

**Adopted Levels, Gammas**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 195,1 (2024)	19-Sep-2023

Q( $\beta^-$ )=-3660 80; S(n)=8340 80; S(p)=2290 80; Q( $\alpha$ )=3450 80 [2021Wa16](#)  
 S(2n)=18700 90, S(2p)=7110 80, Q( $\epsilon$ p)=1780 80 ([2021Wa16](#)).

**Additional information 1.**

For theoretical treatments and discussions of signature splitting and inversion in <sup>162</sup>Lu and in doubly-odd nuclides in this mass region, see, e.g., [2001Ri19](#) and [2003Ya19](#). For recent discussions of triaxial superdeformation in nuclides in this mass region, see, e.g., [2004Ha21](#) and [2003Br03](#).

<sup>162</sup>Lu Levels

Cross Reference (XREF) Flags

- A <sup>162</sup>Hf  $\epsilon$  decay
- B (HI,xn $\gamma$ )
- C <sup>147</sup>Sm(<sup>19</sup>F,4n)
- D <sup>100</sup>Mo(<sup>65</sup>Cu,3n $\gamma$ ):SD

E(level)	J <sup><math>\pi</math></sup>	T <sub>1/2</sub>	XREF	Comments
0	1 <sup>-</sup>	1.37 min 2	A C	$\% \epsilon + \% \beta^+ = 100$ $\mu = +0.0553$ 11; Q=+0.519 8 J <sup><math>\pi</math></sup> : J from <a href="#">1998Ge13</a> , collinear LASER spectroscopy. $\pi = -$ , from comparison of $\mu$ with that calculated based on the expected configuration=( $\pi$ 1/2[411])-( $\nu$ 3/2[521]). T <sub>1/2</sub> : weighted average of 1.40 min 15 ( <a href="#">1978Bu13</a> ), 1.43 min 8 ( <a href="#">1979Al16</a> , <a href="#">1980Be39</a> ), and 1.37 min 2 ( <a href="#">1983Ge08</a> ). However, <a href="#">1980BeYG</a> report the existence of 1 or 2 additional isomers so these values may not represent pure sources. Others: 1.4 min ( <a href="#">1969NeZW</a> ), 1.6 min 3 ( <a href="#">1976ErZY</a> ), and 1.35 min ( <a href="#">1980BeYG</a> ). $\mu$ : From <a href="#">2014StZZ</a> compilation, measured by <a href="#">1998Ge13</a> , collinear LASER spectroscopy. +0.0551 11 in <a href="#">2019StZV</a> compilation (possibly typographical error). Q: From <a href="#">2016St14</a> compilation, measured by <a href="#">1998Ge13</a> , collinear LASER spectroscopy. $\Delta \langle r^2 \rangle (162-170) = -1.011$ fm <sup>2</sup> ( <a href="#">1998Ge13</a> ) and $\Delta \langle r^2 \rangle (162-164) = -0.290$ fm <sup>2</sup> from subtraction of values in <a href="#">1998Ge13</a> . Measurements were by collinear laser spectroscopy. The authors state "differences of mean square radii are subject to a 10% general calibration error." In an evaluation of nuclear rms charge radii, <a href="#">2013An02</a> report $\langle r^2 \rangle^{1/2} = 5.2398$ fm 317.
5.0? 3			A	
79.2? 3			A	
173.89? 5			A	
196.34 5			A	
453.34 5			A	
552.8 3			A	
606.47 11			A	
x	(4 <sup>-</sup> )	1.5 min	C	$\% \epsilon + \% \beta^+ \leq 100$ E(level): level proposed by <a href="#">1980BeYG</a> from $\gamma$ half-lives in source of <sup>162</sup> Lu isomers. J <sup><math>\pi</math></sup> : value suggested by <a href="#">1980BeYG</a> . By analogy with the situation in <sup>164</sup> Lu, 1 <sup>-</sup> and 4 <sup>-</sup> states are expected at low energies in <sup>162</sup> Lu. The possible configuration is ( $\pi$ 5/2[402])+( $\nu$ 3/2[521]). T <sub>1/2</sub> : from $\gamma(t)$ in <sup>162</sup> Lu $\epsilon$ decay ( <a href="#">1980BeYG</a> ).
y		1.9 min	C	$\% \epsilon + \% \beta^+ \leq 100$ E(level): level proposed by <a href="#">1980BeYG</a> from $\gamma$ half-lives in source of <sup>162</sup> Lu isomers. T <sub>1/2</sub> : from $\gamma(t)$ in <sup>162</sup> Lu $\epsilon$ decay ( <a href="#">1980BeYG</a> ).
0.0+z	(9 <sup>-</sup> )		B	
16.6+z?			B	

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Adopted Levels, Gammas (continued) $^{162}\text{Lu}$  Levels (continued)

E(level)	$J^\pi$	XREF	Comments
143.8+z <sup>#</sup>	(10 <sup>-</sup> )	B	
224.5+z <sup>‡</sup>	(11 <sup>-</sup> )	B	
301.6+z <sup>a</sup>	J	B	$J^\pi$ : 1997Ca29, in (HI,xn $\gamma$ ), suggest that the spin of this level lies between 9 and 12.
420.0+z <sup>#</sup>	(12 <sup>-</sup> )	B	
580.5+z <sup>‡</sup>	(13 <sup>-</sup> )	B	
583.1+z		B	
722.4+z <sup>a</sup>	J+2	B	
857.1+z <sup>#</sup>	(14 <sup>-</sup> )	B	
1085.3+z		B	
1091.3+z <sup>‡</sup>	(15 <sup>-</sup> )	B	
1258.6+z <sup>a</sup>	J+4	B	
1417.5+z <sup>#</sup>	(16 <sup>-</sup> )	B	
1681.6+z		B	
1717.2+z <sup>‡</sup>	(17 <sup>-</sup> )	B	
1879.8+z <sup>a</sup>	J+6	B	
1999.6+z <sup>&amp;</sup>	(16 <sup>+</sup> )	B	
2074.0+z <sup>#</sup>	(18 <sup>-</sup> )	B	
2205.7+z <sup>@</sup>	(17 <sup>+</sup> )	B	
2339.1+z <sup>b</sup>	J+7	B	
2398.6+z <sup>&amp;</sup>	(18 <sup>+</sup> )	B	
2426.2+z <sup>‡</sup>	(19 <sup>-</sup> )	B	
2524.1+z <sup>b</sup>	J+8	B	
2565.2+z <sup>a</sup>	J+8	B	
2594.6+z <sup>@</sup>	(19 <sup>+</sup> )	B	
2734.6+z <sup>b</sup>	J+9	B	
2800.3+z <sup>#</sup>	(20 <sup>-</sup> )	B	
2825.7+z <sup>&amp;</sup>	(20 <sup>+</sup> )	B	
2991.8+z <sup>b</sup>	J+10	B	
3086.3+z <sup>@</sup>	(21 <sup>+</sup> )	B	
3183.1+z <sup>‡</sup>	(21 <sup>-</sup> )	B	
3237.8+z <sup>b</sup>	J+11	B	
3369.4+z <sup>&amp;</sup>	(22 <sup>+</sup> )	B	
3547.4+z <sup>#</sup>	(22 <sup>-</sup> )	B	
3558.3+z <sup>b</sup>	J+12	B	
3687.3+z <sup>@</sup>	(23 <sup>+</sup> )	B	
3852.9+z <sup>b</sup>	J+13	B	
3921.9+z <sup>‡</sup>	(23 <sup>-</sup> )	B	
4026.3+z <sup>&amp;</sup>	(24 <sup>+</sup> )	B	
4226.5+z <sup>b</sup>	J+14	B	
4262.2+z <sup>#</sup>	(24 <sup>-</sup> )	B	
4391.4+z <sup>@</sup>	(25 <sup>+</sup> )	B	
4584.5+z <sup>b</sup>	J+15	B	
4634.5+z <sup>‡</sup>	(25 <sup>-</sup> )	B	
4787.2+z <sup>&amp;</sup>	(26 <sup>+</sup> )	B	
4982.2+z <sup>#</sup>	(26 <sup>-</sup> )	B	

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Adopted Levels, Gammas (continued) $^{162}\text{Lu}$  Levels (continued)

E(level)	$J^\pi$ †	XREF	Comments
4992.3+z <sup>b</sup>	J+16	B	
5190.2+z <sup>@</sup>	(27 <sup>+</sup> )	B	
5379.8+z <sup>‡</sup>	(27 <sup>-</sup> )	B	
5400.0+z <sup>b</sup>	J+17	B	
5631.3+z <sup>&amp;</sup>	(28 <sup>+</sup> )	B	
5751.2+z <sup>#</sup>	(28 <sup>-</sup> )	B	
5835.4+z <sup>b</sup>	J+18	B	
6074.2+z <sup>@</sup>	(29 <sup>+</sup> )	B	
6185.4+z <sup>‡</sup>	(29 <sup>-</sup> )	B	
6290.7+z <sup>b</sup>	J+19	B	From 1997Gu18, 1997Ca29 do not report levels above the J+18 level.
6554.9+z <sup>?&amp;</sup>	(30 <sup>+</sup> )	B	
6750.9+z <sup>?b</sup>	J+20	B	
7244.5+z <sup>?b</sup>	J+21	B	
u <sup>c</sup>	J1	D	
508.0+u <sup>c</sup>	J1+2	D	
1072.2+u <sup>c</sup>	J1+4	D	
1699.2+u <sup>c</sup>	J1+6	D	
2388.5+u <sup>c</sup>	J1+8	D	
3139.6+u <sup>c</sup>	J1+10	D	
3950.6+u <sup>c</sup>	J1+12	D	
4819.4+u <sup>c</sup>	J1+14	D	
5742.3+u <sup>c</sup>	J1+16	D	
6720.0+u <sup>c</sup>	J1+18	D	
7747.7+u <sup>c</sup>	J1+20	D	
v <sup>d</sup>	J2	D	$J^\pi$ : from $^{100}\text{Mo}(^{65}\text{Cu},3n\gamma)$ , 2003Br03 suggest $J_2=15^+$ .
420.4+v <sup>d</sup>	J2+2	D	
906.1+v <sup>d</sup>	J2+4	D	
1455.4+v <sup>d</sup>	J2+6	D	
2066.6+v <sup>d</sup>	J2+8	D	
2738.0+v <sup>d</sup>	J2+10	D	
3467.9+v <sup>d</sup>	J2+12	D	
4254.6+v <sup>d</sup>	J2+14	D	
5096.4+v <sup>d</sup>	J2+16	D	
5992+v <sup>d</sup>	J2+18	D	
6943+v <sup>d</sup>	J2+20	D	
7946+v <sup>d</sup>	J2+22	D	
w <sup>e</sup>	J3	D	
578.3+w <sup>e</sup>	J3+2	D	
1217.1+w <sup>e</sup>	J3+4	D	
1916.3+w <sup>e</sup>	J3+6	D	
2674.2+w <sup>e</sup>	J3+8	D	
3490.0+w <sup>e</sup>	J3+10	D	
4360.0+w <sup>e</sup>	J3+12	D	
5281.6+w <sup>e</sup>	J3+14	D	
6246.8+w <sup>e</sup>	J3+16	D	
7247.6+w <sup>e</sup>	J3+18	D	

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**Adopted Levels, Gammas (continued)**

<sup>162</sup>Lu Levels (continued)

E(level)	J <sup>π</sup> †	XREF
8283.1+w <sup>e</sup>	J3+20	D
9344.6+w <sup>e</sup>	J3+22	D

† Unless noted otherwise, the J<sup>π</sup> values are those proposed by the authors of the heavy ion-induced reaction studies. These assignments are, as these authors point out, model-dependent. For a discussion of the assumptions on which these are based, see the (HI,xnγ) data set. In SD bands, the intraband transitions were proposed as stretched quadrupole transitions from γγ(θ)(DCO) data (2003Br03).

‡ Band(A): (π h<sub>11/2</sub>)(ν i<sub>13/2</sub>) yrast band, signature=(1).

# Band(B): (π h<sub>11/2</sub>)(ν i<sub>13/2</sub>) yrast band, signature=(0).

@ Band(C): Four-quasiparticle band, signature=(1). From (HI,xnγ), 1997Ca29 propose the configuration (π 7/2<sup>+</sup>[404])(ν i<sub>13/2</sub>)(ν i<sub>13/2</sub>)<sup>2</sup> for this band, while 1997Gu18 propose (π 7/2<sup>-</sup>[523])(ν 3/2<sup>-</sup>[521])(ν i<sub>13/2</sub>)<sup>2</sup>.

& Band(D): Four-quasiparticle band, signature=(0). See the comment on the signature-(1) portion of this band.

<sup>a</sup> Band(E): possible rotational band.

<sup>b</sup> Band(F): probable four-quasiparticle band.

<sup>c</sup> Band(G): Triaxial superdeformed band (SD-1). See the comments on this band in the <sup>100</sup>Mo(<sup>65</sup>Cu,3nγ) data set.

<sup>d</sup> Band(H): Triaxial superdeformed band (SD-2). See the comments on this band in the <sup>100</sup>Mo(<sup>65</sup>Cu,3nγ) data set.

<sup>e</sup> Band(I): Triaxial superdeformed band (SD-3). See the comments on this band in the <sup>100</sup>Mo(<sup>65</sup>Cu,3nγ) data set.

γ(<sup>162</sup>Lu)

E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>γ</sub>	I <sub>γ</sub> <sup>†</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Mult.	α <sup>‡</sup>	Comments
5.0?		(5.0 3)	100	0	1 <sup>-</sup>			
79.2?		79.2 4	100	0	1 <sup>-</sup>			
173.89?		173.90 5	100	0	1 <sup>-</sup>			
196.34		22.48 10	10 3	173.89?		(M1)	48.9 10	α(L)=38.0 8; α(M)=8.56 17 α(N)=2.02 4; α(O)=0.299 6; α(P)=0.0184 4
		117.2 4	≈3	79.2?				
		191.2 3	10 3	5.0?				
		196.34 5	100 10	0	1 <sup>-</sup>			
453.34		257.3 3	100 25	196.34				
		452.8 4	75 25	0	1 <sup>-</sup>			
552.8		356.5 3	100	196.34				
606.47		410.12 10	100 17	196.34				
		601.7 5	9.4 3	5.0?				
143.8+z	(10 <sup>-</sup> )	143.6	100	0.0+z	(9 <sup>-</sup> )	D		
224.5+z	(11 <sup>-</sup> )	80.6	100	143.8+z	(10 <sup>-</sup> )	D		
		224.7	65 11	0.0+z	(9 <sup>-</sup> )	Q		I <sub>γ</sub> : branching ratio from 1997Gu18.
301.6+z	J	285.0 <sup>#</sup>	100	16.6+z?				
420.0+z	(12 <sup>-</sup> )	195.6	100	224.5+z	(11 <sup>-</sup> )	D		
		276.2	22 3	143.8+z	(10 <sup>-</sup> )			I <sub>γ</sub> : branching ratio from 1997Gu18.
580.5+z	(13 <sup>-</sup> )	160.5	100	420.0+z	(12 <sup>-</sup> )	D		
		356.0	82 7	224.5+z	(11 <sup>-</sup> )	Q		I <sub>γ</sub> : weighted average of 80 11 (1996Zh05) and 83 9 (1997Gu18).
722.4+z	J+2	420.8	100	301.6+z	J	Q		
857.1+z	(14 <sup>-</sup> )	276.6	100	580.5+z	(13 <sup>-</sup> )	D		
		437.1	30 3	420.0+z	(12 <sup>-</sup> )	Q		I <sub>γ</sub> : weighted average of 22 11 (1996Zh05) and 31 3 (1997Gu18). 1997Ca29 report 50 6 for this γ branch.
1085.3+z		502.2	100	583.1+z				
1091.3+z	(15 <sup>-</sup> )	234.2	100	857.1+z	(14 <sup>-</sup> )	D		
		510.8	129 9	580.5+z	(13 <sup>-</sup> )	Q		I <sub>γ</sub> : weighted average of 134 13 (1997Gu18) and

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**Adopted Levels, Gammas (continued)**

$\gamma(^{162}\text{Lu})$  (continued)

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult.	Comments
							125 13 (1997Ca29). 1996Zh05 report 83 14 for this $\gamma$ branch.
1258.6+z	J+4	536.2	100	722.4+z	J+2	Q	
1417.5+z	(16 <sup>-</sup> )	326.3	100	1091.3+z	(15 <sup>-</sup> )	D	
		560.3	72 7	857.1+z	(14 <sup>-</sup> )	Q	I <sub><math>\gamma</math></sub> : weighted average of 69 8 (1997Gu18) and 84 15 (1997Ca29).
1681.6+z		596.3	100	1085.3+z			
1717.2+z	(17 <sup>-</sup> )	299.8	100	1417.5+z	(16 <sup>-</sup> )	D	
		626.0	184 12	1091.3+z	(15 <sup>-</sup> )	Q	I <sub><math>\gamma</math></sub> : weighted average of 151 27 (1996Zh06), 202 22 (1997Gu18) and 185 15 (1997Ca29).
1879.8+z	J+6	621.6	100	1258.6+z	J+4	Q	
1999.6+z	(16 <sup>+</sup> )	582.8 <sup>#</sup>	100	1417.5+z	(16 <sup>-</sup> )	Q	
		908.2	9.6 14	1091.3+z	(15 <sup>-</sup> )		
2074.0+z	(18 <sup>-</sup> )	356.7	100	1717.2+z	(17 <sup>-</sup> )	D	
		656.5	121 17	1417.5+z	(16 <sup>-</sup> )	Q	I <sub><math>\gamma</math></sub> : weighted average of 180 90 (1996Zh05), 109 14 (1997Gu18) and 170 30 (1997Ca29).
2205.7+z	(17 <sup>+</sup> )	206.2	100 10	1999.6+z	(16 <sup>+</sup> )		
		524.1	19 2	1681.6+z			
		788.0	77 10	1417.5+z	(16 <sup>-</sup> )	D	
2339.1+z	J+7	657.5	100	1681.6+z			
2398.6+z	(18 <sup>+</sup> )	192.8	100 8	2205.7+z	(17 <sup>+</sup> )	D	
		398.8	43 4	1999.6+z	(16 <sup>+</sup> )		I <sub><math>\gamma</math></sub> : weighted average of 49 8 (1997Gu18) and 42 4 (1997Ca29).
		681.8	8.8 6	1717.2+z	(17 <sup>-</sup> )		
2426.2+z	(19 <sup>-</sup> )	352.3	100	2074.0+z	(18 <sup>-</sup> )		
		709.1	227 22	1717.2+z	(17 <sup>-</sup> )	Q	I <sub><math>\gamma</math></sub> : weighted average of 200 50 (1996Zh05), 240 30 (1997Gu18) and 220 40 (1997Ca29).
2524.1+z	J+8	185.0	78	2339.1+z	J+7	D	
		644.3	100	1879.8+z	J+6	Q	
2565.2+z	J+8	685.0	100	1879.8+z	J+6		
2594.6+z	(19 <sup>+</sup> )	196.0	100	2398.6+z	(18 <sup>+</sup> )	D	
		388.8	56 7	2205.7+z	(17 <sup>+</sup> )		I <sub><math>\gamma</math></sub> : weighted average of 61 9 (1997Gu18) and 50 10 (1997Ca29),
2734.6+z	J+9	210.4	100	2524.1+z	J+8	D	
		395.4	35 4	2339.1+z	J+7	Q	I <sub><math>\gamma</math></sub> : weighted average of 36 5 (1997Gu18) and 33 7 (1997Ca29).
2800.3+z	(20 <sup>-</sup> )	374.1	100	2426.2+z	(19 <sup>-</sup> )		
		726.3	160 21	2074.0+z	(18 <sup>-</sup> )	Q	I <sub><math>\gamma</math></sub> : weighted average of 150 30 (1996Zh05) and 170 30 (1997Ca29).
2825.7+z	(20 <sup>+</sup> )	231.0	100	2594.6+z	(19 <sup>+</sup> )	D	
		427.2	43 5	2398.6+z	(18 <sup>+</sup> )	Q	I <sub><math>\gamma</math></sub> : weighted average of 44 6 (1997Gu18) and 42 8 (1997Ca29).
2991.8+z	J+10	257.2	100	2734.6+z	J+9	D	
		467.8	31 3	2524.1+z	J+8	Q	I <sub><math>\gamma</math></sub> : weighted average of 38 6 (1997Gu18) and 29 3 (1997Ca29).
3086.3+z	(21 <sup>+</sup> )	260.6	100	2825.7+z	(20 <sup>+</sup> )	D	
		491.6	63 6	2594.6+z	(19 <sup>+</sup> )	(Q)	I <sub><math>\gamma</math></sub> : weighted average of 66 8 (1997Gu18) and 59 9 (1997Ca29).
3183.1+z	(21 <sup>-</sup> )	382.8	100	2800.3+z	(20 <sup>-</sup> )	D	
		756.9	195 22	2426.2+z	(19 <sup>-</sup> )	Q	I <sub><math>\gamma</math></sub> : weighted average of 200 60 (1996Zh05), 180 30 (1997Gu18), and 220 40 (1997Ca29).
3237.8+z	J+11	246.3	100	2991.8+z	J+10	D	
		503.1	62 7	2734.6+z	J+9	Q	I <sub><math>\gamma</math></sub> : weighted average of 67 10 (1997Gu18) and 56 11 (1997Ca29).
3369.4+z	(22 <sup>+</sup> )	283.0	100	3086.3+z	(21 <sup>+</sup> )	D	

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**Adopted Levels, Gammas (continued)** $\gamma(^{162}\text{Lu})$  (continued)

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult.	Comments
3369.4+z	(22 <sup>+</sup> )	543.7	62 6	2825.7+z	(20 <sup>+</sup> )	Q	$I_\gamma$ : weighted average of 58 7 (1997Gu18) and 77 14 (1997Ca29).
3547.4+z	(22 <sup>-</sup> )	364.5 747.0	100 $2.1 \times 10^2$ 3	3183.1+z (21 <sup>-</sup> ) 2800.3+z (20 <sup>-</sup> )		D Q	$I_\gamma$ : weighted average of 190 40 (1997Gu18) and 240 60 (1997Ca29).
3558.3+z	J+12	320.6 566.5	100 56 7	3237.8+z J+11 2991.8+z J+10		D Q	$I_\gamma$ : weighted average of 55 8 (1997Gu18) and 59 13 (1997Ca29).
3687.3+z	(23 <sup>+</sup> )	317.8 601.1	100 98 20	3369.4+z (22 <sup>+</sup> ) 3086.3+z (21 <sup>+</sup> )		D	$I_\gamma$ : weighted average of 126 18 (1997Gu18) and 83 13 (1997Ca29).
3852.9+z	J+13	294.5 615.0	100 85 19	3558.3+z J+12 3237.8+z J+11		D Q	$I_\gamma$ : weighted average of 103 14 (1997Gu18) and 65 15 (1997Ca29).
3921.9+z	(23 <sup>-</sup> )	374.5 738.7	100 $1.9 \times 10^2$ 4	3547.4+z (22 <sup>-</sup> ) 3183.1+z (21 <sup>-</sup> )		Q	$I_\gamma$ : weighted average of 170 100 (1996Zh05) and 190 50 (1997Ca29).
4026.3+z	(24 <sup>+</sup> )	338.8 657.1	100 104 13	3687.3+z (23 <sup>+</sup> ) 3369.4+z (22 <sup>+</sup> )		D Q	$I_\gamma$ : weighted average of 119 19 (1997Gu18) and 91 18 (1997Ca29).
4226.5+z	J+14	373.5 668.2	100 72 10	3852.9+z J+13 3558.3+z J+12		D Q	$I_\gamma$ : weighted average of 70 11 (1997Gu18) and 80 20 (1997Ca29).
4262.2+z	(24 <sup>-</sup> )	340.3 714.8	100 162 23	3921.9+z (23 <sup>-</sup> ) 3547.4+z (22 <sup>-</sup> )		D Q	$I_\gamma$ : weighted average of 170 80 (1996Zh05), 180 40 (1997Gu18) and 150 30 (1997Ca29).
4391.4+z	(25 <sup>+</sup> )	365.0 704.1	100 123 16	4026.3+z (24 <sup>+</sup> ) 3687.3+z (23 <sup>+</sup> )		D Q	$I_\gamma$ : weighted average of 148 27 (1997Gu18) and 110 20 (1997Ca29).
4584.5+z	J+15	358.2 731.6	100 122 15	4226.5+z J+14 3852.9+z J+13		D Q	$I_\gamma$ : weighted average of 140 24 (1997Gu18) and 110 20 (1997Ca29).
4634.5+z	(25 <sup>-</sup> )	372.1 712.6	100 127 24	4262.2+z (24 <sup>-</sup> ) 3921.9+z (23 <sup>-</sup> )		Q	$I_\gamma$ : weighted average of 120 30 (1997Gu18) and 140 40 (1997Ca29).
4787.2+z	(26 <sup>+</sup> )	395.9 760.8	100 107 20	4391.4+z (25 <sup>+</sup> ) 4026.3+z (24 <sup>+</sup> )		Q	$I_\gamma$ : weighted average of 112 26 (1997Gu18) and 100 30 (1997Ca29).
4982.2+z	(26 <sup>-</sup> )	347.6 720.2	100 132 21	4634.5+z (25 <sup>-</sup> ) 4262.2+z (24 <sup>-</sup> )		D Q	$I_\gamma$ : weighted average of 125 29 (1997Gu18) and 140 30 (1997Ca29).
4992.3+z	J+16	407.8 765.7	100 137 20	4584.5+z J+15 4226.5+z J+14		D Q	$I_\gamma$ : weighted average of 142 26 (1997Gu18) and 130 30 (1997Ca29).
5190.2+z	(27 <sup>+</sup> )	402.9 798.7	100 $2.4 \times 10^2$ 4	4787.2+z (26 <sup>+</sup> ) 4391.4+z (25 <sup>+</sup> )			$I_\gamma$ : weighted average of 190 50 (1997Gu18) and 290 50 (1997Ca29).
5379.8+z	(27 <sup>-</sup> )	397.5 745.3	100 $1.3 \times 10^2$ 3	4982.2+z (26 <sup>-</sup> ) 4634.5+z (25 <sup>-</sup> )		D	$I_\gamma$ : weighted average of 140 40 (1997Gu18) and 110 40 (1997Ca29).
5400.0+z	J+17	407.7 815.8	100 $1.6 \times 10^2$ 3	4992.3+z J+16 4584.5+z J+15		D	$I_\gamma$ : weighted average of 200 50 (1997Gu18) and 140 30 (1997Ca29).
5631.3+z	(28 <sup>+</sup> )	441.0 844.3	52 26 100 22	5190.2+z (27 <sup>+</sup> ) 4787.2+z (26 <sup>+</sup> )			

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)**

$\gamma(^{162}\text{Lu})$  (continued)

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult.	Comments
5751.2+z	(28 <sup>-</sup> )	371.6 769.2	100 $1.4 \times 10^2$ 3	5379.8+z 4982.2+z	(27 <sup>-</sup> ) (26 <sup>-</sup> )		$I_\gamma$ : weighted average of 150 50 (1997Gu18) and 130 40 (1997Ca29).
5835.4+z	J+18	435.7 842.8	100 20 100 22	5400.0+z 4992.3+z	J+17 J+16	Q	$E_\gamma$ : from 1997Ca29. 1997Gu18 report $E_\gamma=434.4$ .
6074.2+z	(29 <sup>+</sup> )	443.0	100	5631.3+z	(28 <sup>+</sup> )		$I_\gamma$ : from 1997Ca29.
6185.4+z	(29 <sup>-</sup> )	883.9 434.7	$1.5 \times 10^2$ 4 100	5190.2+z 5751.2+z	(27 <sup>+</sup> ) (28 <sup>-</sup> )		$I_\gamma$ : from 1997Ca29.
6290.7+z	J+19	805.0 454.4 889.4	$1.4 \times 10^2$ 5 100 $1.2 \times 10^2$ 4	5379.8+z 5835.4+z 5400.0+z	(27 <sup>-</sup> ) J+18 J+17		$I_\gamma$ : from 1997Ca29.
6554.9+z?	(30 <sup>+</sup> )	922.7 <sup>#</sup>	100	5631.3+z	(28 <sup>+</sup> )		
6750.9+z?	J+20	460.2 <sup>#</sup> 915.9 <sup>#</sup>		6290.7+z 5835.4+z	J+19 J+18		
7244.5+z?	J+21	494 <sup>#</sup> 953.8 <sup>#</sup>		6750.9+z? 6290.7+z	J+20 J+19		
508.0+u	J1+2	508.0		u 508.0+u	J1 J1+2		
1072.2+u	J1+4	564.2		1072.2+u	J1+4		
1699.2+u	J1+6	627.0		1699.2+u	J1+6		
2388.5+u	J1+8	689.3		2388.5+u	J1+8		
3139.6+u	J1+10	751.1		3139.6+u	J1+10		
3950.6+u	J1+12	811.0		3950.6+u	J1+12		
4819.4+u	J1+14	868.8		4819.4+u	J1+14		
5742.3+u	J1+16	922.9		5742.3+u	J1+16		
6720.0+u	J1+18	977.7		6720.0+u	J1+18		
7747.7+u	J1+20	1027.7					
420.4+v	J2+2	420.4		v 420.4+v	J2 J2+2		
906.1+v	J2+4	485.7		906.1+v	J2+4		
1455.4+v	J2+6	549.3		1455.4+v	J2+6		
2066.6+v	J2+8	611.2		2066.6+v	J2+8		
2738.0+v	J2+10	671.4		2738.0+v	J2+10		
3467.9+v	J2+12	729.9		3467.9+v	J2+12		
4254.6+v	J2+14	786.7		4254.6+v	J2+14		
5096.4+v	J2+16	841.8		5096.4+v	J2+16		
5992+v	J2+18	896		5992+v	J2+18		
6943+v	J2+20	951.2		6943+v	J2+20		
7946+v	J2+22	1002.5					
578.3+w	J3+2	578.3		w 578.3+w	J3 J3+2		
1217.1+w	J3+4	638.8		1217.1+w	J3+4		
1916.3+w	J3+6	699.2		1916.3+w	J3+6		
2674.2+w	J3+8	757.9		2674.2+w	J3+8		
3490.0+w	J3+10	815.8		3490.0+w	J3+10		
4360.0+w	J3+12	870.0		4360.0+w	J3+12		
5281.6+w	J3+14	921.6		5281.6+w	J3+14		
6246.8+w	J3+16	965.2		6246.8+w	J3+16		
7247.6+w	J3+18	1000.8		7247.6+w	J3+18		
8283.1+w	J3+20	1035.5		8283.1+w	J3+20		
9344.6+w	J3+22	1061.5					

<sup>†</sup> For the gammas involving the “high-spin” levels, the values with listed uncertainties represent the  $\gamma$  branching from the levels as reported in various (HI,xn $\gamma$ ) studies. See the (HI,xn $\gamma$ ) data set for details.

<sup>‡</sup> [Additional information 2.](#)

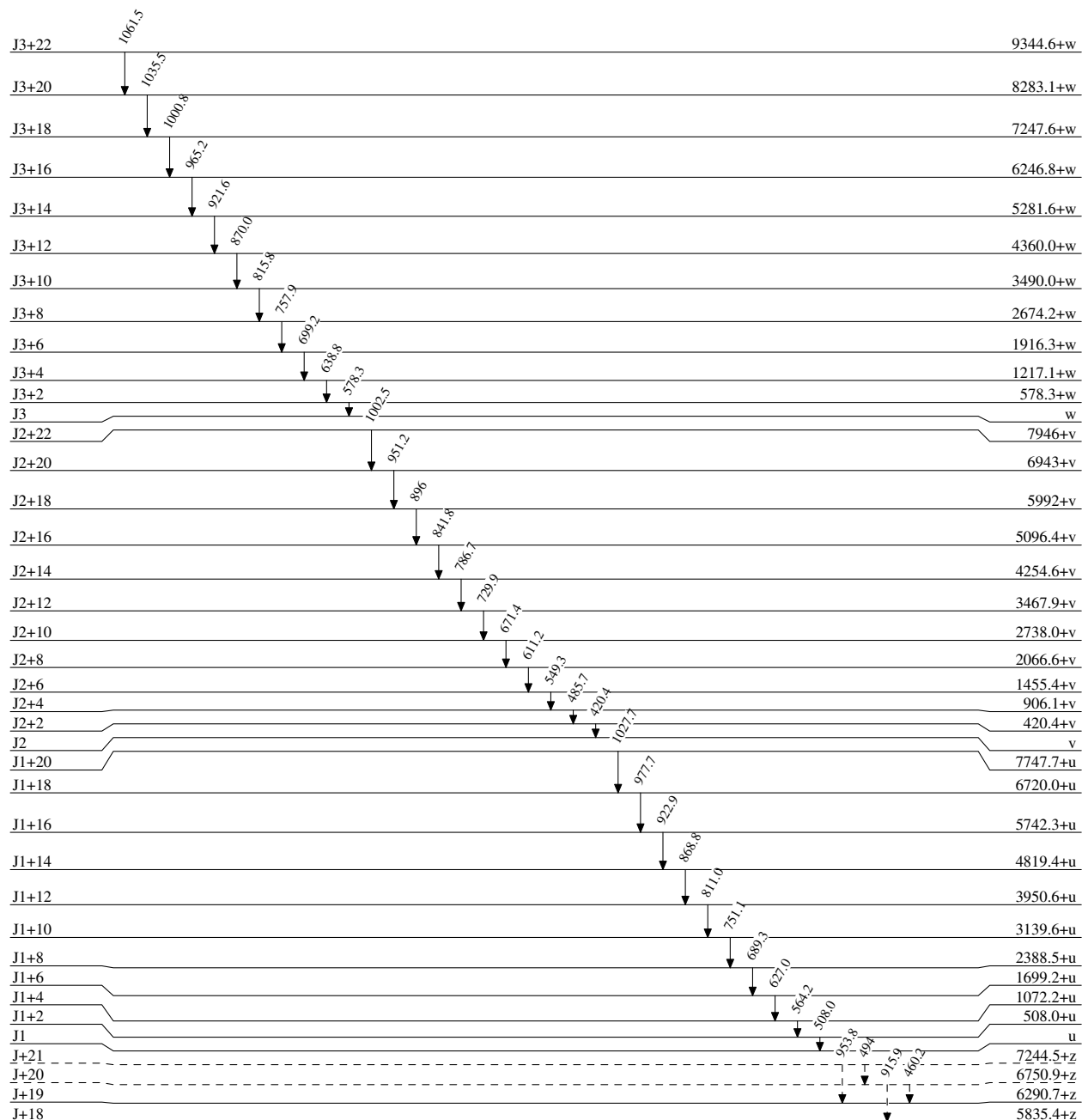
<sup>#</sup> Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----▶  $\gamma$  Decay (Uncertain)

1-

0

1.37 min 2

 $^{162}_{71}\text{Lu}_{91}$

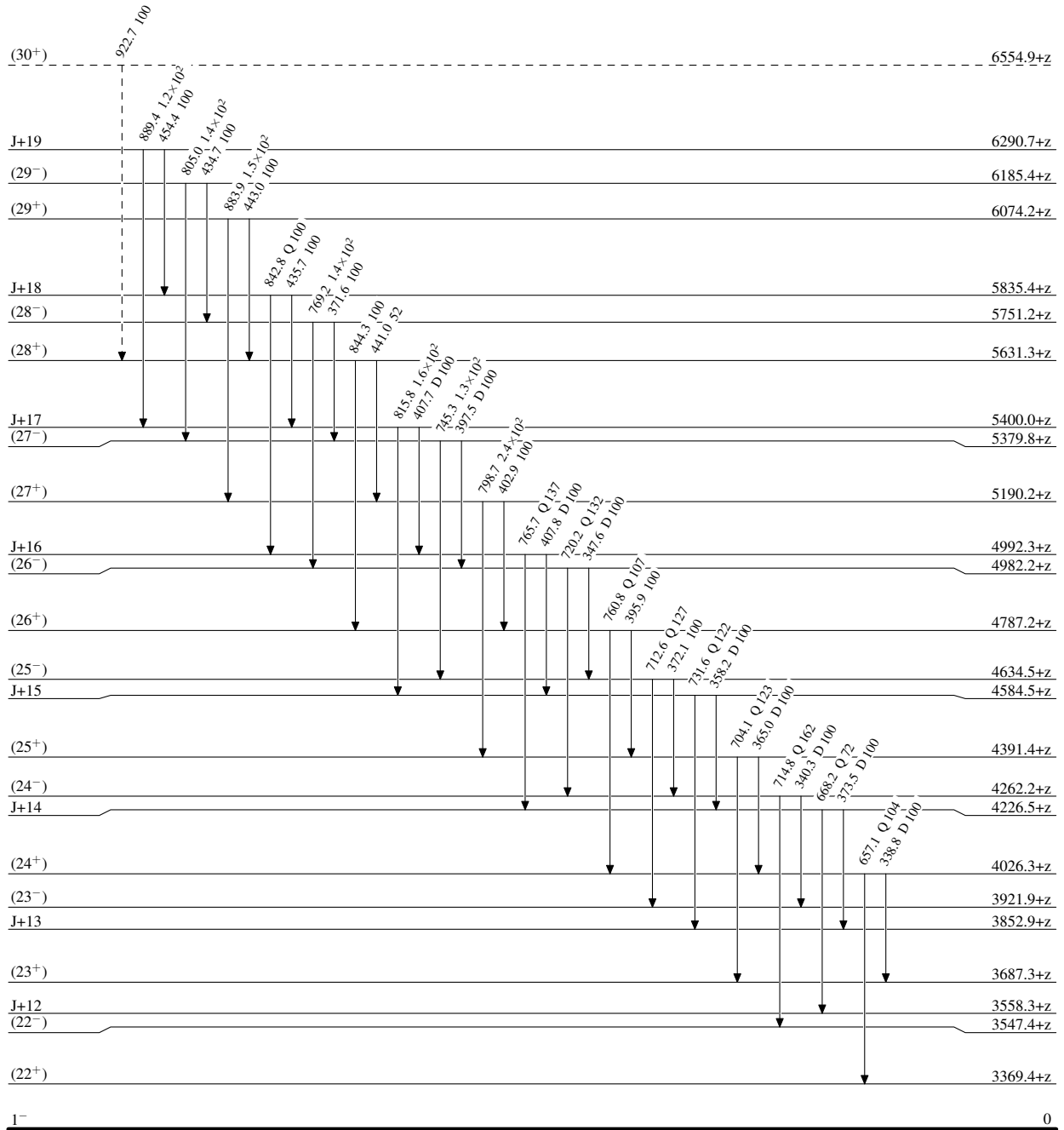


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

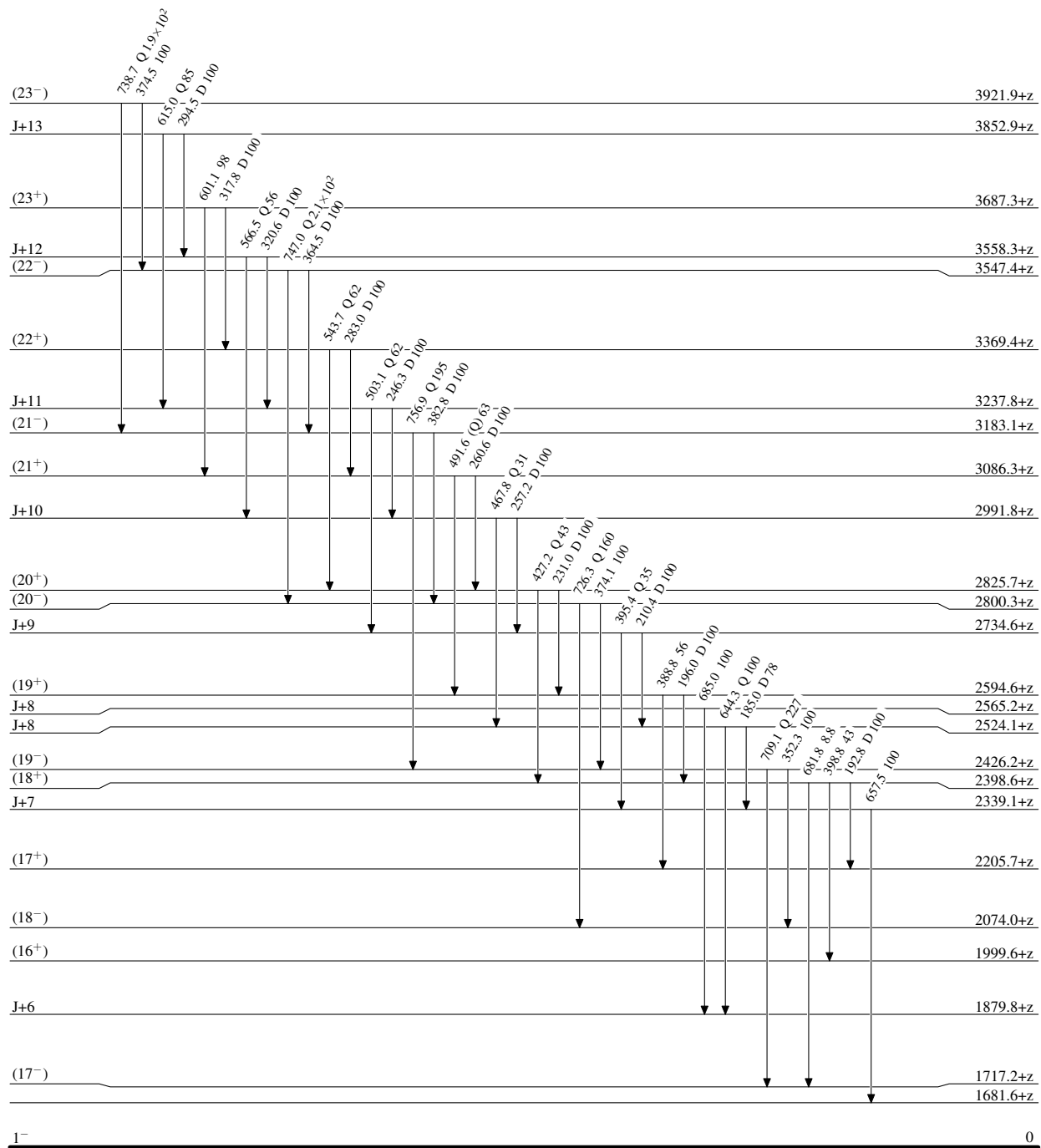
-----►  $\gamma$  Decay (Uncertain) $^{162}_{71}\text{Lu}_{91}$ 

1.37 min 2

**Adopted Levels, Gammas**

**Level Scheme (continued)**

Intensities: Relative photon branching from each level



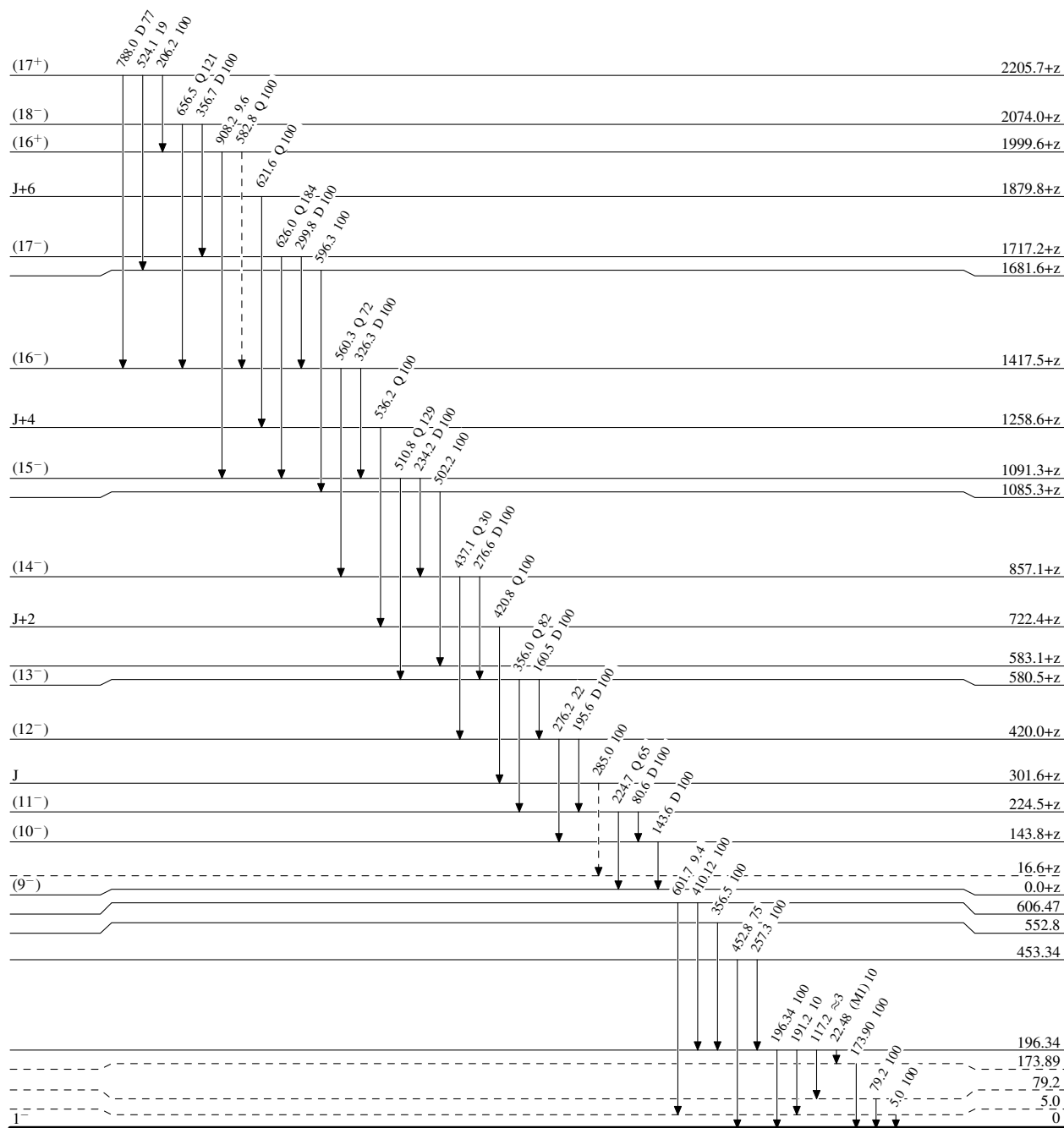
**Adopted Levels, Gammas**

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

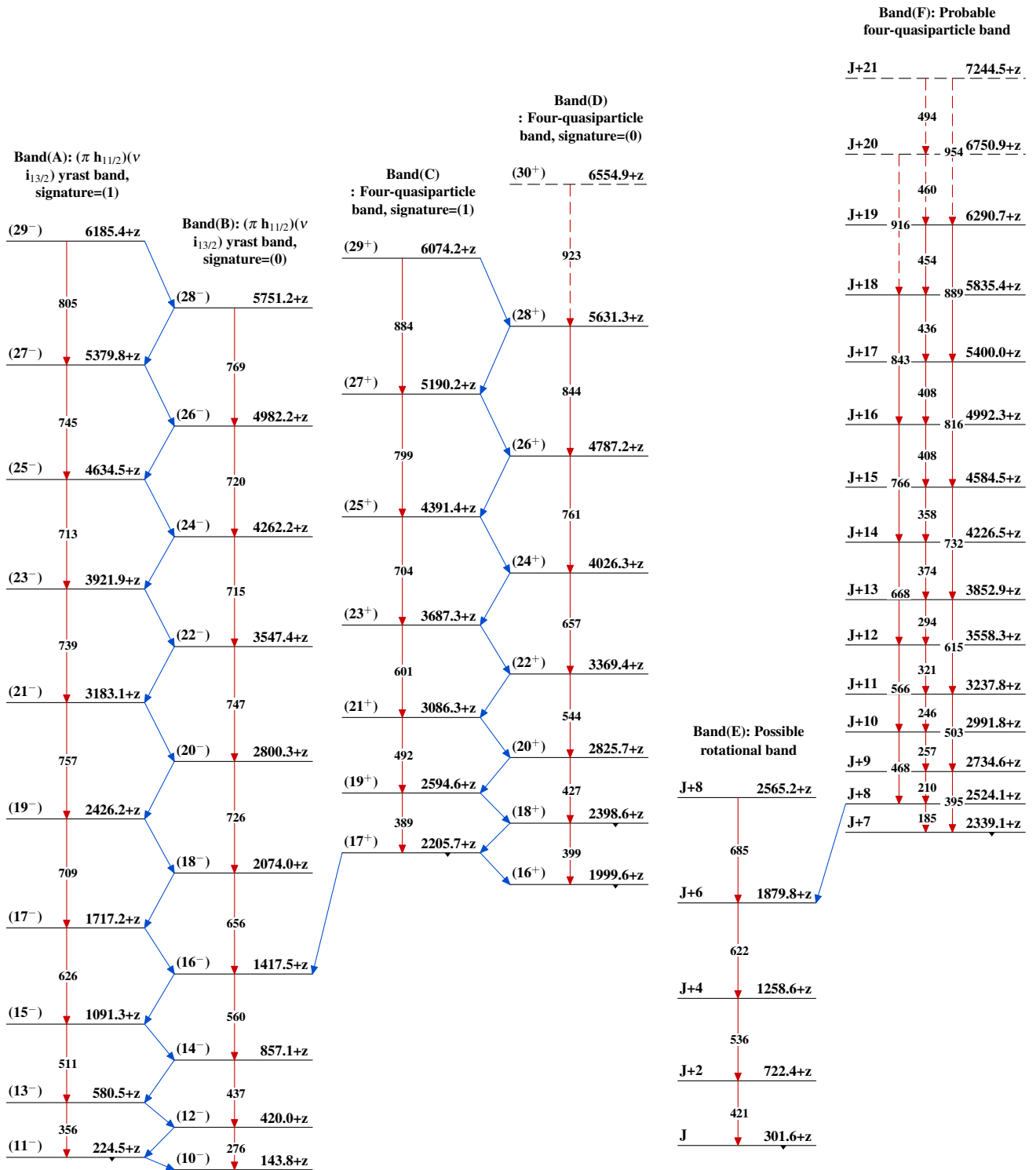
-----▶  $\gamma$  Decay (Uncertain)



1.37 min 2

$^{162}_{71}\text{Lu}_{91}$

**Adopted Levels, Gammas**



Adopted Levels, Gammas (continued)

			<b>Band(I): Triaxial superdeformed band (SD-3)</b>
			J3+22    9344.6+w
		↓ 1062	J3+20    8283.1+w
		↓ 1036	J3+18    7247.6+w
		↓ 1001	J3+16    6246.8+w
		↓ 965	J3+14    5281.6+w
		↓ 922	J3+12    4360.0+w
		↓ 870	J3+10    3490.0+w
		↓ 816	J3+8     2674.2+w
		↓ 758	J3+6     1916.3+w
		↓ 699	J3+4     1217.1+w
		↓ 639	J3+2     578.3+w
		↓ 578	J3        w
			<b>Band(H): Triaxial superdeformed band (SD-2)</b>
		↓ 1002	J2+22    7946+v
		↓ 951	J2+20    6943+v
		↓ 896	J2+18    5992+v
		↓ 842	J2+16    5096.4+v
		↓ 787	J2+14    4254.6+v
		↓ 730	J2+12    3467.9+v
		↓ 671	J2+10    2738.0+v
		↓ 611	J2+8     2066.6+v
		↓ 549	J2+6     1455.4+v
		↓ 486	J2+4     906.1+v
		↓ 420	J2+2     420.4+v
		↓ 420	J2        v
			<b>Band(G): Triaxial superdeformed band (SD-1)</b>
			J1+20    7747.7+u
		↓ 1028	J1+18    6720.0+u
		↓ 978	J1+16    5742.3+u
		↓ 923	J1+14    4819.4+u
		↓ 869	J1+12    3950.6+u
		↓ 811	J1+10    3139.6+u
		↓ 751	J1+8     2388.5+u
		↓ 689	J1+6     1699.2+u
		↓ 627	J1+4     1072.2+u
		↓ 564	J1+2     508.0+u
		↓ 508	J1        u