^{183}Hg ε decay:XUNDL-3 2017Ve04

Parent: ^{183}Hg: E=0.0; $J^{\pi}=1/2^{-}$; $T_{1/2}$=9.4 s *7*; Q(ε)=6385 *12*; $\%\varepsilon+\%\beta^{+}$ decay=88.3 *20*

^{183}Hg-J^{π},$T_{1/2}$: From Adopted Levels of ^{183}Hg in ENSDF database.

^{183}Hg-Q(ε): From 2012Wa38.

^{183}Hg-$\%\varepsilon+\%\beta^{+}$ decay: From Adopted Levels of ^{183}Hg in ENSDF database.

Compiled (unevaluated) dataset from 2017Ve04: Nucl Inst Meth Phys Res A 849, 112 (2017).

Compiled by J. Chen (NSCL, MSU), March 17, 2017.

2017Ve04: ^{183}Hg ions were produced by spallation of 1.4 GeV proton beam provided from the ISOLDE facility at CERN in a molten lead target. Beam ions were separated and selected by the General Purpose Separator and delivered to the TATRA tape transportation system. γ rays were detected with an array of three different HPGe detectors including a non-bulletized disc shape Broad Energy Germanium detector (BEGe) for γ rays within 40-980 keV. Measured Eγ, $\gamma\gamma$-coin. Deduced levels.

^{183}Au Levels

E(level)†	E(level)†	E(level)†	E(level)†
0.0	91.257 *16*	263.702 *14*	779.817 *13*
12.732 *11*	172.849 *9*	289.377 *13*	811.251 *19*
34.930 *15*	247.057 *17*	314.669 *24*	818.069 *18*
73.100 *14*	252.460 *10*	317.781 *12*	977.974 *21*
88.088 *24*	254.546 *23*	440.750 *15*	1682.297 *21*

† From a least-squares fit to γ-ray energies (by compiler).

γ(^{183}Au)

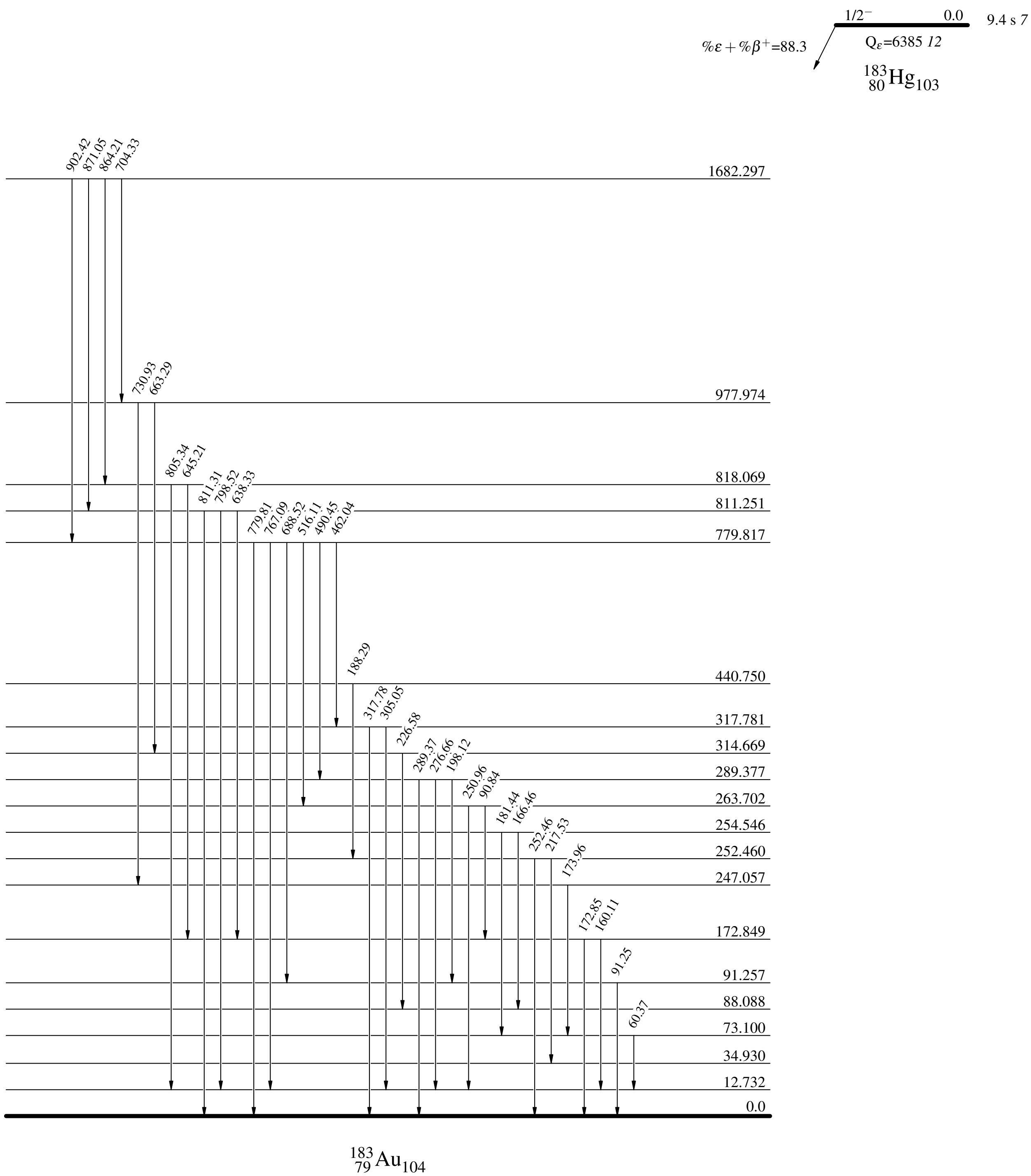
Eγ‡	E_i(level)	E_f	Eγ‡	E_i(level)	E_f	Eγ‡	E_i(level)	E_f
60.37 *1*	73.100	12.732	250.96 *2*	263.702	12.732	688.52† *7*	779.817	91.257
90.84 *3*	263.702	172.849	252.46 *1*	252.460	0.0	704.33 *2*	1682.297	977.974
91.25 *6*	91.257	0.0	276.66 *2*	289.377	12.732	730.93 *2*	977.974	247.057
160.11 *1*	172.849	12.732	289.37 *2*	289.377	0.0	767.09 *5*	779.817	12.732
166.46 *1*	254.546	88.088	305.05 *1*	317.781	12.732	779.81 *3*	779.817	0.0
172.85 *1*	172.849	0.0	317.78 *2*	317.781	0.0	798.52 *2*	811.251	12.732
173.96 *1*	247.057	73.100	462.04 *2*	779.817	317.781	805.34 *3*	818.069	12.732
181.44 *2*	254.546	73.100	490.45 *2*	779.817	289.377	811.31† *7*	811.251	0.0
188.29 *1*	440.750	252.460	516.11 *1*	779.817	263.702	864.21 *3*	1682.297	818.069
198.12 *1*	289.377	91.257	638.33† *7*	811.251	172.849	871.05 *3*	1682.297	811.251
217.53 *1*	252.460	34.930	645.21 *2*	818.069	172.849	902.42† *8*	1682.297	779.817
226.58 *1*	314.669	88.088	663.29 *3*	977.974	314.669			

† Very weak.

‡ Additional information 1.

^{183}Hg ε decay:XUNDL-3 2017Ve04

Decay Scheme



^{183}Hg ε decay:9.4 s:XUNDL-4 2017Ve02

Parent: ^{183}Hg: E=0.0; J$^{\pi}$=1/2^{-}; $T_{1/2}$=9.4 s *7*; Q(ε)=6387 *12*; %ε+%β^{+} decay=88.3 *20*

^{183}Hg-J$^{\pi}$,$T_{1/2}$: From ^{183}Hg Adopted Levels in the ENSDF database (April 2015 update).

^{183}Hg-Q(ε): From 2017Wa10: AME-2016.

^{183}Hg-%ε+%β^{+} decay: %ε+%β^{+}=88.3 *20* for the decay of ^{183}Hg, taken from ^{183}Hg Adopted Levels in the ENSDF database (April 2015 update).

Compiled (unevaluated) dataset from 2017Ve02: Jour Phys G44, 074003 (2017). See also paper by the same group in Nucl Instr and Methods A849, 112 (2017), where methodology is discussed with a partial decay scheme given.

Compiled by B. Singh (McMaster), July 15, 2017.

2017Ve02: ^{183}Hg source was produced in Pb(p,X),E(p)=1.4 GeV at the ISOLDE-CERN facility. The ^{183}Hg ions were selected by the General Purpose Separator and delivered to the HIGH-TATRA tape transport system. Measured Eγ, Iγ, ce, $\gamma\gamma$-coin and (ce)γ-coin using broad energy germanium detector for γ rays, and Si(Li) detector for conversion electrons. Deduced levels, J^{π}, multipolarities, mixing ratios. Discussed systematics of intruder states and shape coexistence in odd-A Au isotopes.

^{183}Au Levels

E(level)†	J$^{\pi}$#	Comments
0.0	(5/2^{-})	
12.74 *1*	(3/2^{-})	J$^{\pi}$: other: (9/2)$^{-}$ in ^{183}Au Adopted Levels in the ENSDF database.
34.93‡ *1*	(9/2^{-})	
73.10 *1*	(1/2^{+})	
88.06‡ *3*	(3/2^{+})	
91.25 *1*	(7/2^{-})	
172.85 *1*	(3/2^{-},5/2^{-})	
247.06‡ *2*	(3/2^{+})	
252.46‡ *1*	(7/2^{-})	
253.23‡ *1*	(11/2^{-})	
254.52‡ *2*	(5/2^{+})	
263.69 *2*		
289.37 *1*	(5/2^{-})	
314.65‡	(5/2^{+})	
317.78 *1*	(1/2^{-},3/2^{-},5/2^{-})	
384.62‡ *2*	(3/2^{+})	
440.75‡ *1*	(5/2^{-},7/2^{-},9/2^{-})	
539.65‡ *2*	(7/2^{-})	
779.80 *2*		
811.25 *2*		
818.06 *2*		
977.96‡ *2*		
1122.75‡ *3*	(3/2^{-})	
1682.30 *2*	(1/2^{-},3/2^{-})	J$^{\pi}$: from log *ft*=4.9 *+5−1*, based on I(ε+β^{+})=13% *+15−5* for this level, as given by 2017Ve02.

† As given by 2017Ve02. Compiler′s least-squares fit to Eγ data using GTOL code gives very similar results.

‡ New level in 2017Ve02.

As given in 2017Ve02, based on previous assignments and some in the present work from multipolarities determined from their ce data.

γ(^{183}Au)

The decay scheme cannot be normalized as sufficient information about multipolarities and mixing ratios is lacking, in addition to the incompleteness of the proposed level scheme.

Experimental conversion coefficients and K/L ratios are from ce data in 2017Ve02.

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.[†]	δ	α[‡]	Comments
(12.73)		12.74	(3/2⁻)	0.0	(5/2⁻)				
(14.96)		88.06	(3/2⁺)	73.10	(1/2⁺)				
(34.97)		34.93	(9/2⁻)	0.0	(5/2⁻)				
(56)		91.25	(7/2⁻)	34.93	(9/2⁻)				
60.37 *1*	440 *80*	73.10	(1/2⁺)	12.74	(3/2⁻)	E1		0.325	α(L)exp=0.22 *4*; α(M)exp=0.04 *2* Mult.: E1 assigned by 2017Ve02 with no abnormal behavior.
(79)		91.25	(7/2⁻)	12.74	(3/2⁻)				
90.84 *3*	14 *4*	263.69		172.85	(3/2⁻,5/2⁻)				
91.25 *6*	3 *1*	91.25	(7/2⁻)	0.0	(5/2⁻)				
160.11 *1*	100 *10*	172.85	(3/2⁻,5/2⁻)	12.74	(3/2⁻)	M1(+E2)			K/L=4.7 *18* Compiler′s note: δ(E2/M1)<0.96, but E1 is also possible from K/L(theory)=5.72 *12* for E1.
161 *1*	13 *3*	252.46	(7/2⁻)	91.25	(7/2⁻)				
166.46 *1*	50 *5*	254.52	(5/2⁺)	88.06	(3/2⁺)	M1+E2	0.82 *18*	1.30 *12*	α(L)exp=0.24 *5*; K/L=3.4 *5* δ deduced by compiler from mult=M1+40% *10* E2 in Table 1 of 2017Ve02. Note that in the text on page 12, authors quote K/L=3.2 *5* and mult=M1+44% *10*.
172.85 *1*	82 *8*	172.85	(3/2⁻,5/2⁻)	0.0	(5/2⁻)	M1		1.529	α(K)exp=1.25 *28* Compiler obtains δ(E2/M1)<0.63. α(K)exp: combined for 172.85+173.96 doublet.
173.96 *1*	46 *5*	247.06	(3/2⁺)	73.10	(1/2⁺)	M1		1.502	α(K)exp=1.25 *28* Compiler obtains δ(E2/M1)<0.60. α(K)exp: combined for 172.85+173.96 doublet.
181.44 *2*	6 *1*	254.52	(5/2⁺)	73.10	(1/2⁺)				
188.29 *1*	19 *2*	440.75	(5/2⁻,7/2⁻,9/2⁻)	252.46	(7/2⁻)	M1(+E2)			α(K)exp=0.87 *20* Compiler obtains δ(E2/M1)<0.82.
198.12 *1*	19 *2*	289.37	(5/2⁻)	91.25	(7/2⁻)	M1		1.043	α(K)exp=0.88 *20* Compiler obtains δ(E2/M1)<0.59.
217.53 *1*	14 *2*	252.46	(7/2⁻)	34.93	(9/2⁻)	M1(+E2)			α(K)exp=0.54 *13* Compiler obtains δ(E2/M1)<0.96.
218.30 *1*	11 *2*	253.23	(11/2⁻)	34.93	(9/2⁻)				
226.58 *1*	29 *6*	314.65	(5/2⁺)	88.06	(3/2⁺)				
250.96 *2*	11 *2*	263.69		12.74	(3/2⁻)				
252.46 *1*	16 *2*	252.46	(7/2⁻)	0.0	(5/2⁻)				
276.66 *2*	20 *2*	289.37	(5/2⁻)	12.74	(3/2⁻)				
ˣ284.40 *2*	11 *2*					E0+M1+E2			α(K)exp=1.21 *33*

$^{183}_{79}$Au$_{104}$-2

γ(^{183}Au) (continued)

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	α‡	Comments
								Mult.: 2017Ve02 list mult=E0+M1$^+$... This γ ray could not be placed due to lack of observation of coincidences, and limited counting statistics in 2017Ve02.
286.42 *1*	13 *2*	539.65	(7/2$^-$)	253.23	(11/2$^-$)			
289.37 *2*	37 *4*	289.37	(5/2$^-$)	0.0	(5/2$^-$)	M1+E2	0.24 *13*	α(K)exp=0.25 *6* Compiler obtains M1(+E2) with δ(E2/M1)<0.95.
296.54 *2*	6 *1*	384.62	(3/2$^+$)	88.06	(3/2$^+$)	E0+M1+E2		α(K)exp=2.84 *74* Mult.: 2017Ve02 list mult=E0+M1$^+$...
305.05 *1*	81 *8*	317.78	(1/2$^-$,3/2$^-$,5/2$^-$)	12.74	(3/2$^-$)	M1	0.317	α(K)exp=0.26 *6*; α(L)exp=0.04 *1* Compiler obtains δ(E2/M1)<0.65 from K-conversion coefficient, and <3.0 from L-conversion coefficient.
311.53 *2*	10 *2*	384.62	(3/2$^+$)	73.10	(1/2$^+$)			
317.78 *2*	17 *2*	317.78	(1/2$^-$,3/2$^-$,5/2$^-$)	0.0	(5/2$^-$)			
462.04 *2*	17 *2*	779.80		317.78	(1/2$^-$,3/2$^-$,5/2$^-$)			
490.45 *2*	5 *1*	779.80		289.37	(5/2$^-$)			
516.11 *1*	32 *3*	779.80		263.69				
583.10 *2*	12 *2*	1122.75	(3/2$^-$)	539.65	(7/2$^-$)			
607 *1*	11 *3*	779.80		172.85	(3/2$^-$,5/2$^-$)			
638.33 *7*	4 *2*	811.25		172.85	(3/2$^-$,5/2$^-$)			
645.21 *2*	19 *2*	818.06		172.85	(3/2$^-$,5/2$^-$)			
663.29 *3*	5 *1*	977.96		314.65	(5/2$^+$)			
688.52 *7*	4 *2*	779.80		91.25	(7/2$^-$)			
704.33 *2*	13 *3*	1682.30	(1/2$^-$,3/2$^-$)	977.96				
730.93 *2*	7 *1*	977.96		247.06	(3/2$^+$)			
767.09 *5*	20 *2*	779.80		12.74	(3/2$^-$)			
779.81 *3*	12 *2*	779.80		0.0	(5/2$^-$)			
798.52 *2*	20 *2*	811.25		12.74	(3/2$^-$)			
805.34 *3*	16 *2*	818.06		12.74	(3/2$^-$)			
811.31 *7*	6 *2*	811.25		0.0	(5/2$^-$)			
864.21 *3*	13 *1*	1682.30	(1/2$^-$,3/2$^-$)	818.06				
871.05 *3*	18 *2*	1682.30	(1/2$^-$,3/2$^-$)	811.25				
902.42 *8*	17 *2*	1682.30	(1/2$^-$,3/2$^-$)	779.80				
1242 *1*	7 *2*	1682.30	(1/2$^-$,3/2$^-$)	440.75	(5/2$^-$,7/2$^-$,9/2$^-$)			
1297 *1*	12 *1*	1682.30	(1/2$^-$,3/2$^-$)	384.62	(3/2$^+$)			
1364 *1*	10 *1*	1682.30	(1/2$^-$,3/2$^-$)	317.78	(1/2$^-$,3/2$^-$,5/2$^-$)			
1393 *1*	20 *2*	1682.30	(1/2$^-$,3/2$^-$)	289.37	(5/2$^-$)			
1428 *1*	83 *8*	1682.30	(1/2$^-$,3/2$^-$)	254.52	(5/2$^+$)			
^{x}1437 *1*	16 *2*							
1509 *1*	32 *3*	1682.30	(1/2$^-$,3/2$^-$)	172.85	(3/2$^-$,5/2$^-$)			

† As assigned by 2017Ve02 based on their ce data.

From XUNDL

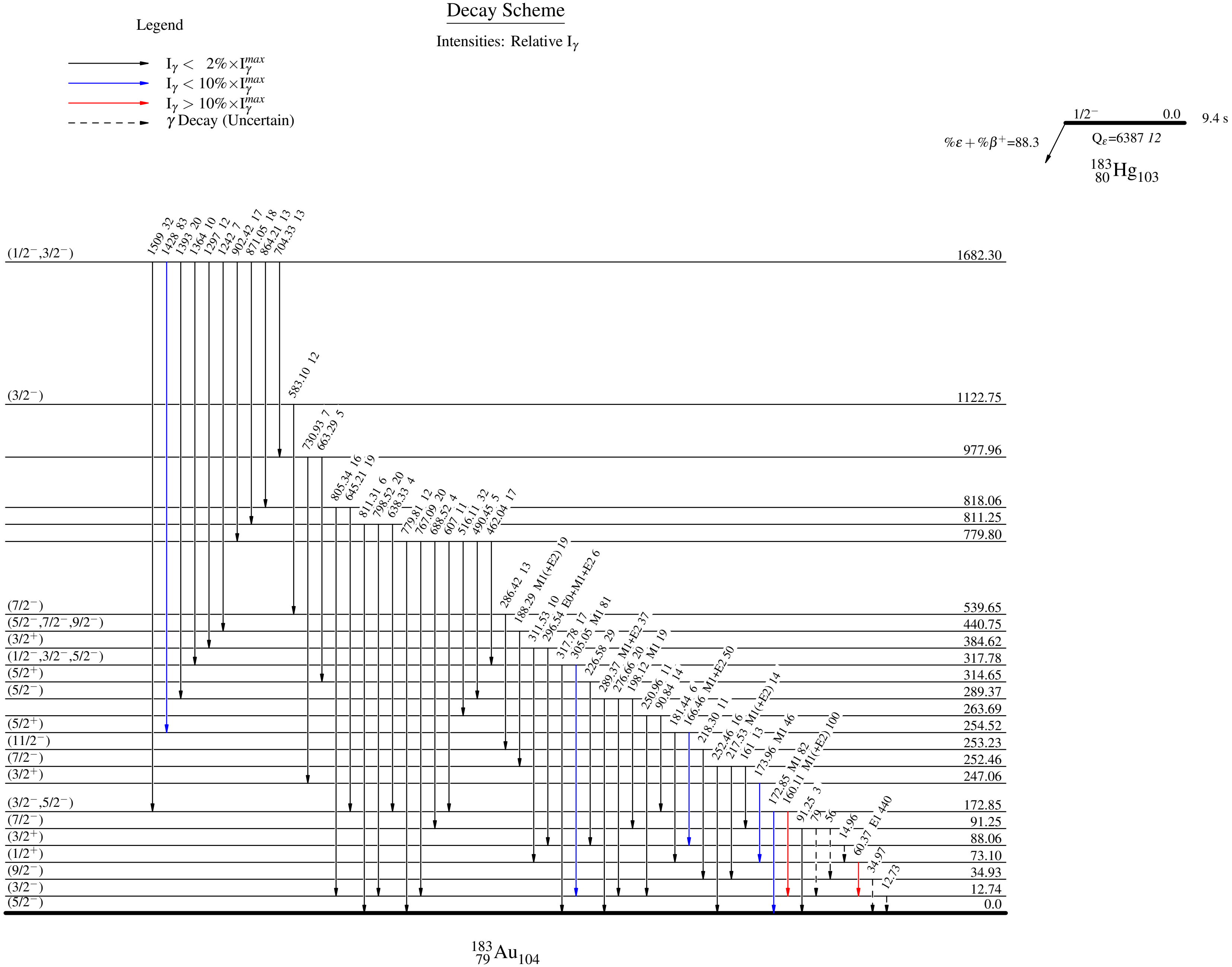
γ(^{183}Au) (continued)

‡ Theoretical values from BrIcc code, included by compiler.
^{x} γ ray not placed in level scheme.

^{183}Hg ε decay:9.4 s:XUNDL-4 2017Ve02

Decay Scheme

Intensities: Relative I_γ



From XUNDL

$^{183}_{79}Au_{104}$-5

$^{169}Tm(^{20}Ne,6n\gamma)$:XUNDL-5 2020Na27

Compiled (unevaluated) dataset from 2020Na27: Phys Rev Lett 125, 132501 (2020).
Compiled by J. Chen (NSCL, MSU), April 8, 2021.
2020Na27: E=146 MeV ^{20}Ne beam was produced from the K-130 cyclotron at the Variable Energy Cyclotron Center, Kolkata. Target was 23 mg/cm^2 ^{169}Tm foil. γ rays were detected with the Indian National Gamma Array consisting of 8 Compton-suppressed clover HPGe detectors and 2 HPGe planar LEPS detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma\gamma$-coin, $\gamma\gamma$(DCO), γ(lin pol). Deduced levels, J, π, band structures, γ-ray multipolarities and mixing ratios. Comparisons with theoretical calculations.

^{183}Au Levels

E(level)[†]	J^{π}[#]	E(level)[†]	J^{π}[#]	E(level)[†]	J^{π}[#]	E(level)[†]	J^{π}[#]
12.78[‡&]	9/2$^-$	1488[a]	23/2$^-$	2684[c]	31/2$^+$	4464[c]	43/2$^+$
68[@]	7/2$^-$	1492[&]	25/2$^-$	2690[&]	33/2$^-$	4760[&]	45/2$^-$
232[&]	13/2$^-$	1530[b]	25/2$^+$	2742[@]	31/2$^-$	4986[b]	49/2$^+$
274[@]	11/2$^-$	1544[@]	23/2$^-$	3049[b]	37/2$^+$	5133[a]	47/2$^-$
566[&]	17/2$^-$	1670[d]	23/2$^+$	3148[a]	35/2$^-$	5497[&]	49/2$^-$
600[@]	15/2$^-$	1739[c]	23/2$^+$	3243[c]	35/2$^+$	5677[b]	53/2$^+$
702[b]	13/2$^+$	1983[b]	29/2$^+$	3358[&]	37/2$^-$	5912[a]	51/2$^-$
867[b]	17/2$^+$	1987[a]	27/2$^-$	3389[@]	35/2$^-$	6242[&]	53/2$^-$
898[d]	15/2$^+$	2063[&]	29/2$^-$	3655[b]	41/2$^+$	6375[b]	57/2$^+$
990[&]	21/2$^-$	2118[@]	27/2$^-$	3796[a]	39/2$^-$	7103[b]	61/2$^+$
1024[@]	19/2$^-$	2178[c]	27/2$^+$	3840[c]	39/2$^+$	7848[b]	65/2$^+$
1056[a]	19/2$^-$	2206[d]	(27/2$^+$)	4050[&]	41/2$^-$		
1151[b]	21/2$^+$	2492[b]	33/2$^+$	4308[b]	45/2$^+$		
1213[d]	19/2$^+$	2540[a]	31/2$^-$	4457[a]	43/2$^-$		

[†] As given in 2020Na27, from a least-squares fit to γ-ray energies, unless otherwise noted.
[‡] From Adopted Levels of ^{183}Au in ENSDF database (2016 update).
[#] As given in 2020Na27 based on band assignments and deduced multipolarity.
[@] Band(A): Signature-partner band based on 7/2$^-$.
[&] Band(B): $h_{9/2}$ band based on 9/2$^-$.
[a] Band(C): Traverse-wobbling band based on 19/2$^-$.
[b] Band(D): $i_{13/2}$ band based on 13/2$^+$.
[c] Band(E): Traverse-wobbling band based on 23/2$^+$.
[d] Band(F): Signature-partner band based on 15/2$^+$.

$\gamma(^{183}Au)$

R_{DCO} and POL values given under comments are read off from FIG.2 of 2020Na27 by compiler.

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
165	867	17/2$^+$	702	13/2$^+$			
196[‡]	898	15/2$^+$	702	13/2$^+$			
205	274	11/2$^-$	68	7/2$^-$			
220	232	13/2$^-$	12.78	9/2$^-$			
262	274	11/2$^-$	12.78	9/2$^-$	M1+E2	−0.12 *2*	R_{DCO}=0.64 *4*, POL=−0.30 *11*.
266	867	17/2$^+$	600	15/2$^-$			
283	1151	21/2$^+$	867	17/2$^+$			
301	867	17/2$^+$	566	17/2$^-$			
315[‡]	1213	19/2$^+$	898	15/2$^+$			

Continued on next page (footnotes at end of table)

^{169}Tm(^{20}Ne,6nγ):XUNDL-5 2020Na27 (continued)

γ(^{183}Au) (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	Comments
326	600	15/2−	274	11/2−			
334	566	17/2−	232	13/2−			
347‡	1213	19/2+	867	17/2+	M1+E2	0.02 *10*	R_{DCO}=0.97 *6*, POL=−0.34 *11*.
368	600	15/2−	232	13/2−	M1+E2	−0.08 *3*	R_{DCO}=0.64 *4*, POL=−0.30 *11*.
379	1530	25/2+	1151	21/2+			
424	990	21/2−	566	17/2−			
424	1024	19/2−	600	15/2−			
428	702	13/2+	274	11/2−	E1+M2	−0.08 *2*	R_{DCO}=0.68 *2*, POL=+0.31 *8*.
432	1488	23/2−	1056	19/2−			
439	2178	27/2+	1739	23/2+			
453	1983	29/2+	1530	25/2+			
456	1056	19/2−	600	15/2−			
457	1024	19/2−	566	17/2−	M1+E2	−0.08 *5*	R_{DCO}=0.62 *5*, POL=−0.34 *12*.
457‡	1670	23/2+	1213	19/2+			
465	1488	23/2−	1024	19/2−			
470	702	13/2+	232	13/2−			
478‡	2540	31/2−	2063	29/2−			
490‡	1056	19/2−	566	17/2−			
495	1987	27/2−	1492	25/2−	E2+M1	−2.9 *7*	R_{DCO}=0.50 *5*, POL=+0.14 *10*.
498‡	1488	23/2−	990	21/2−	E2+M1	−2.9 *9*	R_{DCO}=0.48 *7*, POL=+0.12 *12*.
498	1987	27/2−	1488	23/2−			
502	1492	25/2−	990	21/2−			
505	2684	31/2+	2178	27/2+			
509	2492	33/2+	1983	29/2+			
519‡	1670	23/2+	1151	21/2+			
520	1544	23/2−	1024	19/2−			
535‡	2206	(27/2+)	1670	23/2+			
553	2540	31/2−	1987	27/2−			
557	3049	37/2+	2492	33/2+	E2+M3	−0.05 *5*	R_{DCO}=1.03 *2*, POL=+0.46 *9*.
559	3243	35/2+	2684	31/2+			
571	2063	29/2−	1492	25/2−			
574	2118	27/2−	1544	23/2−			
588	1739	23/2+	1151	21/2+	E2+M1	−3.1 *13*	R_{DCO}=0.44 *7*, POL=+0.14 *12*.
597	3840	39/2+	3243	35/2+			
607	3148	35/2−	2540	31/2−			
607	3655	41/2+	3049	37/2+			
624	2742	31/2−	2118	27/2−			
624‡@	4464	43/2+	3840	39/2+			
627	2690	33/2−	2063	29/2−			
646	3389	35/2−	2742	31/2−			
648	2178	27/2+	1530	25/2+	E2+M1	−3.2 *13*	R_{DCO}=0.46 *6*, POL=+0.16 *11*.
648	3796	39/2−	3148	35/2−			
652	4308	45/2+	3655	41/2+			
661	4457	43/2−	3796	39/2−			
668	3358	37/2−	2690	33/2−			
676‡	5133	47/2−	4457	43/2−			
679	4986	49/2+	4308	45/2+			
691	5677	53/2+	4986	49/2+			
692	4050	41/2−	3358	37/2−			
698	6375	57/2+	5677	53/2+			
701	2684	31/2+	1983	29/2+	E2+M1	−3.5 *15*	R_{DCO}=0.47 *7*, POL=+0.14 *12*.
710	4760	45/2−	4050	41/2−			
727	7103	61/2+	6375	57/2+			

Continued on next page (footnotes at end of table)

$^{169}Tm(^{20}Ne,6n\gamma)$:XUNDL-5 2020Na27 (continued)

$\gamma(^{183}Au)$ (continued)

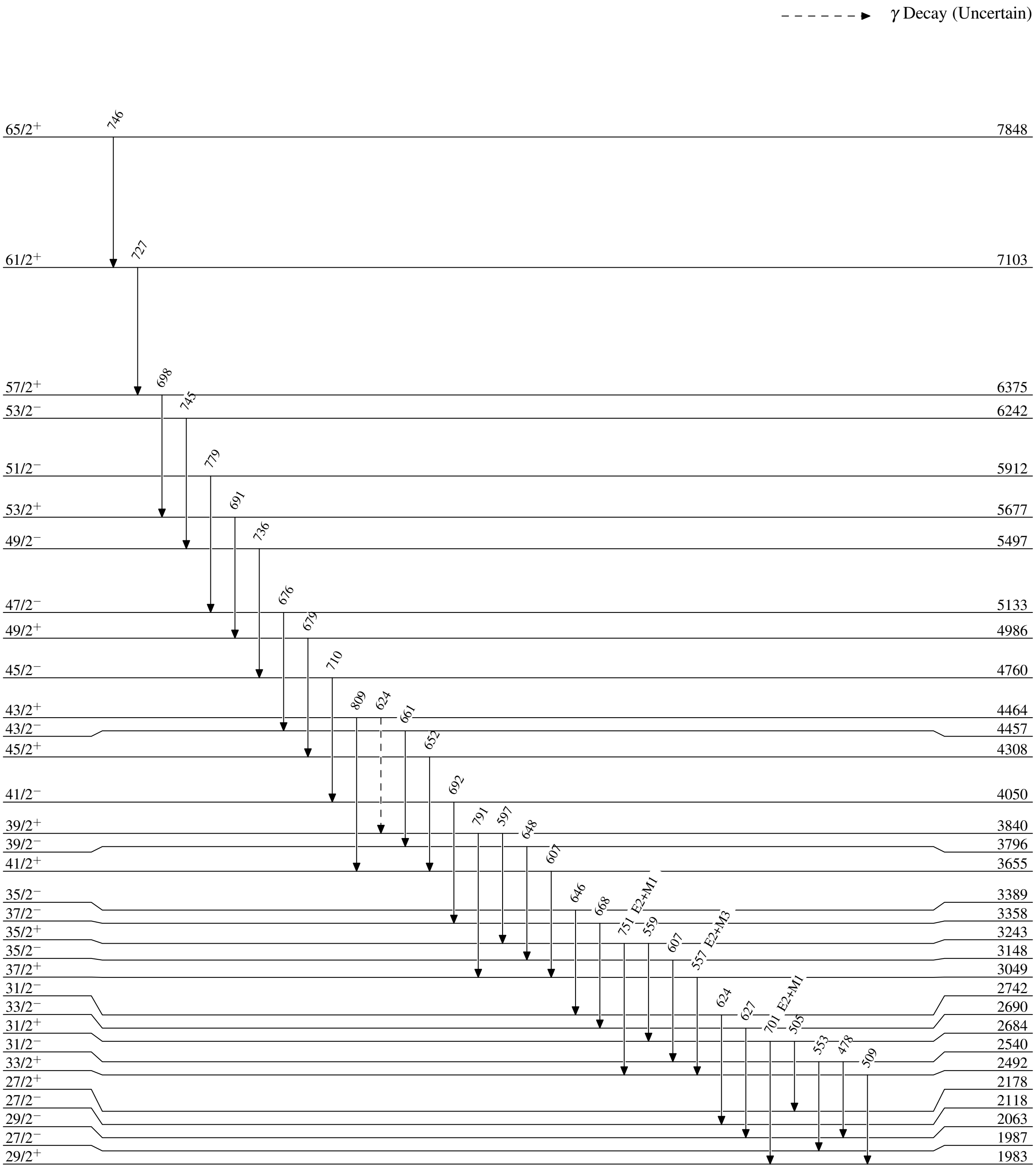
E_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	Comments
736	5497	49/2⁻	4760	45/2⁻			
745‡	6242	53/2⁻	5497	49/2⁻			
746‡	7848	65/2⁺	7103	61/2⁺			
751	3243	35/2⁺	2492	33/2⁺	E2+M1	−3.9 *19*	R_{DCO}=0.49 *7*, POL=+0.13 *13*.
779‡	5912	51/2⁻	5133	47/2⁻			
791	3840	39/2⁺	3049	37/2⁺			
809‡	4464	43/2⁺	3655	41/2⁺			

† From 2020Na27.
‡ Newly observed transitions in 2020Na27.
# Deduced by 2020Na27 based on measured $\gamma\gamma$(DCO) and γ(lin pol).
@ Placement of transition in the level scheme is uncertain.

Legend

^{169}Tm(^{20}Ne,6nγ):XUNDL-5 2020Na27

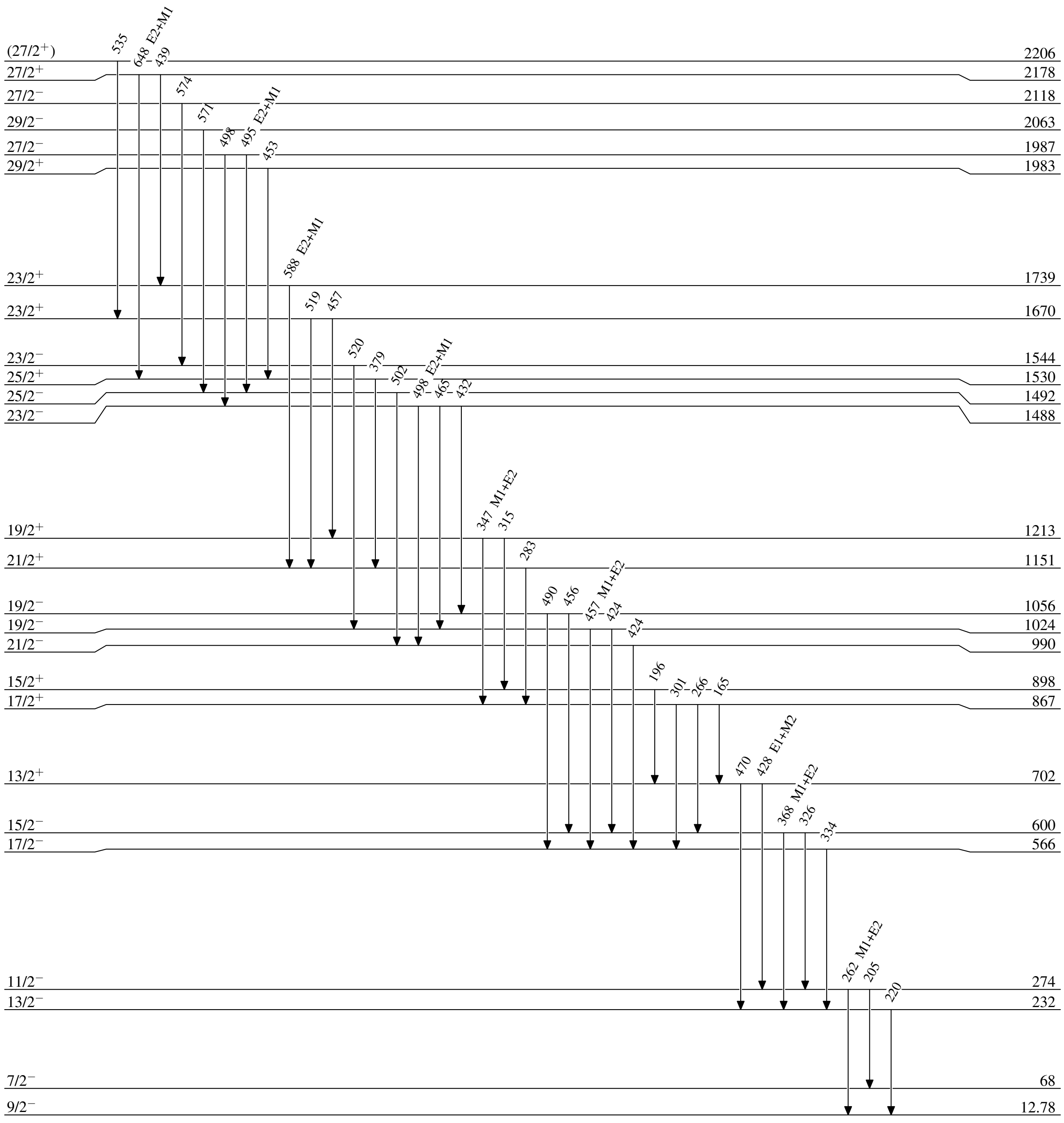
Level Scheme



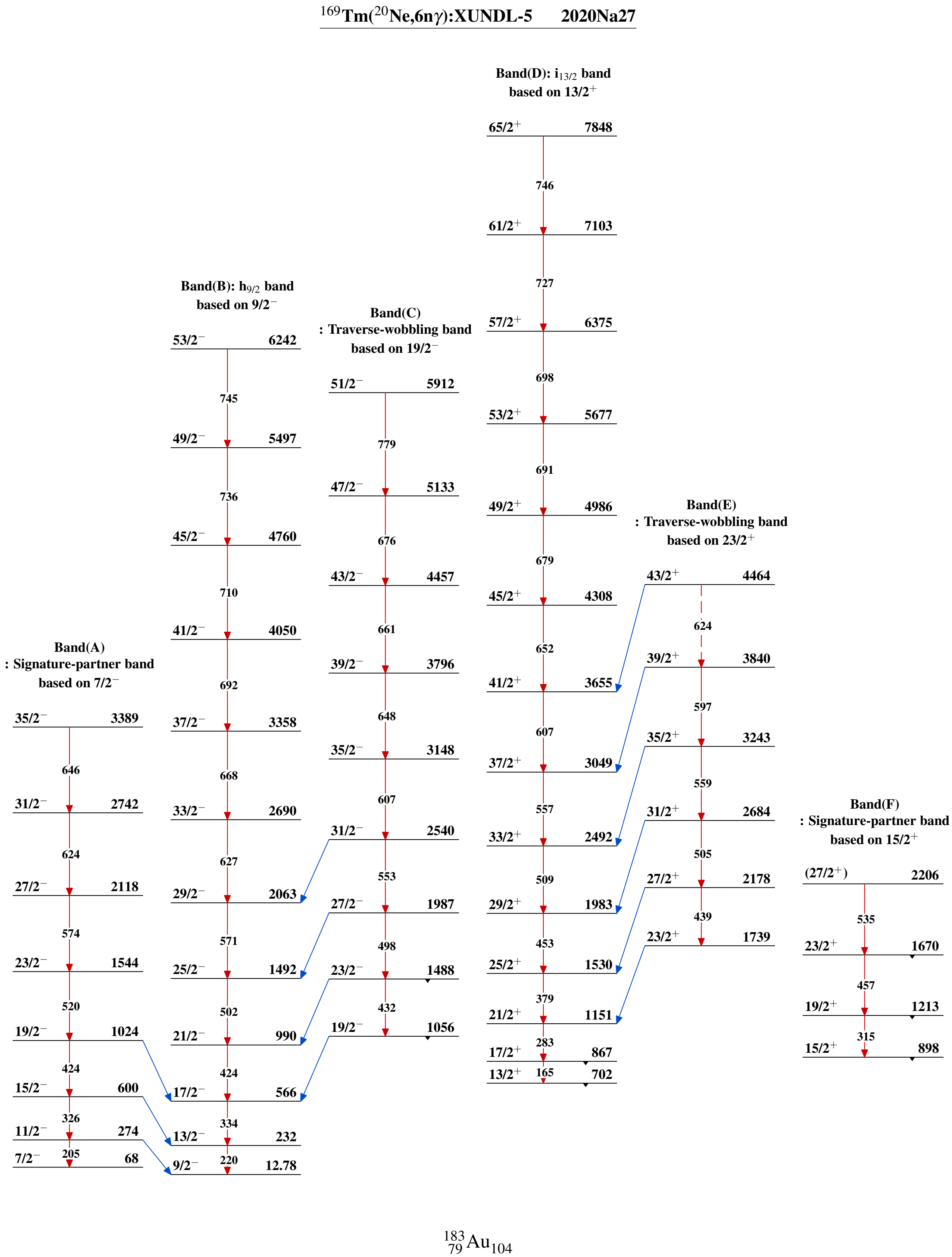
$^{183}_{79}Au_{104}$

^{169}Tm(^{20}Ne,6nγ):XUNDL-5 2020Na27

Level Scheme (continued)



$^{183}_{79}Au_{104}$


^{169}Tm(^{20}Ne,6nγ):XUNDL-5 2020Na27
Band(A) : Signature-partner band based on 7/2⁻
Band(B): h9/2 band based on 9/2⁻
Band(C) : Traverse-wobbling band based on 19/2⁻
Band(D): i13/2 band based on 13/2⁺
Band(E) : Traverse-wobbling band based on 23/2⁺
Band(F) : Signature-partner band based on 15/2⁺
$^{183}_{79}Au_{104}$