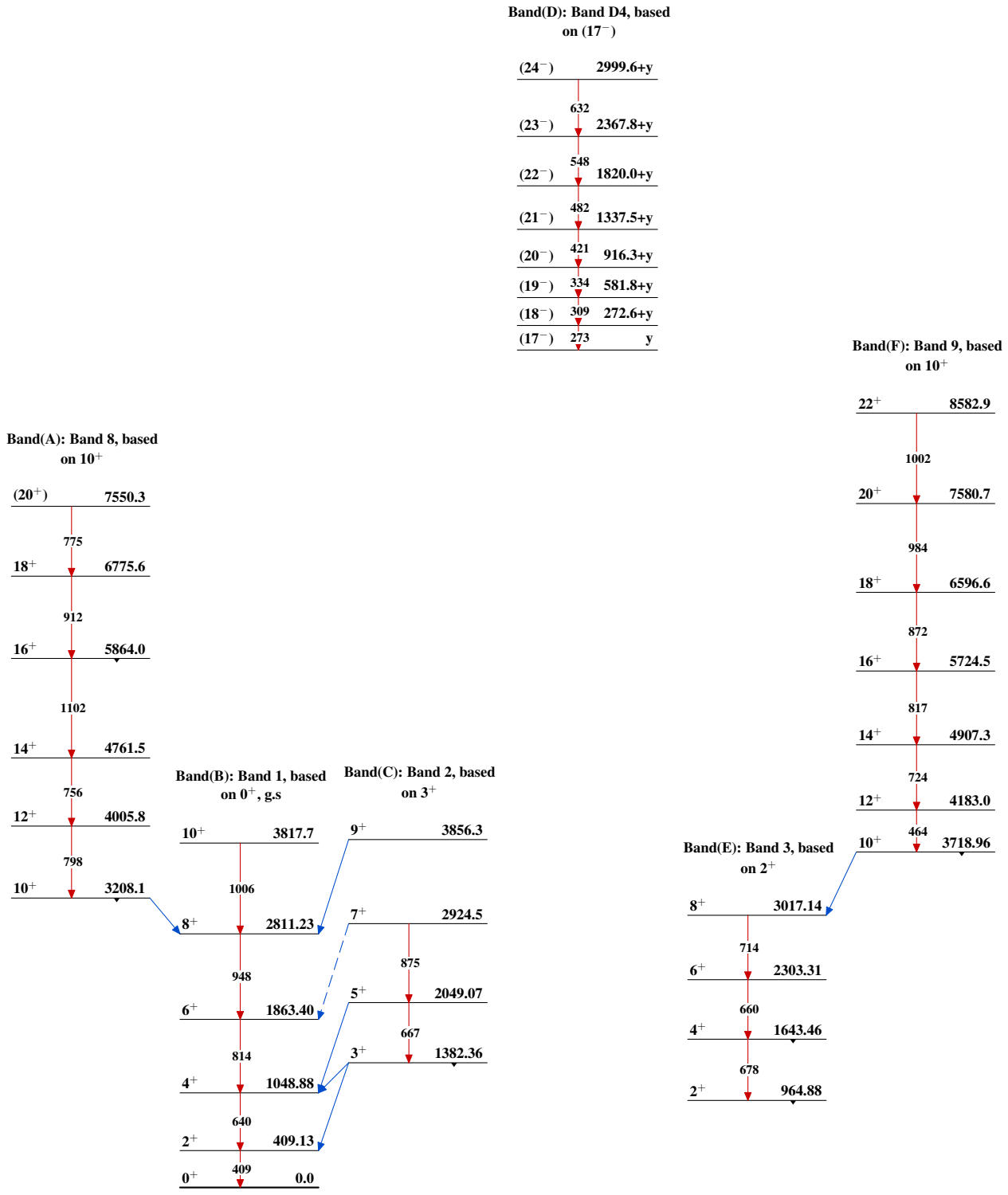
^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

Level Scheme (continued)

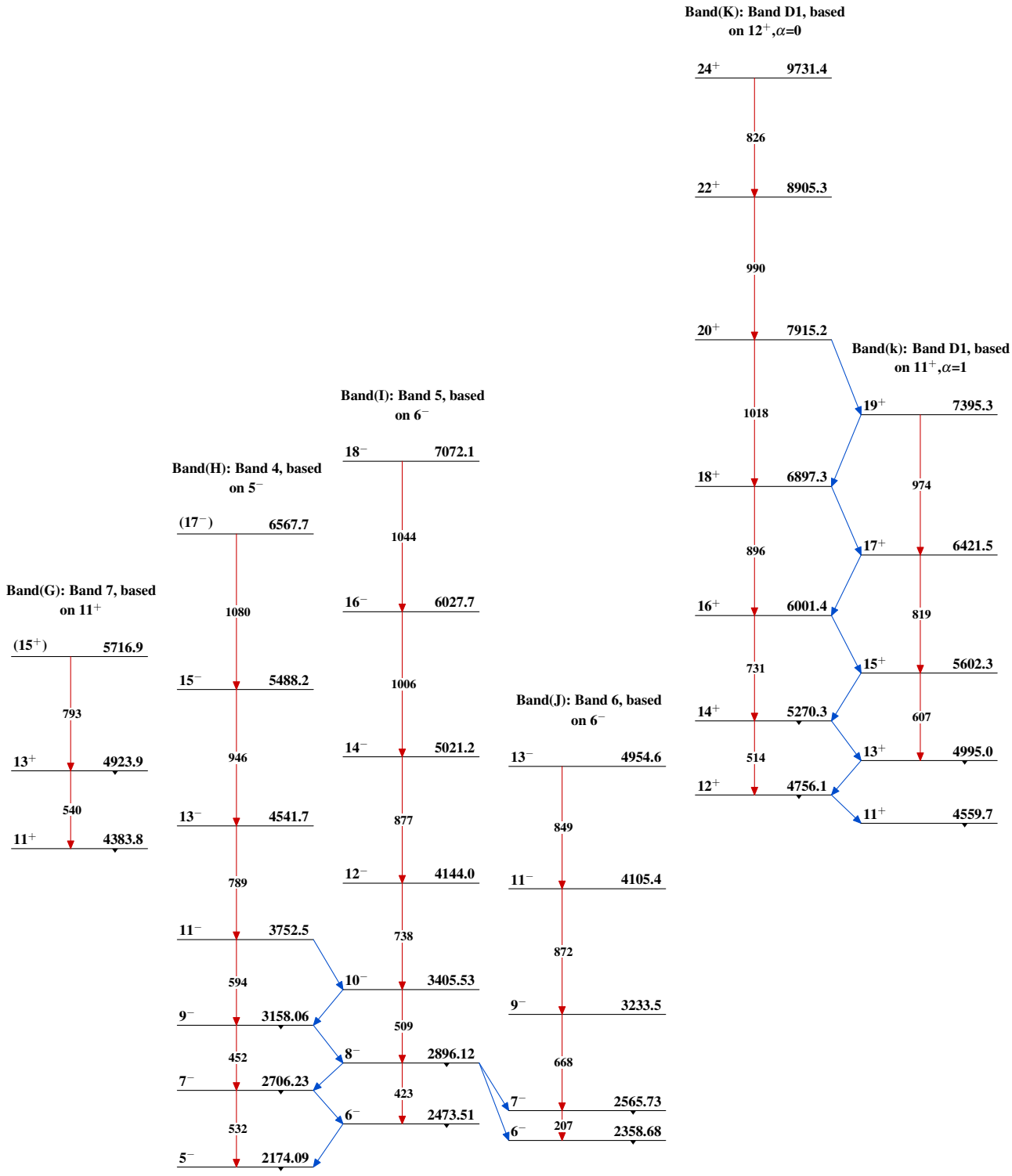


$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09

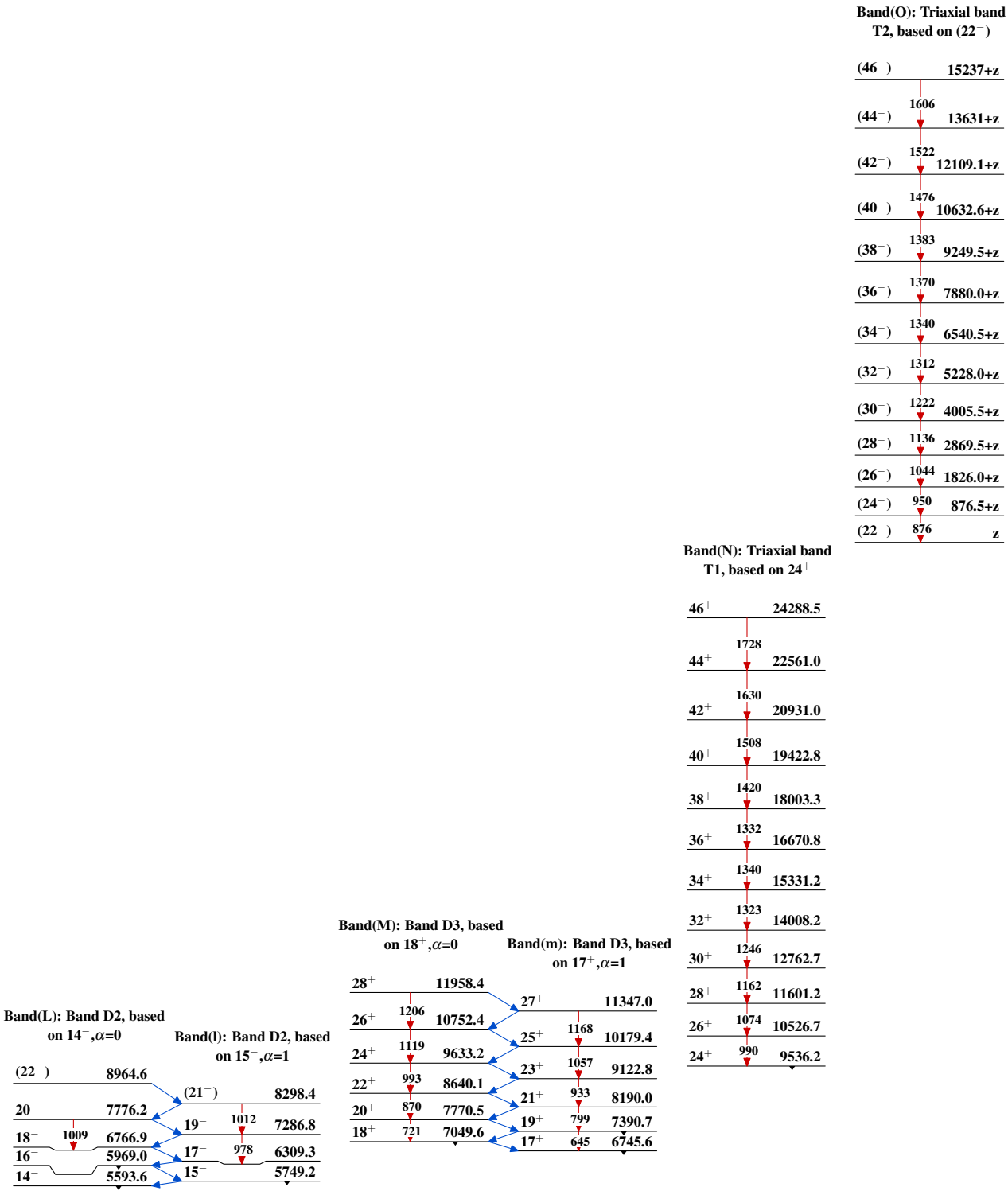


^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)



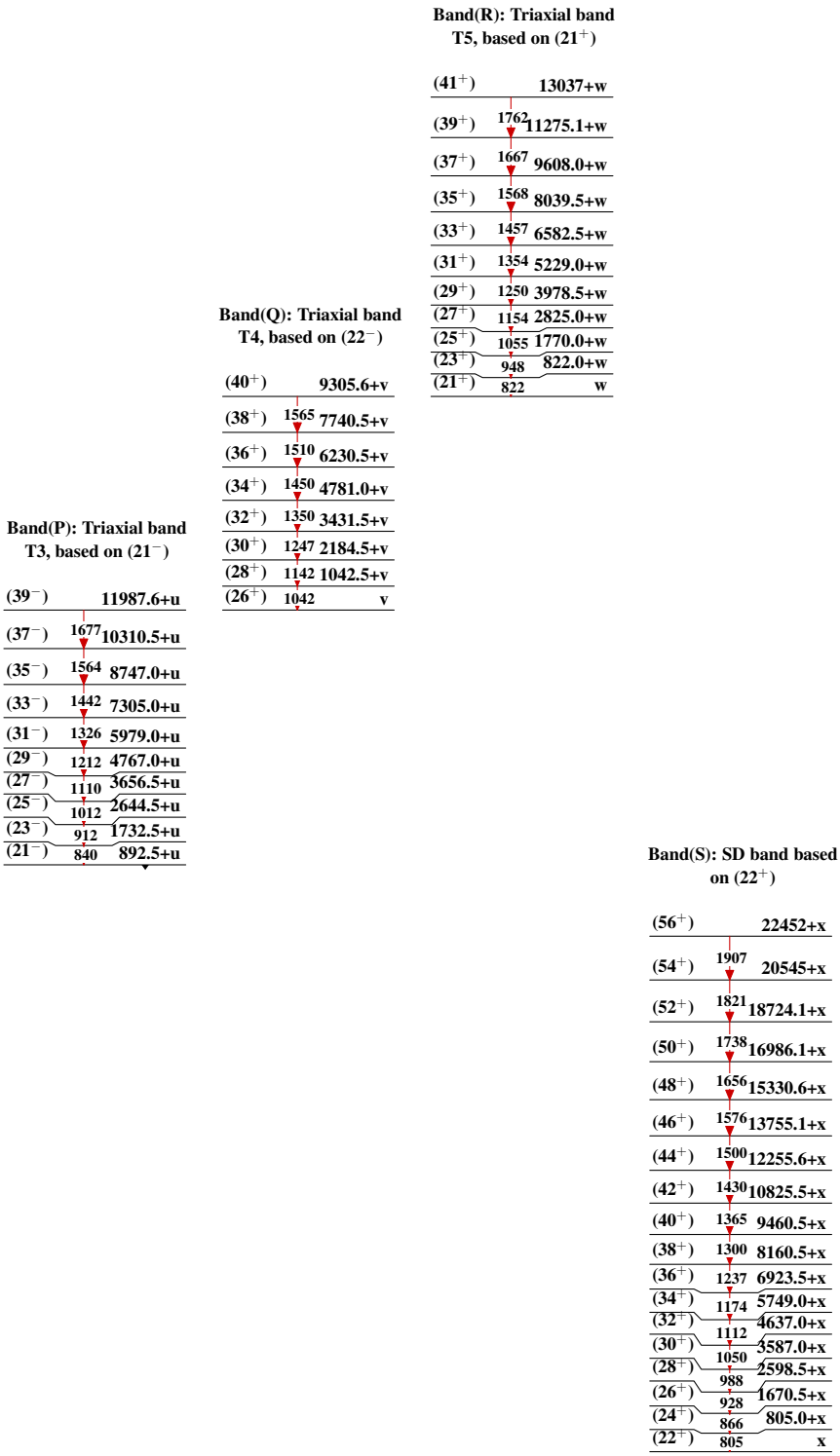
$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)



$^{134}_{58}Ce_{76}$

^{116}Cd(^{22}Ne,4nγ):XUNDL-4 2016Pe09 (continued)



$^{134}_{58}Ce_{76}$

^{122}Sn(^{16}O,4nγ):RDDS:XUNDL-5 2017Zh02

Compiled (unevaluated) dataset from 2017Zh02: Phys Rev C 95, 014308 (2017).
Compiled by B. Singh (McMaster), Jan 09, 2017.
2017Zh02: E(^{16}O)=76 MeV. Measured Eγ, $\gamma\gamma$-coin, level lifetimes by recoil-distance Doppler-shift (RDDS) method using a plunger device and an array of ten Compton-suppressed HPGe detectors at the HI-13 tandem accelerator of the China Institute of Atomic Energy (CIAE). Deduced B(E2) values. Comparison with interacting boson model calculations.
2017Zh02 take partial level scheme from 2016Pe09 (Phys. Rev. C93, 064305) and 1984Mu08 (Nucl. Phys. A417, 189).

^{134}Ce Levels

E(level)	J$^\pi$	T$_{1/2}$‡	Comments
0.0	0$^+$		
409.1	2$^+$	23.4 ps *18*	T$_{1/2}$: compared to 22.7 ps *19* in 1976Hu03: Phys. Rev. Lett. 36, 1291.
965.66†	2$^+$		
1048.8	4$^+$	1.66 ps *21*	T$_{1/2}$: compared to 3.12 ps *55* in 1976Hu03.
1382.3	3$^+$		
1643.5†	4$^+$		
1863.3	6$^+$		
2026.9	5$^+$		
2049.0	5$^+$		
2174.0	5$^-$		
2303.8†	6$^+$		
2706.1	7$^-$		
2811.1	8$^+$		
2924.4	7$^+$		
3017.6†	8$^+$		
3158.0	9$^-$		
3207.9	10$^+$	308 ns *5*	%IT=100 T$_{1/2}$: from ^{134}Ce Adopted Levels in the ENSDF database.
3718.9	10$^+$	6.65 ps *62*	T$_{1/2}$: compared to 6.0 ps *10* in 1976Hu03.
3752.5	11$^-$		
4005.6	12$^+$		
4183.0	12$^+$	11.6 ps *10*	T$_{1/2}$: compared to 11.0 ps *13* in 1976Hu03.
4761.4	14$^+$		
4907.3	14$^+$		
5724.5	16$^+$		
6596.6	18$^+$		

† From ^{134}Ce Adopted Levels in the ENSDF database (July 2004 update) to show complete decay of the 3718.9 level.
‡ From RDDS method, and by analyzing the transitions in coincidence mode using the differential decay curve method (DDCM) (2017Zh02), unless otherwise stated.

γ(^{134}Ce)

E$_i$(level)	J$_i^\pi$	E$_\gamma$	E$_f$	J$_f^\pi$	Mult.	α‡	Comments
409.1	2$^+$	409.1	0.0	0$^+$	E2	0.0190	B(E2)(W.u.)=50.8 *41* (2016ZhAA)
965.66	2$^+$	556.6†	409.1	2$^+$			
		965.7†	0.0	0$^+$			
1048.8	4$^+$	639.7	409.1	2$^+$	E2	0.00567	B(E2)(W.u.)=77.6 *97* (2016ZhAA)
1382.3	3$^+$	973.2	409.1	2$^+$			
1643.5	4$^+$	677.7†	965.66	2$^+$			
1863.3	6$^+$	814.5	1048.8	4$^+$			
2026.9	5$^+$	644.6	1382.3	3$^+$			
2049.0	5$^+$	666.7	1382.3	3$^+$			
2174.0	5$^-$	1125.2	1048.8	4$^+$			

Continued on next page (footnotes at end of table)

^{122}Sn(^{16}O,4nγ):RDDS:XUNDL-5 2017Zh02 (continued)

γ(^{134}Ce) (continued)

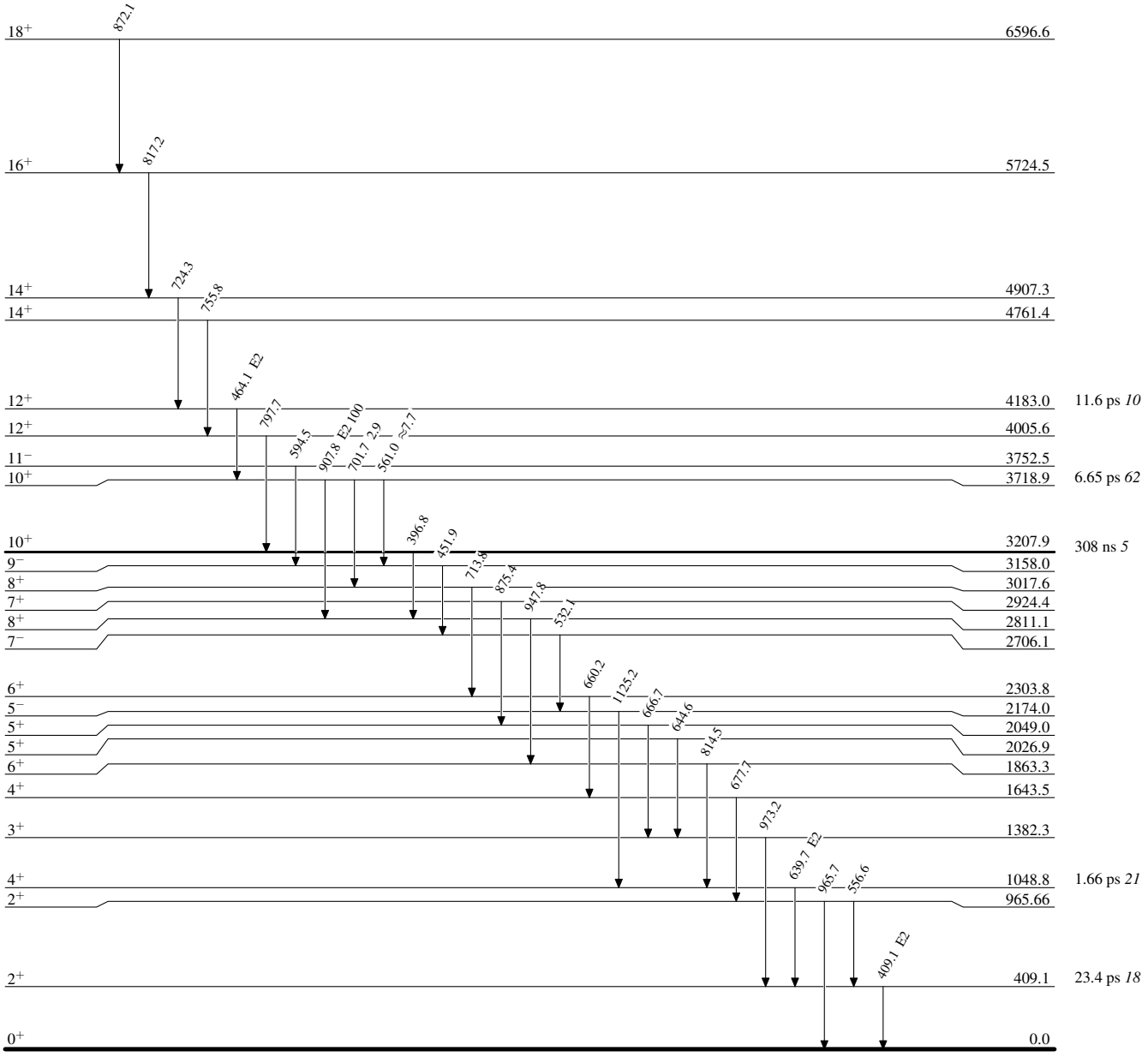
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	α‡	Comments
2303.8	6^+	660.2†		1643.5	4^+			
2706.1	7^-	532.1		2174.0	5^-			
2811.1	8^+	947.8		1863.3	6^+			
2924.4	7^+	875.4		2049.0	5^+			
3017.6	8^+	713.8†		2303.8	6^+			
3158.0	9^-	451.9		2706.1	7^-			
3207.9	10^+	396.8		2811.1	8^+			
3718.9	10^+	561.0†	≈7.7†	3158.0	9^-			
		701.7†	2.9† *18*	3017.6	8^+			
		907.8	100† *9*	2811.1	8^+	E2	0.00249	B(E2)(W.u.)=3.1 *5* B(E2)(W.u.) deduced by compiler. 2017Zh02 give 3.8 *3*. By considering only the 907.8γ from 3719 level, compiler obtains B(E2)(W.u.)=3.4 *4*.
3752.5	11^-	594.5		3158.0	9^-			
4005.6	12^+	797.7		3207.9	10^+			
4183.0	12^+	464.1		3718.9	10^+	E2	0.01325	B(E2)(W.u.)=54.9 *49* (2017Zh02)
4761.4	14^+	755.8		4005.6	12^+			
4907.3	14^+	724.3		4183.0	12^+			
5724.5	16^+	817.2		4907.3	14^+			
6596.6	18^+	872.1		5724.5	16^+			

† From ^{134}Ce Adopted dataset in the ENSDF database (July 2004 update).
‡ Theoretical values from BrIcc code.

^{122}Sn(^{16}O,4nγ):RDDS:XUNDL-5 2017Zh02

Level Scheme

Intensities: Relative photon branching from each level



$^{134}_{58}Ce_{76}$