

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109,1103 (2008)	1-Mar-2008

$Q(\beta^-) = -2.16 \times 10^3$ 4; $S(n) = 7.65 \times 10^3$ 4; $S(p) = 3.01 \times 10^3$ 4; $Q(\alpha) = 3.03 \times 10^3$ 4 [2012Wa38](#)

Note: Current evaluation has used the following Q record -2160 40 7650 40 3020 40 3040 40 [2003Au03](#).

Assignment: daughter ¹⁶⁶Hf, chem. $\gamma(^{166}\text{Yb})$ ([1969Ar23](#)); ¹⁶⁹Tm(³He,6n), E(³He)=45-80 MeV, excit, $\gamma(^{166}\text{Yb})$ ([1974De09](#)); ¹⁷⁰Yb(p,5n), E(p)=52 MeV, $\gamma(^{166}\text{Yb})$ ([1974De09](#)).

For hfs and isotope shift data, see [1998Ge13](#).

Other Reactions: ¹²³Sb(⁴⁸Ca,5n γ) ([1990McZY](#)): identified four rotational bands; details of results not given.

¹⁶⁶Lu Levels

Cross Reference (XREF) Flags

A	¹⁶⁶ Lu IT decay (1.41 min)	D	¹⁵² Sm(¹⁹ F,5n γ)
B	¹⁶⁶ Hf ϵ decay	E	¹⁵⁹ Tb(¹² C,5n γ)
C	¹³⁹ La(³⁰ Si,3n γ)		

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
0.0	6 ⁻ @	2.65 min 10	ABCDE	$\% \epsilon + \% \beta^+ = 100$ $\mu = +2.912$ 12 (1998Ge13); $Q = +4.33$ 4 (1998Ge13) $\Delta \langle r^2 \rangle (^{170}\text{Lu}, ^{166}\text{Lu}) = -0.412$ (1998Ge13). μ, Q : from collinear fast-beam LASER spectroscopy. Sign from 2005St24 . $\langle r^2 \rangle^{1/2}(\text{charge}) = 5.298$ 5 (2004An14). J^π : J=6 from collinear fast-beam LASER spectroscopy (1998Ge13). π from allowed ϵ decay to $\pi = -$ 2233 level of ¹⁶⁶ Yb. Configuration: (π 7/2[411])+(ν 5/2[523]). Unhindered allowed ϵ decay to a ¹⁶⁶ Yb level implies the presence of the (ν 5/2[523]) orbital in the g.s. configuration in this mass region, and the 7/2 ⁺ g.s. of ¹⁶⁷ Lu has the configuration (π 7/2[404]). For a deformed odd-odd nucleus, the 6 ⁻ coupling is expected to lie lower in energy than the 1 ⁻ . T _{1/2} : from 1974De09 . Other: 1969Ar23 .
34.37 22	3 ⁽⁻⁾ @	1.41 min 10	AB	$\% \text{IT} = 42$ 5; $\% \epsilon = 58$ 5 (1974De09) $\mu = +0.189$ 5 (1998Ge13); $Q = +2.715$ 21 (1998Ge13) $\Delta \langle r^2 \rangle (^{170}\text{Lu}, ^{166}\text{Lu}) = -0.444$ (1998Ge13). μ, Q : from collinear fast-beam LASER spectroscopy. Sign from 2005St24 . T _{1/2} : from 1974De09 . J^π : J=3 from collinear fast-beam LASER spectroscopy (1998Ge13). π from (M3) 34 γ to 6 ⁻ g.s. Configuration: (π 1/2[411])+(ν 5/2[523]). Assignment: ¹⁶⁹ Tm(³ He,6n), E(³ He)=45-80 MeV, excit $\gamma(^{166}\text{Yb})$; ¹⁷⁰ Yb(p,5n), E(p)=52 MeV, $\gamma(^{166}\text{Yb})$ (1974De09).
43.0 4	0 ⁻ @	2.12 min 10	B	$\% \text{IT} < 20$; $\% \epsilon + \% \beta^+ > 80$ (1974De09) $\Delta \langle r^2 \rangle (^{170}\text{Lu}, ^{166}\text{Lu}) = -0.448$ (1998Ge13). Assignment: ¹⁶⁹ Tm(³ He,6n), E(³ He)=45-80 MeV excit, $\gamma(^{166}\text{Yb})$; ¹⁷⁰ Yb(p,5n), E(p)=52 MeV, $\gamma(^{166}\text{Yb})$ (1974De09). T _{1/2} : from 1974De09 . J^π : J=0 from collinear fast-beam LASER spectroscopy (1998Ge13). π from allowed ϵ decay to $\pi = -$ 1359 level in ¹⁶⁶ Yb. configuration: (π 5/2[402])-(ν 5/2[523]) (1974De09).
57.2 3	(1) ⁻ @		B	J^π : E1 79 γ from 1 ⁺ 136; 23 γ to 3 ⁽⁻⁾ 34; configuration assignment. configuration: (π 7/2[404])-(ν 5/2[523]) (1974De09).
60.5 4	(3 ⁺)@		B	J^π : 483 γ from 1 ⁺ 544; likely configuration.

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Adopted Levels, Gammas (continued) ^{166}Lu Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
83.50 <i>10</i>	(5,6,7) ⁺	92 ns 7	C E	configuration: (π 1/2[541])+(ν 5/2[523]) (1974De09). J ^π : E1 84 γ to 6 ⁻ g.s.
135.9 3	1 ⁺		B	T _{1/2} : from centroid shift between 83.5 γ and 85.5 γ in ($^{12}\text{C}, 5\text{n}\gamma$). J ^π : ε decay from 0 ⁺ is unhindered allowed (log <i>ft</i> =4.5).
144.79 <i>14</i>	(6,7,8) ⁻		C E	configuration: (π 7/2[523])-(ν 5/2[523]) (1974De09).
189.8 ^a <i>10</i>	(7) ⁺		CDE	J ^π : E1 61 γ to (5,6,7) ⁺ 84 level; $\Delta J \leq 1$ 142 γ from J ≥ 7 287.
196.0 ^d <i>10</i>	J		CDE	J ^π : E1 45 γ to (6,7,8) ⁻ 145 level; band assignment.
287.21 ^b <i>14</i>	(8) ⁻		CDE	J ^π : γ to (5,6,7) ⁺ 84 level.
290.5 ^{&} <i>11</i>	(8) ⁺		CDE	J ^π : $\Delta\pi$ =no 143 γ to (6,7,8) ⁻ 145 level; possibly E1 204 γ to (5,6,7) ⁺ 84; band assignment.
303.29? <i>24</i>	(⁺)		E	Existence of level is doubtful; it should have been seen in ($^{19}\text{F}, 5\text{n}\gamma$) and in ($^{30}\text{Si}, 3\text{n}\gamma$) also, but was not. J ^π : (E1) 159 γ to (6,7,8) ⁻ 145.
336.0 ^d <i>11</i>	J+2		CDE	
341.10 ^c <i>16</i>	(9) ⁻		CDE	
341.2 4	1		B	J ^π : allowed or first forbidden ε decay from 0 ⁺ (log <i>ft</i> =5.8).
358.2 ^{#e} <i>11</i>	(8) ⁻		CDE	
399.1 3	1 ⁽⁺⁾		B	J ^π : ε decay from 0 ⁺ is allowed or first-forbidden (log <i>ft</i> =5.4); 355 γ to 0 ⁻ 43; 339 γ to (3 ⁺) 61.
425.5 ^a <i>11</i>	(9) ⁺		CDE	
426.58 ^b <i>23</i>	(10) ⁻		CDE	
434.7 4	1 ⁽⁺⁾		B	J ^π : ε decay from 0 ⁺ is allowed or first-forbidden (log <i>ft</i> =5.5). 378 γ to 0 ⁻ 43.
505.2 ^{#f} <i>17</i>	(9) ⁻		D	
539.10 ^c <i>24</i>	(11) ⁻		CDE	
543.7 4	1 ⁺		B	J ^π : log <i>ft</i> =5.2 for ε decay from 0 ⁺ .
587.4 ^{#e} <i>4</i>	(10) ⁻		CDE	
591.2 ^{&} <i>11</i>	(10) ⁺		CDE	
591.8 ^d <i>11</i>	J+4		CDE	
694.62 ^b <i>25</i>	(12) ⁻		CDE	
786.2 ^{#f} <i>13</i>	(11) ⁻		D	
786.9 ^a <i>11</i>	(11) ⁺		CDE	
867.9 ^c <i>3</i>	(13) ⁻		CDE	
907.0 ^{#e} <i>11</i>	(12) ⁻		CDE	
961.6 ^d <i>11</i>	J+6		CDE	
1004.6 ^{&} <i>11</i>	(12) ⁺		CDE	
1083.5 ^b <i>3</i>	(14) ⁻		CDE	
1145.8 ^{#f} <i>13</i>	(13) ⁻		D	
1250.5 ^a <i>11</i>	(13) ⁺		CDE	
1312.9 ^c <i>3</i>	(15) ⁻		CDE	
1323.9 ^{#e} <i>11</i>	(14) ⁻		CDE	
1433.4 ^d <i>11</i>	J+8		CDE	
1512.0 ^{&} <i>11</i>	(14) ⁺		CDE	
1574.8 ^b <i>3</i>	(16) ⁻		CDE	
1589.0 ^{#f} <i>13</i>	(15) ⁻		D	
1799.5 ^a <i>11</i>	(15) ⁺		CDE	
1834.4 ^{#e} <i>11</i>	(16) ⁻		CDE	
1856.9 ^c <i>4</i>	(17) ⁻		CDE	

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Adopted Levels, Gammas (continued) ^{166}Lu Levels (continued)

E(level) [†]	J ^π [‡]	XREF	E(level) [†]	J ^π [‡]	XREF	E(level) [†]	J ^π [‡]	XREF
1991.3 ^d 12	J+10	CDE	3173.0 ^c 7	(21 ⁻)	CD	4591.8 ^{#e} 16	(24 ⁻)	D
2096.5 ^{&} 11	(16 ⁺)	CDE	3285.7 ^d 16	J+14	D	4673.3 ^c 16	(25 ⁻)	C
2111.9 ^{#f} 13	(17 ⁻)	D	3375.9 ^{#f} 17	(21 ⁻)	D	0.0+x? ^g	(8 ⁺)	D
2152.2 ^b 4	(18 ⁻)	CDE	3430.9 ^{&} 13	(20 ⁺)	CDE	130.4+x ^h 8	(9 ⁺)	D
2416.8 ^a 11	(17 ⁺)	CDE	3499.5 ^b 5	(22 ⁻)	CDE	286.9+x ^g 8	(10 ⁺)	D
2430.6 ^{#e} 11	(18 ⁻)	CDE	3773.9 ^a 16	(21 ⁺)	CD	470.2+x ^h 10	(11 ⁺)	D
2482.6 ^c 4	(19 ⁻)	CDE	3819.3 ^{#e} 12	(22 ⁻)	CDE	690.6+x ^g 11	(12 ⁺)	D
2615.7 ^d 12	J+12	CDE	3892.5 ^c 12	(23 ⁻)	C	928.8+x ^h 12	(13 ⁺)	D
2710.2 ^{#f} 14	(19 ⁻)	D	3974.7 ^d 19	(J+16)	D	1198.0+x ^g 13	(14 ⁺)	D
2739.3 ^{&} 11	(18 ⁺)	CDE	4104.4 ^{#f} 20	(23 ⁻)	D	1486.2+x ^h 13	(15 ⁺)	D
2800.0 ^b 4	(20 ⁻)	CDE	4167.0 ^{&} 17	(22 ⁺)	C	1785.9+x ^g 14	(16 ⁺)	D
3069.7 ^a 12	(19 ⁺)	CDE	4248.6 ^b 11	(24 ⁻)	C	2114.2+x ^h 17	(17 ⁺)	D
3098.5 ^{#e} 12	(20 ⁻)	CDE	4520.9 ^a 19	(23 ⁺)	D			

[†] From least-squares fit to E_γ , assigning 1 keV uncertainty to data for which the authors gave no uncertainty.

[‡] Values given without comment are based on deduced band structure. It should be noted, however, that different authors may disagree on the spin of a given level, even when they agree on the configuration assignment. See detailed comments on the individual bands.

[#] Level energy is dependent on the validity of the 163γ and 251γ transitions linking the $K^\pi=2^-$ and $\Delta J=2$ bands; these gammas were reported in ($^{30}\text{Si},3n\gamma$) and ($^{12}\text{C},5n\gamma$) but not in ($^{19}\text{F},5n\gamma$).

[@] Assignments for the lowest energy levels are consistent with systematics for neighboring nuclides (1974De09). Based on low-energy structure of odd-odd Lu isotopes, the $7/2[404]$, $1/2[411]$ and $5/2[402]$ proton orbitals are expected to lie lowest in energy (and at almost the same energy) for $N=95$, with the $1/2[541]$ and $9/2[514]$ orbitals at somewhat higher energy. Unhindered allowed ε decay from the g.s. to a ^{166}Yb level and a ($\nu 5/2[523]$) g.s. for ^{165}Yb support the inclusion of the ($\nu 5/2[523]$) orbital in the g.s. configuration in this mass region, so low-energy 6^- , 3^- and 0^- levels are anticipated based on the Gallagher-Moszkowski rule, with 1^- and 3^+ states a little higher in energy.

[&] Band(A): $K^\pi=6^+$, $\alpha=0$ ($\pi 7/2[404]$)+($\nu 5/2[642]$) band. J values are from ($^{19}\text{F},5n\gamma$), based on level energy systematics for similar bands in neighboring odd-odd nuclei and checked by the alignment additivity rule; they are one unit higher than suggested in independent ($^{12}\text{C},5n\gamma$) (1992Ho02) and ($^{30}\text{Si},3n\gamma$) (2000Le25) studies.

^a Band(a): $K^\pi=6^+$, $\alpha=1$ ($\pi 7/2[404]$)+($\nu 5/2[642]$) band. See comment on signature partner band.

^b Band(B): $K^\pi=7^-$, $\alpha=0$ ($\pi 9/2[514]$)+($\nu 5/2[642]$) band (2000Le25). J values are based on energy systematics, the alignment additivity rule and systematics of signature inversion for low-lying states for yrast bands in odd-odd Lu isotopes; these values are from ($^{19}\text{F},5n\gamma$) and ($^{30}\text{Si},3n\gamma$) and they are one unit higher than suggested in an earlier ($^{12}\text{C},5n\gamma$) study (1992Ho02).

^c Band(b): $K^\pi=7^-$, $\alpha=1$ ($\pi 9/2[514]$)+($\nu 5/2[642]$) band (2000Le25). See comment on signature partner band.

^d Band(C): $\Delta J=2$ band (2000Zh51). Assigned as $K^\pi=2^+$, $\alpha=0$ ($\pi 1/2[411]$)-($\nu 5/2[642]$) band (with $J^\pi(196 \text{ level})=6^+$) in ($^{19}\text{F},5n\gamma$) (2000Zh51), based on similarity of level structure to that for the $\alpha=0$ band in ^{162}Tm with the same configuration assignment. However, assigned as signature partner of the $K^\pi=2^-$ ($\pi 1/2[541]$)-($\nu 5/2[642]$) band (with $J^\pi(196 \text{ level})=7^-$) in ($^{30}\text{Si},3n\gamma$) (2000Le25). If the adopted J^π values for the $\alpha=0$ ($\pi 1/2[541]$)-($\nu 5/2[642]$) band are correct, the former configuration would imply M2 multipolarity for the three transitions linking it to the $\Delta J=2$ band. The alternative scenario is problematic also because a different band has already been assigned as the signature partner of the $K^\pi=2^-$ band.

^e Band(D): $K^\pi=2^-$, $\alpha=0$ ($\pi 1/2[541]$)-($\nu 5/2[642]$) band (2000Zh51). Configuration assignment supported by similarity of band structure to that for bands in ^{162}Tm and ^{164}Tm with the same configuration assignment (large signature splitting, low-spin signature inversion, delayed βc crossing and small B(M1) to B(E2) in-band cascade to crossover transition probability ratios) (2000Zh51).

^f Band(d): $K^\pi=2^-$, $\alpha=1$ ($\pi 1/2[541]$)-($\nu 5/2[642]$) band (2000Zh51). $\alpha=1$ sequence is observed only in ($^{19}\text{F},5n\gamma$). See comment on signature partner of this band.

^g Band(E): $K^\pi=5^+$, $\alpha=0$ ($\pi 5/2[402]$)+($\nu 5/2[642]$) band (2000Zh51). Configuration assignment supported by similarity of band

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Adopted Levels, Gammas (continued) **^{166}Lu Levels (continued)**

structure to that for a ^{162}Tm band with the same configuration assignment. Strongly coupled, weakly populated band reported in ($^{19}\text{F}, 5n\gamma$) alone.

^h Band(e): $K^\pi=5^+$, $\alpha=1$ (π 5/2[402])+(ν 5/2[642]) band ([2000Zh51](#)). See comment on signature partner of this band.

Adopted Levels, Gammas (continued)

$\gamma(^{166}\text{Lu})$								
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π	Mult. [#]	α^b	Comments
34.37	3 ⁽⁻⁾	34.37 @ 22	100 @	0.0	6 ⁻	(M3)	8.6×10^4 4	B(M3)(W.u.)=0.074 12 Mult.: from L/M in ε decay.
57.2	(1) ⁻	(14.3)		43.0	0 ⁻	[M1]	191	E_γ : from level energy difference.
		22.85 @ 22	@	34.37	3 ⁽⁻⁾	[E2]	3.11×10^3 16	
60.5	(3 ⁺)	(26.1)		34.37	3 ⁽⁻⁾	[E1]	2.55	E_γ : from level energy difference.
83.50	(5,6,7) ⁺	83.5 @ 1	100 @	0.0	6 ⁻	E1	0.560	B(E1)(W.u.)= 2.68×10^{-6} 21
135.9	1 ⁺	78.76 @ 10	100 @ 5	57.2	(1) ⁻	E1	0.651	Mult.: from $\alpha(\text{L})\text{exp}$ in ε decay.
		93.05 @ 20	8 @ 1	43.0	0 ⁻	(E1)	0.423 7	Mult.: from $\alpha(\text{L})\text{exp}$ in ε decay.
144.79	(6,7,8) ⁻	61.3 1	100	83.50	(5,6,7) ⁺	E1	0.240	
189.8	(7) ⁺	45	100	144.79	(6,7,8) ⁻	E1	0.566	
196.0	J	112.5 &		83.50	(5,6,7) ⁺			
287.21	(8) ⁻	142.5 2	100	144.79	(6,7,8) ⁻	M1(+E2)	1.12 23	
		203.7 1	<158	83.50	(5,6,7) ⁺	(E1)		Mult., I_γ : possibly unreliable; measurement was for a contaminated line.
290.5	(8 ⁺)	100.8 2	100	189.8	(7) ⁺	M1(+E2)	3.43 18	
303.29?	(⁺)	158.5 ^c 2	100	144.79	(6,7,8) ⁻	(E1)	0.1046	
336.0	J+2	139.9 2	100	196.0	J	[E2]	0.959	
341.10	(9 ⁻)	54.0 3		287.21	(8) ⁻	[M1(+E2)]	24 21	γ not observed but its existence is implied by $\gamma\gamma$ coin data and presence of 139 γ crossover transition; possibly highly converted.
		196.3 1	100	144.79	(6,7,8) ⁻	(E2)	0.2956	Mult.: M1,E2 from intensity balance in ($^{12}\text{C}, 5n\gamma$); $\Delta J > 1$ from level scheme.
341.2	1	283.92 @ 20	93 @ 36	57.2	(1) ⁻			
		306.8 @ 4	100 @ 23	34.37	3 ⁽⁻⁾			
358.2	(8 ⁻)	162.4 3	100	196.0	J			Additional information 1.
399.1	1 ⁽⁺⁾	338.98 @ 15	25 @ 12	60.5	(3 ⁺)			
		341.82 @ 10	100 @ 9	57.2	(1) ⁻			
		355.1 @ 5	23 @ 11	43.0	0 ⁻			
425.5	(9 ⁺)	135.0 2	100	290.5	(8 ⁺)	[M1(+E2)]	1.33 24	
		235.7 2	72	189.8	(7) ⁺			
426.58	(10 ⁻)	85.5 2	100	341.10	(9 ⁻)	[M1(+E2)]	6.0 3	
		139.0 &	<107	287.21	(8) ⁻	[E2]	0.982	
434.7	1 ⁽⁺⁾	298.77 @ 20	33 @ 10	135.9	1 ⁺			
		377.6 @ 5	100 @ 29	57.2	(1) ⁻			
505.2	(9 ⁻)	148.0 ^{ac}	100	358.2	(8 ⁻)			
539.10	(11 ⁻)	112.5 1	100	426.58	(10 ⁻)	[M1(+E2)]	2.38 25	
		198.0 3	<30	341.10	(9 ⁻)	[E2]	0.287	
543.7	1 ⁺	407.91 @ 10	100 @ 19	135.9	1 ⁺			

Adopted Levels, Gammas (continued)

$\gamma(^{166}\text{Lu})$ (continued)							
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π	Mult. #	α^b
543.7	1 ⁺	483.05 [@]	91 [@]	60.5	(3 ⁺)		
587.4	(10 ⁻)	229.3 2	100	358.2	(8 ⁻)		
		251.3 3		336.0	J+2		
591.2	(10 ⁺)	165.6 2	92	425.5	(9 ⁺)	[M1(+E2)]	0.7018
		300.8 2	100	290.5	(8 ⁺)		
591.8	J+4	255.8 2	100	336.0	J+2		
694.62	(12 ⁻)	155.5 1	100	539.10	(11 ⁻)	[M1(+E2)]	0.85 20
		268.1 2	34	426.58	(10 ⁻)		
786.2	(11 ⁻)	198.2 ^a		587.4	(10 ⁻)		
		281.0 ^a		505.2	(9 ⁻)		
786.9	(11 ⁺)	195.7 2	83	591.2	(10 ⁺)	[M1(+E2)]	0.42 13
		361.4 2	100	425.5	(9 ⁺)		
867.9	(13 ⁻)	173.3 1	100	694.62	(12 ⁻)	[M1(+E2)]	0.61 16
		328.8 2	48	539.10	(11 ⁻)		
907.0	(12 ⁻)	319.6 2	100	587.4	(10 ⁻)		
961.6	J+6	369.8 2	100	591.8	J+4		
1004.6	(12 ⁺)	217.7 2	62	786.9	(11 ⁺)	[M1(+E2)]	0.31 10
		413.4 2	100	591.2	(10 ⁺)		
1083.5	(14 ⁻)	215.6 1	100	867.9	(13 ⁻)	[M1(+E2)]	0.32 11
		388.7 2	84	694.62	(12 ⁻)		
1145.8	(13 ⁻)	238.6 ^a		907.0	(12 ⁻)		
		359.1 ^a		786.2	(11 ⁻)		
1250.5	(13 ⁺)	245.9 2	99	1004.6	(12 ⁺)		
		463.5 2	100	786.9	(11 ⁺)		
1312.9	(15 ⁻)	229.5 2	81	1083.5	(14 ⁻)		
		445.3 2	100	867.9	(13 ⁻)		
1323.9	(14 ⁻)	416.9 2	100	907.0	(12 ⁻)		
1433.4	J+8	471.8 3	100	961.6	J+6		
1512.0	(14 ⁺)	261.5 3	100	1250.5	(13 ⁺)		
		507.4 3	70	1004.6	(12 ⁺)		
1574.8	(16 ⁻)	261.9 2	100	1312.9	(15 ⁻)		
		491.0 2	75	1083.5	(14 ⁻)		
1589.0	(15 ⁻)	265.4 ^a		1323.9	(14 ⁻)		
		442.4 ^a		1145.8	(13 ⁻)		
1799.5	(15 ⁺)	287.7 3	78	1512.0	(14 ⁺)		
		549.1 3	100	1250.5	(13 ⁺)		
1834.4	(16 ⁻)	510.5 2	100	1323.9	(14 ⁻)		
1856.9	(17 ⁻)	281.9 2	100	1574.8	(16 ⁻)		
		544.1 2	81	1312.9	(15 ⁻)		
1991.3	J+10	557.9 3	100	1433.4	J+8		
2096.5	(16 ⁺)	297.1 3		1799.5	(15 ⁺)		

Adopted Levels, Gammas (continued)

$\gamma(^{166}\text{Lu})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π	$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	E_f	J_f^π	Mult. [#]	α^b
2096.5	(16 ⁺)	584.3 3	100	1512.0	(14 ⁺)	3819.3	(22 ⁻)	720.8 3	100	3098.5	(20 ⁻)		
2111.9	(17 ⁻)	277.5 ^a		1834.4	(16 ⁻)	3892.5	(23 ⁻)	719.5&	100	3173.0	(21 ⁻)		
		522.4 ^a		1589.0	(15 ⁻)	3974.7?	(J+16)	689 ^{ac}	100	3285.7	J+14		
2152.2	(18 ⁻)	295.3 2	100	1856.9	(17 ⁻)	4104.4	(23 ⁻)	728.5 ^a	100	3375.9	(21 ⁻)		
		577.4 2	84	1574.8	(16 ⁻)	4167.0	(22 ⁺)	736.2&	100	3430.9	(20 ⁺)		
2416.8	(17 ⁺)	617.3 3	100	1799.5	(15 ⁺)	4248.6	(24 ⁻)	749.1&	100	3499.5	(22 ⁻)		
2430.6	(18 ⁻)	596.3 2	100	1834.4	(16 ⁻)	4520.9?	(23 ⁺)	747 ^{ac}	100	3773.9	(21 ⁺)		
2482.6	(19 ⁻)	330.2 3	73	2152.2	(18 ⁻)	4591.8	(24 ⁻)	772.5 ^a	100	3819.3	(22 ⁻)		
		625.7 2	100	1856.9	(17 ⁻)	4673.3	(25 ⁻)	780.8&	100	3892.5	(23 ⁻)		
2615.7	J+12	624.4 3	100	1991.3	J+10	130.4+x	(9 ⁺)	130.3 ^{ac}	100	0.0+x?	(8 ⁺)	[M1]	1.727
2710.2	(19 ⁻)	280.1 ^a		2430.6	(18 ⁻)	286.9+x	(10 ⁺)	156.3 ^a		130.4+x	(9 ⁺)		
		597.7 ^a		2111.9	(17 ⁻)			287.0 ^{ac}		0.0+x?	(8 ⁺)		
2739.3	(18 ⁺)	642.8 3	100	2096.5	(16 ⁺)	470.2+x	(11 ⁺)	183.2 ^a		286.9+x	(10 ⁺)		
2800.0	(20 ⁻)	317.2 3	71	2482.6	(19 ⁻)			339.8 ^a		130.4+x	(9 ⁺)		
		647.9 2	100	2152.2	(18 ⁻)	690.6+x	(12 ⁺)	220.2 ^a		470.2+x	(11 ⁺)		
3069.7	(19 ⁺)	652.9 3	100	2416.8	(17 ⁺)			403.8 ^a		286.9+x	(10 ⁺)		
3098.5	(20 ⁻)	667.9 3	100	2430.6	(18 ⁻)	928.8+x	(13 ⁺)	238.1 ^a		690.6+x	(12 ⁺)		
3173.0	(21 ⁻)	373.2&		2800.0	(20 ⁻)			458.6 ^a		470.2+x	(11 ⁺)		
		690.2&		2482.6	(19 ⁻)	1198.0+x	(14 ⁺)	269.1 ^a		928.8+x	(13 ⁺)		
3285.7	J+14	670.0 ^a	100	2615.7	J+12			507.6 ^a		690.6+x	(12 ⁺)		
3375.9	(21 ⁻)	665.7 ^a	100	2710.2	(19 ⁻)	1486.2+x	(15 ⁺)	288.0 ^a		1198.0+x	(14 ⁺)		
3430.9	(20 ⁺)	361.4&		3069.7	(19 ⁺)			557.4 ^a		928.8+x	(13 ⁺)		
		691.4&		2739.3	(18 ⁺)	1785.9+x	(16 ⁺)	299.5 ^a		1486.2+x	(15 ⁺)		
3499.5	(22 ⁻)	326.3&		3173.0	(21 ⁻)			588.1 ^a		1198.0+x	(14 ⁺)		
		699.5 3		2800.0	(20 ⁻)	2114.2+x	(17 ⁺)	328.0 ^{ac}		1785.9+x	(16 ⁺)		
3773.9	(21 ⁺)	704.2&	100	3069.7	(19 ⁺)			628.0 ^a		1486.2+x	(15 ⁺)		

[†] From ¹⁵⁹Tb(¹²C,5n γ), except as noted. E γ data from (³⁰Si,3n γ) are in excellent agreement; however, E γ data from (¹⁹F,5n γ) are consistently lower by as much as 1.5 keV.

[‡] Relative photon intensity normalized to 100 for strongest photon deexciting each level. From ¹⁵⁹Tb(¹²C,5n γ), except as noted.

[#] From intensity balance in ¹⁵⁹Tb(¹²C,5n γ), except as noted.

@ From ¹⁶⁶Hf ϵ decay.

& From (³⁰Si,3n γ) (2000Le25).

^a From (¹⁹F,5n γ) (2000Zh51).

^b Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

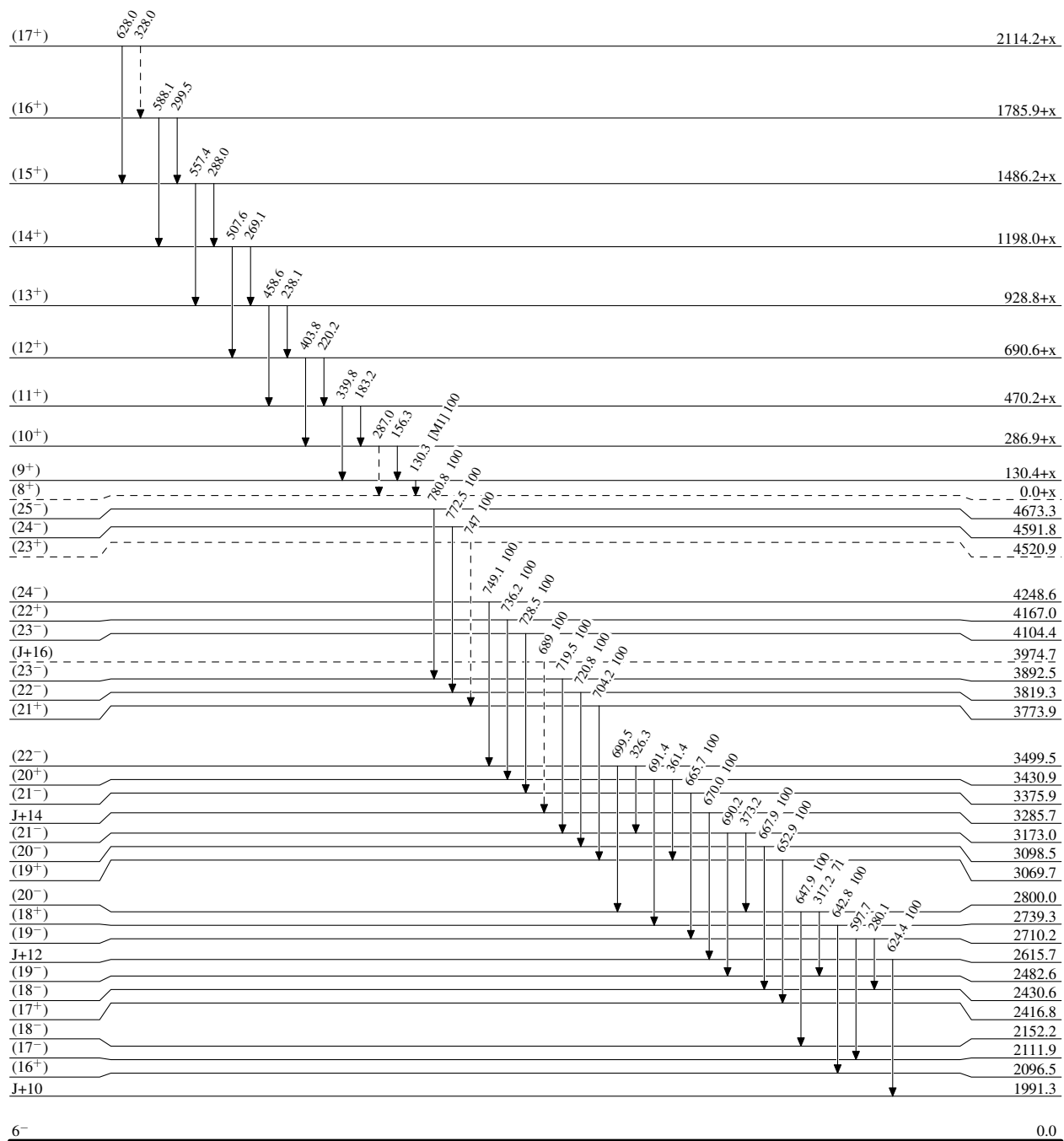
^c Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)

6⁻

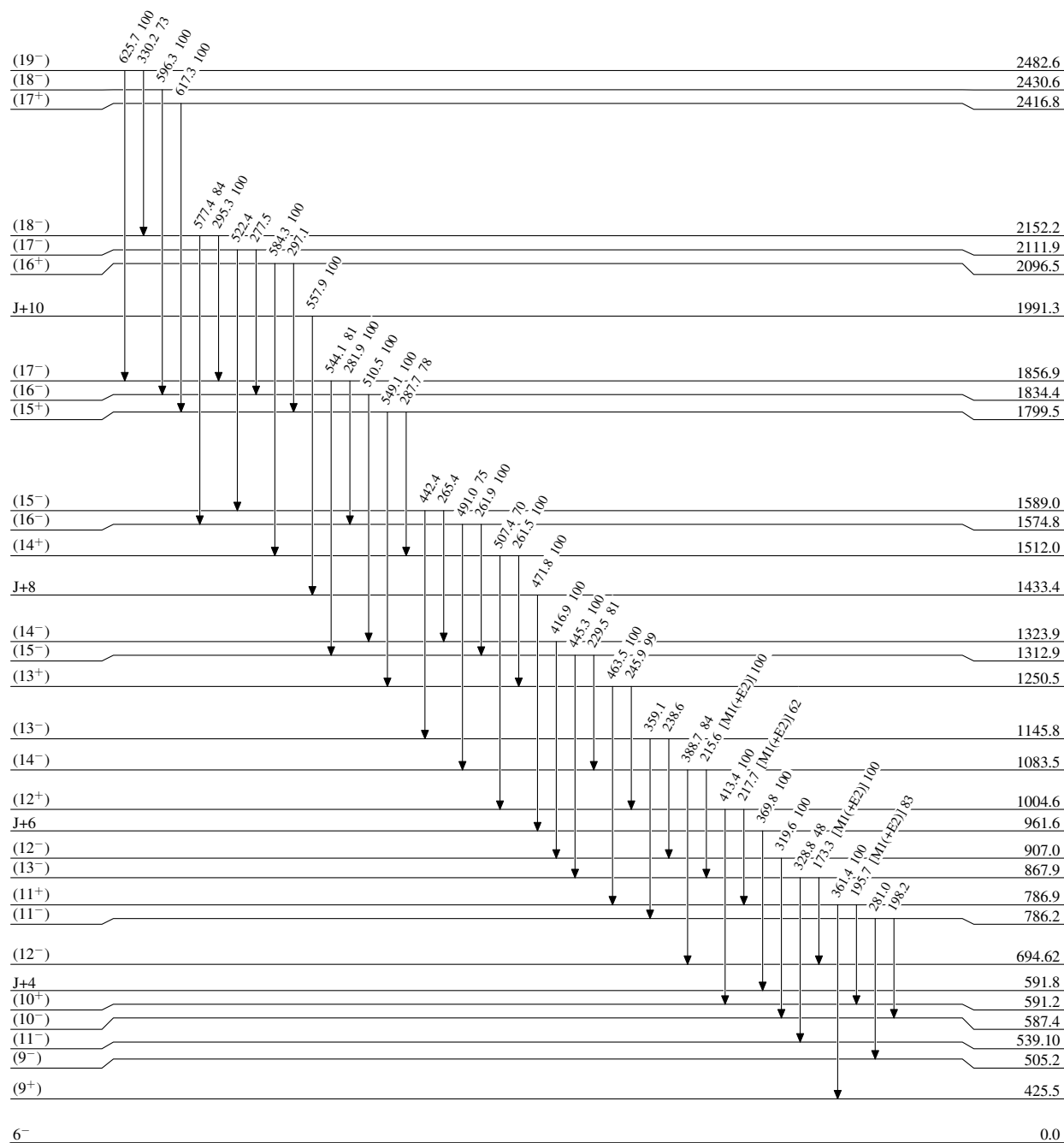
0.0

2.65 min 10

 $^{166}_{71}\text{Lu}_{95}$

Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level

6⁻

0.0

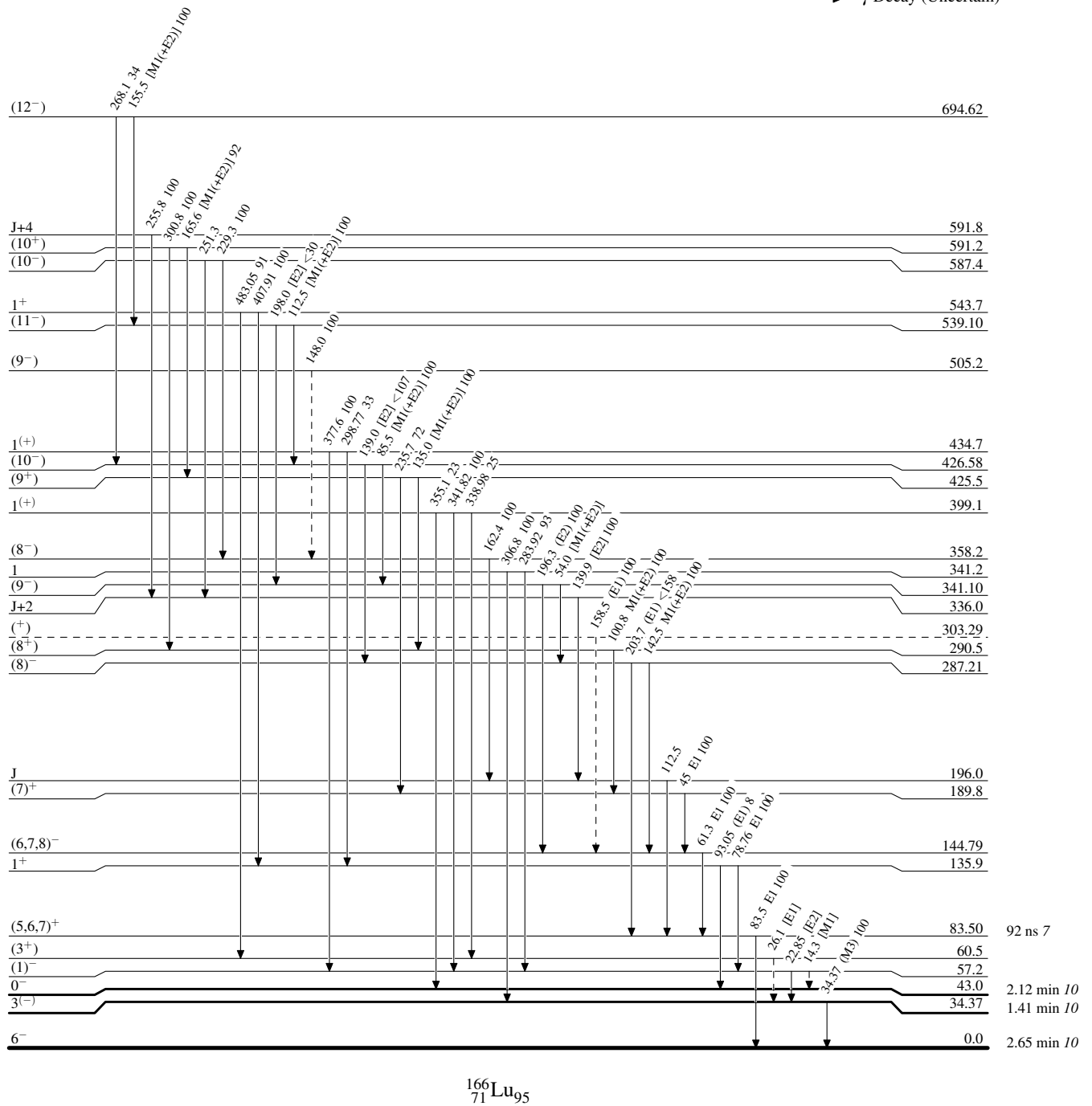
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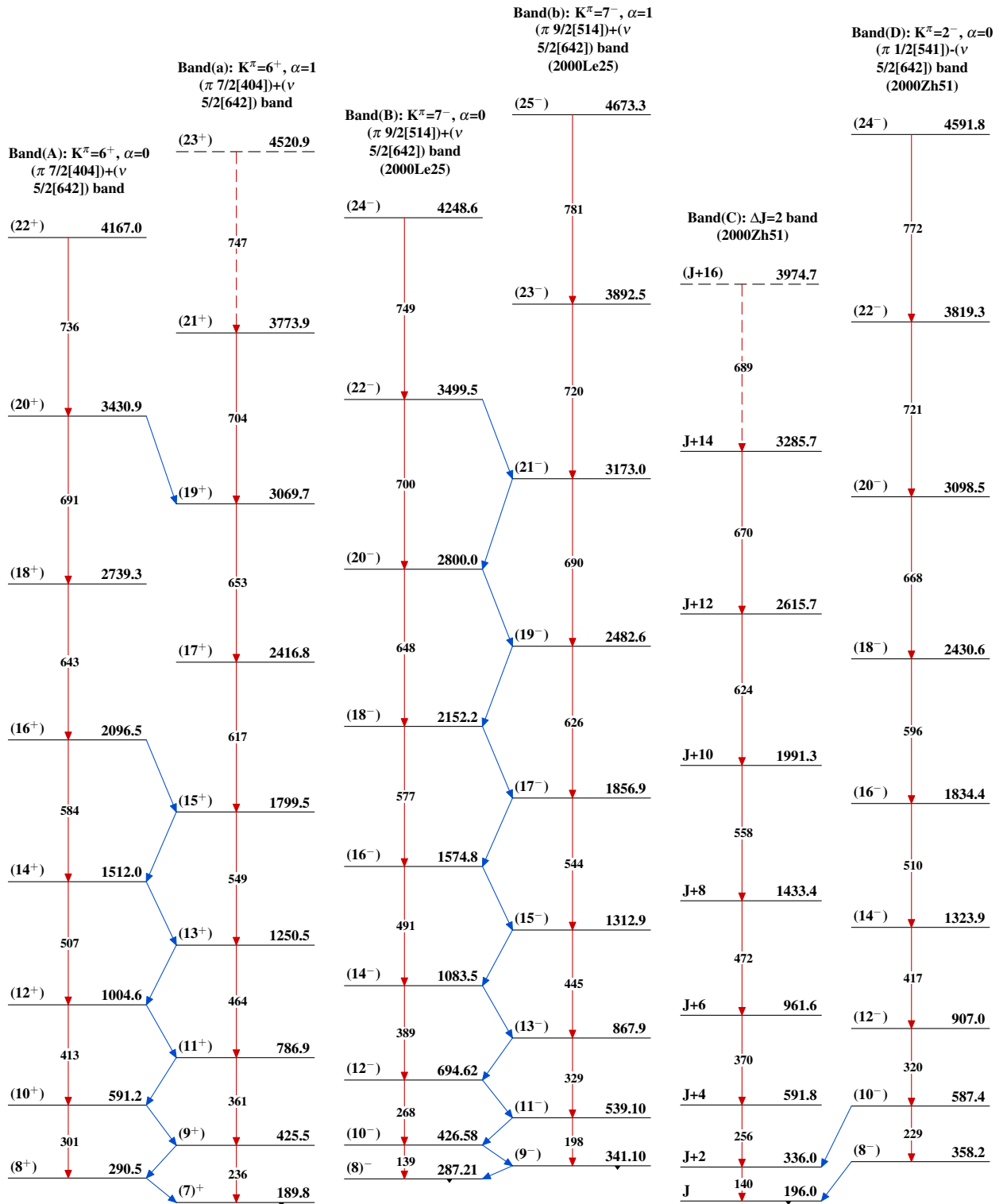
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)

Adopted Levels, Gammas $^{166}_{71}\text{Lu}_{95}$

Adopted Levels, Gammas (continued)