

¹⁶⁴Dy(⁷Li,4n γ) **2022Bu22**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 191,1 (2023)	22-Aug-2023

2022Bu22 (also **2005Bu37**): E(⁷Li)=55 MeV from the XTU Tandem accelerator at the INFN Legnaro National Laboratory.

Measured E γ , I γ , $\gamma\gamma$ -coin using GASP array of array of 40 escape-suppressed n-type HPGe detectors and an 80-element inner BGO ball as a multiplicity filter and total energy spectrometer. Target was 95.6% enriched ¹⁶⁴Dy with thickness of 3.5 mg/cm².

Deduced B(M1)/B(E2) values and compared with the results of semiclassical cranking model, and the level scheme compared with Projected Shell Model (PSM) calculations.

Others:

1997Je07: ¹²⁴Sn(⁴⁸Ca,4n γ),E(⁴⁸Ca)=210 MeV. Measured E γ , $\gamma\gamma$ -coin using the EUROGAM array of 45 Compton-suppressed HPGe detectors at Daresbury Laboratory. Investigated and extended 1/2[541] band to 65/2⁻, and discovered band crossing by a pair of i_{13/2} neutrons. Only the E γ values in this band are listed in spectral Fig. 1 in **1997Je07**.

1998JeZZ (brief lab report, first author is the same as for **1997Je07**): ¹⁶⁰Gd(¹¹B,4n γ),E(¹¹B)=55 MeV; 97.86% ¹⁶⁰Gd target; GASP array of 40 Compton-suppressed Ge detectors and BGO inner ball. Confirmed and extended by several transitions the bands reported by **1980OI05** in (α ,2n γ), except for the π 3/2[411] and π 5/2[402] bands. This experiment carried out at the same facility as **2005Bu37** and **2022Bu22**. No numerical data are available in **1998JeZZ**.

¹⁶⁷Tm Levels

E(level) [†]	J π^{\ddagger}	Comments
0.0 [#]	1/2 ⁺	
10.423 [@] 24	3/2 ⁺	
116.56 [#] 4	5/2 ⁺	
142.42 [@] 4	7/2 ⁺	
171.76 ^{&} 5	1/2 ⁻	
179.47 ^c 4	7/2 ⁺	
187.61 ^{&} 4	5/2 ⁻	
285.7 ^{&} 7	9/2 ⁻	
290.90 ^a 5	3/2 ⁻	
292.81 ^e 4	7/2 ⁻	
296.5 ^b 8	9/2 ⁺	
327.0 [#] 6	9/2 ⁺	
371.0 [@] 7	11/2 ⁺	2022Bu22 mention that an 85.1 γ reported in literature was not observed in the present work.
383.8 ^d 8	9/2 ⁻	
436.5 ^c 8	11/2 ⁺	
460.0 ^a 9	7/2 ⁻	
469.9 ^{&} 8	13/2 ⁻	
496.8 ^e 8	11/2 ⁻	
597.5 ^b 10	13/2 ⁺	
622.8 [#] 8	13/2 ⁺	
631.8 ^d 10	13/2 ⁻	
688.9 [@] 9	15/2 ⁺	
699.2 ^a 8	11/2 ⁻	
741.1 ^{&} 9	17/2 ⁻	
779.5 ^c 11	15/2 ⁺	
787.8 ^e 11	15/2 ⁻	
965.8 ^d 12	17/2 ⁻	
978.5 ^b 12	17/2 ⁺	
994.8 [#] 9	17/2 ⁺	

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$^{164}\text{Dy}(^7\text{Li},4n\gamma)$ 2022Bu22 (continued) ^{167}Tm Levels (continued)

<u>E(level)[†]</u>	<u>J^π[‡]</u>
1007.4 ^a 9	15/2 ⁻
1086.0 [@] 10	19/2 ⁺
1096.0 ^{&} 10	21/2 ⁻
1160.8 ^e 13	19/2 ⁻
1195.5 ^c 13	19/2 ⁺
1377.8 ^d 13	21/2 ⁻
1380.7 ^a 10	19/2 ⁻
1424.5 ^b 13	21/2 ⁺
1429.9 [#] 10	21/2 ⁺
1528.2 ^{&} 12	25/2 ⁻
1549.0 [@] 11	23/2 ⁺
1606.8 ^e 14	23/2 ⁻
1669.5 ^c 14	23/2 ⁺
1808.6 ^a 11	23/2 ⁻
1858.8 ^d 15	25/2 ⁻
1915.9 [#] 12	25/2 ⁺
1922.5 ^b 15	25/2 ⁺
2030.2 ^{&} 14	29/2 ⁻
2064.1 [@] 12	27/2 ⁺
2113.8 ^e 15	27/2 ⁻
2187.5 ^c 15	27/2 ⁺
2279.6 ^a 15	27/2 ⁻
2394.8 ^d 16	29/2 ⁻
2440.9 [#] 16	29/2 ⁺
2455.5 ^b 16	29/2 ⁺
2593.2 ^{&} 16	33/2 ⁻
2619.2 [@] 14	31/2 ⁺
2670.8 ^e 17	31/2 ⁻
2737.5 ^c 17	31/2 ⁺
2798.6 ^a 18	(31/2 ⁻)
2972.8 ^d 19	(33/2 ⁻)
2993.9 [#] 19	(33/2 ⁺)
3014.5 ^b 17	(33/2 ⁺)
3208.2 [@] 16	(35/2 ⁺)
3210.2 ^{&} 19	37/2 ⁻
3261.8 ^e 20	(35/2 ⁻)
3312.5 ^c 18	(35/2 ⁺)
3575.9 [#] 21	(37/2 ⁺)
3579.8 ^d 22	(37/2 ⁻)
3601.5 ^b 20	(37/2 ⁺)
3832.2 [@] 19	(39/2 ⁺)
3877.2 ^{&} 21	41/2 ⁻
3878.8 ^e 22	(39/2 ⁻)
3917.5 ^c 21	(39/2 ⁺)
4196.9 [#] 24	(41/2 ⁺)
4197.5 ^b 22	(41/2 ⁺)

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$^{164}\text{Dy}(^7\text{Li},4n\gamma)$ **2022Bu22** (continued)

^{167}Tm Levels (continued)

E(level) [†]	J ^π [‡]	Comments
4494.2 [@] 21	(43/2 ⁺)	
4566.5 ^c 23	(43/2 ⁺)	
4596.2 ^{&} 24	45/2 ⁻	
4869.5 ^{?#} 26	(45/2 ⁺)	
5204.2 [@] 24	(47/2 ⁺)	
5365.2 ^{&} 26	49/2 ⁻	
5970.2 [@] 26	(51/2 ⁺)	
6185.2 ^{&} 28	53/2 ⁻	
7055.2 ^{&} 30	57/2 ⁻	
7979.2 ^{&} 32	61/2 ⁻	
8952.2 ^{&} 34	65/2 ⁻	E(level),J ^π : level from 1997Je07 .

[†] Deduced by evaluators from least-squares fit to E_γ data.

[‡] As given in [2022Bu22](#), based on previous assignments for low-lying levels, and rotational bands built on single-particle Nilsson orbitals in the present work.

Band(A): $\pi 1/2[411], \alpha = +1/2$.

@ Band(a): $\pi 1/2[411], \alpha = -1/2$.

& Band(B): $\pi 1/2[541], \alpha = +1/2$. See also [1997Je07](#) for investigation of this band, and band crossing by a pair of i_{13/2} neutrons.

^a Band(b): $\pi 1/2[541], \alpha = -1/2$.

^b Band(C): $\pi 7/2[404], \alpha = +1/2$.

^c Band(c): $\pi 7/2[404], \alpha = -1/2$.

^d Band(D): $\pi 7/2[523], \alpha = +1/2$.

^e Band(d): $\pi 7/2[523], \alpha = -1/2$.

$\gamma(^{167}\text{Tm})$

E _γ [†]	I _γ [#]	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
(10.419 [‡] 25)		10.423	3/2 ⁺	0.0	1/2 ⁺	
(37.05 [‡] 2)		179.47	7/2 ⁺	142.42	7/2 ⁺	
(62.91 [‡] 1)		179.47	7/2 ⁺	116.56	5/2 ⁺	
91 1		383.8	9/2 ⁻	292.81	7/2 ⁻	
98 1		285.7	9/2 ⁻	187.61	5/2 ⁻	
99 1		469.9	13/2 ⁻	371.0	11/2 ⁺	E _γ : from Fig. 1 in 2022Bu22 . E _γ =99.2 in 1997Je07 .
(103.32 [‡] 5)		290.90	3/2 ⁻	187.61	5/2 ⁻	
(105.19 [‡] 2)		292.81	7/2 ⁻	187.61	5/2 ⁻	
107 1		116.56	5/2 ⁺	10.423	3/2 ⁺	
113 1		496.8	11/2 ⁻	383.8	9/2 ⁻	
(113.34 [‡] 1)		292.81	7/2 ⁻	179.47	7/2 ⁺	
117 1		116.56	5/2 ⁺	0.0	1/2 ⁺	
117 1		296.5	9/2 ⁺	179.47	7/2 ⁺	
132 1		142.42	7/2 ⁺	10.423	3/2 ⁺	E _γ : 132.1 in 1997Je07 .
135 1	10.0 4	631.8	13/2 ⁻	496.8	11/2 ⁻	
140 1		436.5	11/2 ⁺	296.5	9/2 ⁺	
143 1		285.7	9/2 ⁻	142.42	7/2 ⁺	E _γ : from Fig. 1 in 2022Bu22 . E _γ =143.5 in 1997Je07 .
(150.40 [‡] 3)		292.81	7/2 ⁻	142.42	7/2 ⁺	
156 1	3.74 21	787.8	15/2 ⁻	631.8	13/2 ⁻	
161 1		597.5	13/2 ⁺	436.5	11/2 ⁺	

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$^{164}\text{Dy}(^7\text{Li},4n\gamma)$ 2022Bu22 (continued) $\gamma(^{167}\text{Tm})$ (continued)

E_γ^\dagger	$I_\gamma^\#$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
(161.32 $\frac{3}{2}$ 8)		171.76	1/2 ⁻	10.423	3/2 ⁺	
169 <i>I</i>		460.0	7/2 ⁻	290.90	3/2 ⁻	
(169.04 $\frac{3}{2}$ 3)		179.47	7/2 ⁺	10.423	3/2 ⁺	
(171.77 $\frac{3}{2}$ 5)		171.76	1/2 ⁻	0.0	1/2 ⁺	
(174.26 $\frac{3}{2}$ 7)		290.90	3/2 ⁻	116.56	5/2 ⁺	
(176.26 $\frac{3}{2}$ 2)		292.81	7/2 ⁻	116.56	5/2 ⁺	
177 <i>I</i>		187.61	5/2 ⁻	10.423	3/2 ⁺	E_γ : from Fig. 1 in 2022Bu22. $E_\gamma=177.3$ in 1997Je07.
178 <i>I</i>	1.30 10	965.8	17/2 ⁻	787.8	15/2 ⁻	
182 <i>I</i>		779.5	15/2 ⁺	597.5	13/2 ⁺	
184 <i>I</i>	100.0 13	469.9	13/2 ⁻	285.7	9/2 ⁻	E_γ : 184.4 in 1997Je07.
185 <i>I</i>		327.0	9/2 ⁺	142.42	7/2 ⁺	
195 <i>I</i>	0.519 32	1160.8	19/2 ⁻	965.8	17/2 ⁻	
199 <i>I</i>		978.5	17/2 ⁺	779.5	15/2 ⁺	
204 <i>I</i>		496.8	11/2 ⁻	292.81	7/2 ⁻	
210 <i>I</i>		327.0	9/2 ⁺	116.56	5/2 ⁺	
217 <i>I</i>	0.387 18	1195.5	19/2 ⁺	978.5	17/2 ⁺	
217 <i>I</i>	0.367 18	1377.8	21/2 ⁻	1160.8	19/2 ⁻	
219 <i>I</i>		688.9	15/2 ⁺	469.9	13/2 ⁻	E_γ : from Table V in 2022Bu22.
229 <i>I</i>		371.0	11/2 ⁺	142.42	7/2 ⁺	E_γ : 228.5 in 1997Je07.
229 <i>I</i>	0.108 6	1424.5	21/2 ⁺	1195.5	19/2 ⁺	
229 <i>I</i>	0.429 19	1606.8	23/2 ⁻	1377.8	21/2 ⁻	
239 <i>I</i>		699.2	11/2 ⁻	460.0	7/2 ⁻	
245 <i>I</i>	0.273 14	1669.5	23/2 ⁺	1424.5	21/2 ⁺	
248 <i>I</i>		631.8	13/2 ⁻	383.8	9/2 ⁻	
252 <i>I</i>	2.65 9	622.8	13/2 ⁺	371.0	11/2 ⁺	
252 <i>I</i>	0.127 11	1858.8	25/2 ⁻	1606.8	23/2 ⁻	
253 <i>I</i>	0.049 5	1922.5	25/2 ⁺	1669.5	23/2 ⁺	
255 <i>I</i>	0.101 10	2113.8	27/2 ⁻	1858.8	25/2 ⁻	
257 <i>I</i>		436.5	11/2 ⁺	179.47	7/2 ⁺	
265 <i>I</i>	0.050 6	2187.5	27/2 ⁺	1922.5	25/2 ⁺	
266 <i>I</i>		1007.4	15/2 ⁻	741.1	17/2 ⁻	
268 <i>I</i>	0.020 2	2455.5	29/2 ⁺	2187.5	27/2 ⁺	
271 <i>I</i>	46.1 6	741.1	17/2 ⁻	469.9	13/2 ⁻	E_γ : 271.1 in 1997Je07.
276 <i>I</i>	0.043 7	2670.8	31/2 ⁻	2394.8	29/2 ⁻	
277 <i>I</i>	0.012 2	3014.5	(33/2 ⁺)	2737.5	31/2 ⁺	
280 <i>I</i>		1808.6	23/2 ⁻	1528.2	25/2 ⁻	
(280.55 $\frac{3}{2}$ 20)		290.90	3/2 ⁻	10.423	3/2 ⁺	
281 <i>I</i>	0.084 8	2394.8	29/2 ⁻	2113.8	27/2 ⁻	
282 <i>I</i>	0.032 4	2737.5	31/2 ⁺	2455.5	29/2 ⁺	
285 <i>I</i>		1380.7	19/2 ⁻	1096.0	21/2 ⁻	
(290.92 $\frac{3}{2}$ 8)		290.90	3/2 ⁻	0.0	1/2 ⁺	
291 <i>I</i>		787.8	15/2 ⁻	496.8	11/2 ⁻	
296 <i>I</i>		622.8	13/2 ⁺	327.0	9/2 ⁺	
298 <i>I</i>	0.015 3	3312.5	(35/2 ⁺)	3014.5	(33/2 ⁺)	
301 <i>I</i>		597.5	13/2 ⁺	296.5	9/2 ⁺	
306 <i>I</i>	1.53 9	994.8	17/2 ⁺	688.9	15/2 ⁺	
308 <i>I</i>		1007.4	15/2 ⁻	699.2	11/2 ⁻	
318 <i>I</i>	6.08 11	688.9	15/2 ⁺	371.0	11/2 ⁺	
334 <i>I</i>		965.8	17/2 ⁻	631.8	13/2 ⁻	
334 <i>I</i>		1429.9	21/2 ⁺	1096.0	21/2 ⁻	E_γ : from Table V in 2022Bu22.
343 <i>I</i>		779.5	15/2 ⁺	436.5	11/2 ⁺	
344 <i>I</i>	0.797 54	1429.9	21/2 ⁺	1086.0	19/2 ⁺	
345 <i>I</i>	2.94 10	1086.0	19/2 ⁺	741.1	17/2 ⁻	E_γ, I_γ : from Table IV in 2022Bu22.

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$^{164}\text{Dy}(^7\text{Li},4n\gamma)$ **2022Bu22** (continued)

$\gamma(^{167}\text{Tm})$ (continued)

E_γ †	I_γ #	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
355 <i>l</i>	33.6 3	1096.0	21/2 ⁻	741.1	17/2 ⁻	E_γ : 354.9 in 1997Je07 .
367 <i>l</i>	0.281 22	1915.9	25/2 ⁺	1549.0	23/2 ⁺	
372 <i>l</i>		699.2	11/2 ⁻	327.0	9/2 ⁺	E_γ : from Table V in 2022Bu22 .
372 <i>l</i>	1.74 5	994.8	17/2 ⁺	622.8	13/2 ⁺	
373 <i>l</i>		1160.8	19/2 ⁻	787.8	15/2 ⁻	
373 <i>l</i>		1380.7	19/2 ⁻	1007.4	15/2 ⁻	
379 <i>l</i>		1808.6	23/2 ⁻	1429.9	21/2 ⁺	E_γ : from Table V in 2022Bu22 .
381 <i>l</i>		978.5	17/2 ⁺	597.5	13/2 ⁺	
385 <i>l</i>		1007.4	15/2 ⁻	622.8	13/2 ⁺	E_γ : from Table V in 2022Bu22 .
386 <i>l</i>		1380.7	19/2 ⁻	994.8	17/2 ⁺	E_γ : from Table V in 2022Bu22 .
397 <i>l</i>	3.96 9	1086.0	19/2 ⁺	688.9	15/2 ⁺	
412 <i>l</i>	1.23 5	1377.8	21/2 ⁻	965.8	17/2 ⁻	
416 <i>l</i>	0.582 18	1195.5	19/2 ⁺	779.5	15/2 ⁺	
428 <i>l</i>		1808.6	23/2 ⁻	1380.7	19/2 ⁻	
432 <i>l</i>	23.1 3	1528.2	25/2 ⁻	1096.0	21/2 ⁻	E_γ : 432.5 in 1997Je07 .
435 <i>l</i>	1.30 5	1429.9	21/2 ⁺	994.8	17/2 ⁺	
446 <i>l</i>	1.00 3	1424.5	21/2 ⁺	978.5	17/2 ⁺	
446 <i>l</i>	0.123 6	1606.8	23/2 ⁻	1160.8	19/2 ⁻	
453 <i>l</i>	1.42 7	1549.0	23/2 ⁺	1096.0	21/2 ⁻	E_γ, I_γ : from Table V in 2022Bu22 .
463 <i>l</i>	2.27 7	1549.0	23/2 ⁺	1086.0	19/2 ⁺	
471 <i>l</i>		2279.6	27/2 ⁻	1808.6	23/2 ⁻	
474 <i>l</i>	0.317 8	1669.5	23/2 ⁺	1195.5	19/2 ⁺	
481 <i>l</i>	0.617 35	1858.8	25/2 ⁻	1377.8	21/2 ⁻	
486 <i>l</i>	1.10 9	1915.9	25/2 ⁺	1429.9	21/2 ⁺	
498 <i>l</i>	0.443 16	1922.5	25/2 ⁺	1424.5	21/2 ⁺	
502 <i>l</i>	14.0 2	2030.2	29/2 ⁻	1528.2	25/2 ⁻	E_γ : 502.1 in 1997Je07 .
507 <i>l</i>	0.114 6	2113.8	27/2 ⁻	1606.8	23/2 ⁻	
515 <i>l</i>	1.67 7	2064.1	27/2 ⁺	1549.0	23/2 ⁺	
518 <i>l</i>	0.247 8	2187.5	27/2 ⁺	1669.5	23/2 ⁺	
519 <i>l</i>		2798.6?	(31/2 ⁻)	2279.6	27/2 ⁻	
525 <i>l</i>	0.814 70	2440.9	29/2 ⁺	1915.9	25/2 ⁺	
533 <i>l</i>	0.245 12	2455.5	29/2 ⁺	1922.5	25/2 ⁺	
536 <i>l</i>	2.95 10	2064.1	27/2 ⁺	1528.2	25/2 ⁻	E_γ, I_γ : from Table V in 2022Bu22 .
536 <i>l</i>	0.354 22	2394.8	29/2 ⁻	1858.8	25/2 ⁻	
550 <i>l</i>	0.101 4	2737.5	31/2 ⁺	2187.5	27/2 ⁺	
553 <i>l</i>	0.274 16	2993.9	(33/2 ⁺)	2440.9	29/2 ⁺	
555 <i>l</i>	1.44 6	2619.2	31/2 ⁺	2064.1	27/2 ⁺	
557 <i>l</i>	0.038 2	2670.8	31/2 ⁻	2113.8	27/2 ⁻	
559 <i>l</i>	0.146 10	3014.5	(33/2 ⁺)	2455.5	29/2 ⁺	
563 <i>l</i>	8.1 2	2593.2	33/2 ⁻	2030.2	29/2 ⁻	E_γ : 562.7 in 1997Je07 .
575 <i>l</i>	0.083 5	3312.5	(35/2 ⁺)	2737.5	31/2 ⁺	
578 <i>l</i>	0.264 17	2972.8	(33/2 ⁻)	2394.8	29/2 ⁻	
582 <i>l</i>	0.173 12	3575.9	(37/2 ⁺)	2993.9	(33/2 ⁺)	
587 <i>l</i>	0.085 8	3601.5	(37/2 ⁺)	3014.5	(33/2 ⁺)	
589 <i>l</i>	2.26 11	2619.2	31/2 ⁺	2030.2	29/2 ⁻	E_γ, I_γ : from Table V in 2022Bu22 .
589 <i>l</i>	0.992 53	3208.2	(35/2 ⁺)	2619.2	31/2 ⁺	
591 <i>l</i>	0.014 1	3261.8	(35/2 ⁻)	2670.8	31/2 ⁻	
596@ <i>l</i>		4197.5?	(41/2 ⁺)	3601.5	(37/2 ⁺)	E_γ : from Fig. 1 in 2022Bu22 .
605 <i>l</i>	0.062 4	3917.5	(39/2 ⁺)	3312.5	(35/2 ⁺)	
607 <i>l</i>	0.209 22	3579.8	(37/2 ⁻)	2972.8	(33/2 ⁻)	
615 <i>l</i>		3208.2	(35/2 ⁺)	2593.2	33/2 ⁻	E_γ : from Table V in 2022Bu22 .
617 <i>l</i>	6.7 2	3210.2	37/2 ⁻	2593.2	33/2 ⁻	E_γ : 616.5 in 1997Je07 .
617 <i>l</i>	0.007 2	3878.8	(39/2 ⁻)	3261.8	(35/2 ⁻)	
621 <i>l</i>	0.154 11	4196.9	(41/2 ⁺)	3575.9	(37/2 ⁺)	
624 <i>l</i>	0.377 23	3832.2	(39/2 ⁺)	3208.2	(35/2 ⁺)	

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$^{164}\text{Dy}(^7\text{Li},4n\gamma)$ **2022Bu22** (continued) $\gamma(^{167}\text{Tm})$ (continued)

E_γ †	I_γ #	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments	
649	1	0.014	1	4566.5	(43/2 ⁺)	3917.5 (39/2 ⁺)	
662	1	0.151	5	4494.2	(43/2 ⁺)	3832.2 (39/2 ⁺)	
667	1	2.7	1	3877.2	41/2 ⁻	3210.2 37/2 ⁻	E_γ : 667.3 in 1997Je07.
672 @	1			4869.5?	(45/2 ⁺)	4196.9 (41/2 ⁺)	E_γ : from Fig. 1 in 2022Bu22.
710	1	0.061	5	5204.2	(47/2 ⁺)	4494.2 (43/2 ⁺)	
719	1	2.15	7	4596.2	45/2 ⁻	3877.2 41/2 ⁻	E_γ : 717.8 in 1997Je07.
766	1	0.012	1	5970.2	(51/2 ⁺)	5204.2 (47/2 ⁺)	
769	1	0.670	6	5365.2	49/2 ⁻	4596.2 45/2 ⁻	E_γ : 768.3 in 1997Je07.
820	1	0.188	4	6185.2	53/2 ⁻	5365.2 49/2 ⁻	E_γ : 820.2 in 1997Je07.
870	1	0.042	3	7055.2	57/2 ⁻	6185.2 53/2 ⁻	E_γ : 870.6 in 1997Je07.
924	1	0.024	2	7979.2	61/2 ⁻	7055.2 57/2 ⁻	E_γ : 922 in 1997Je07.
973				8952.2	65/2 ⁻	7979.2 61/2 ⁻	E_γ : from 1997Je07, γ not in 2022Bu22.

† From 2022Bu22, unless otherwise stated.

‡ From the Adopted Levels, Gammas dataset.

From 2022Bu22. Evaluators have divided the values in 2022Bu22 by a factor of 10, so that the intensities are relative to 100.0 for for the 184 γ from 470, 13/2⁻ level.

@ Placement of transition in the level scheme is uncertain.

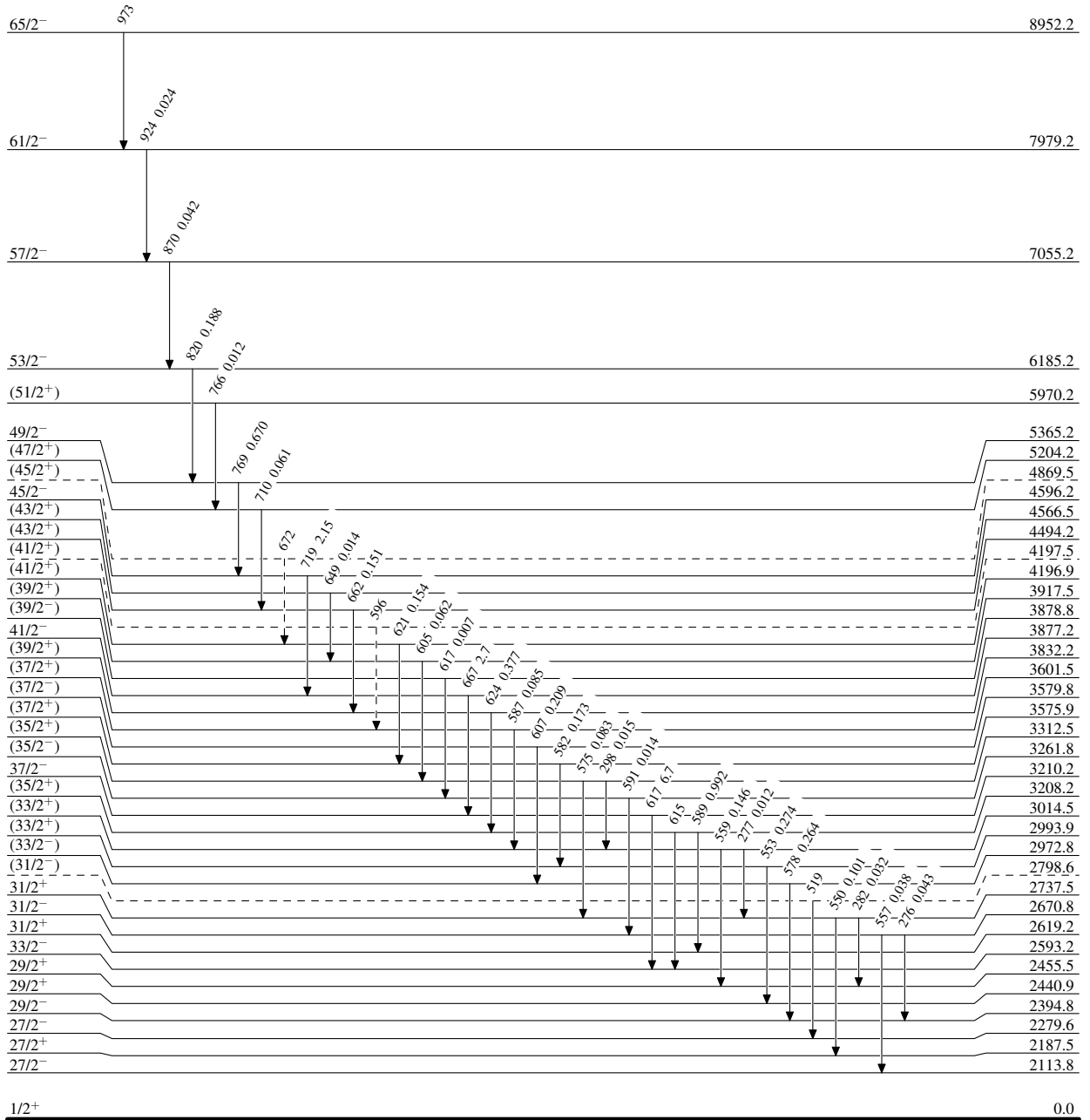
$^{164}\text{Dy}(\text{}^7\text{Li},4n\gamma)$ 2022Bu22

Legend

Level Scheme

Intensities: Relative I_γ

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - -▶ γ Decay (Uncertain)



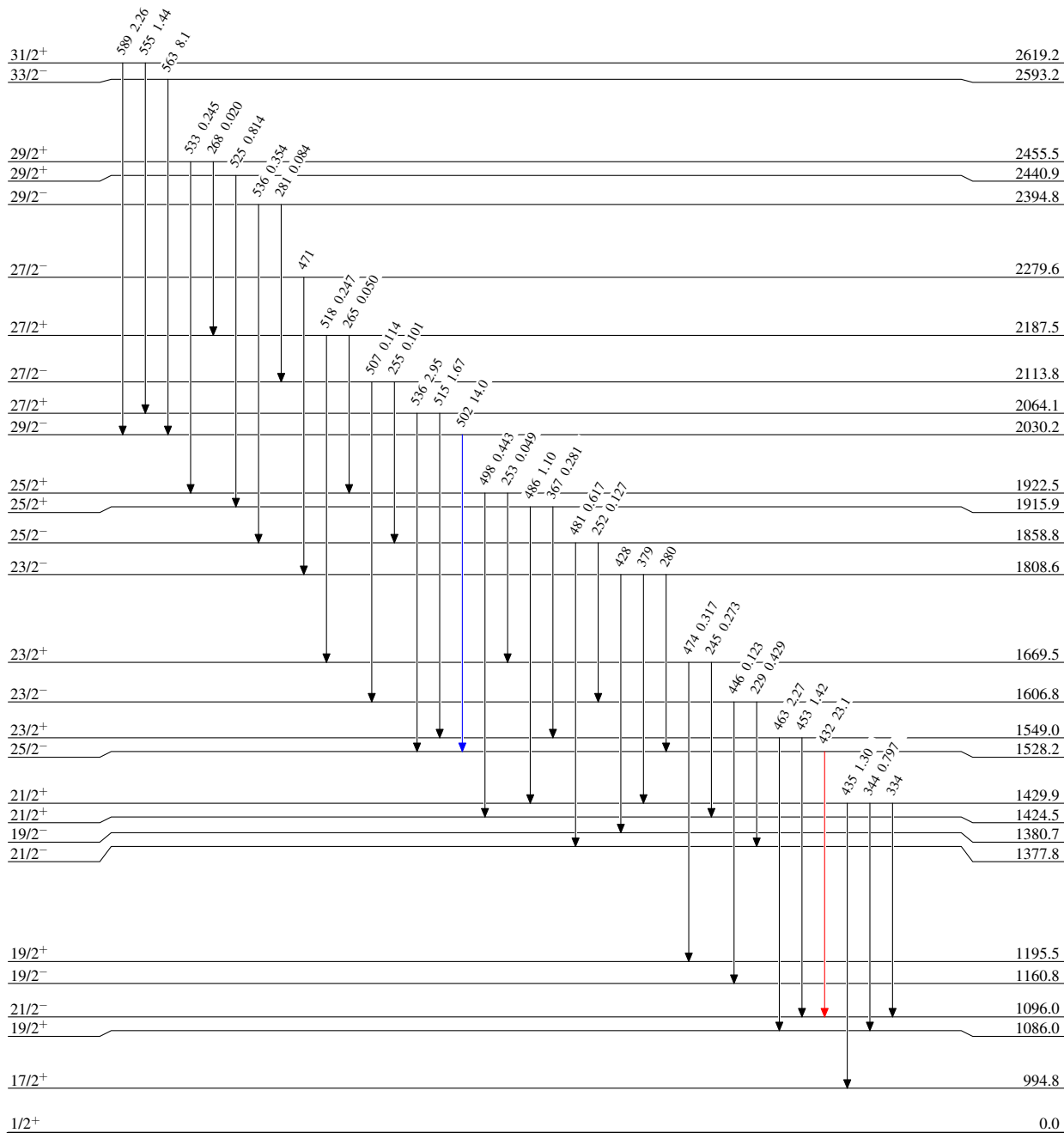
$^{164}\text{Dy}(\gamma\text{Li},4n\gamma)$ 2022Bu22

Level Scheme (continued)

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$



$^{167}_{69}\text{Tm}_{98}$

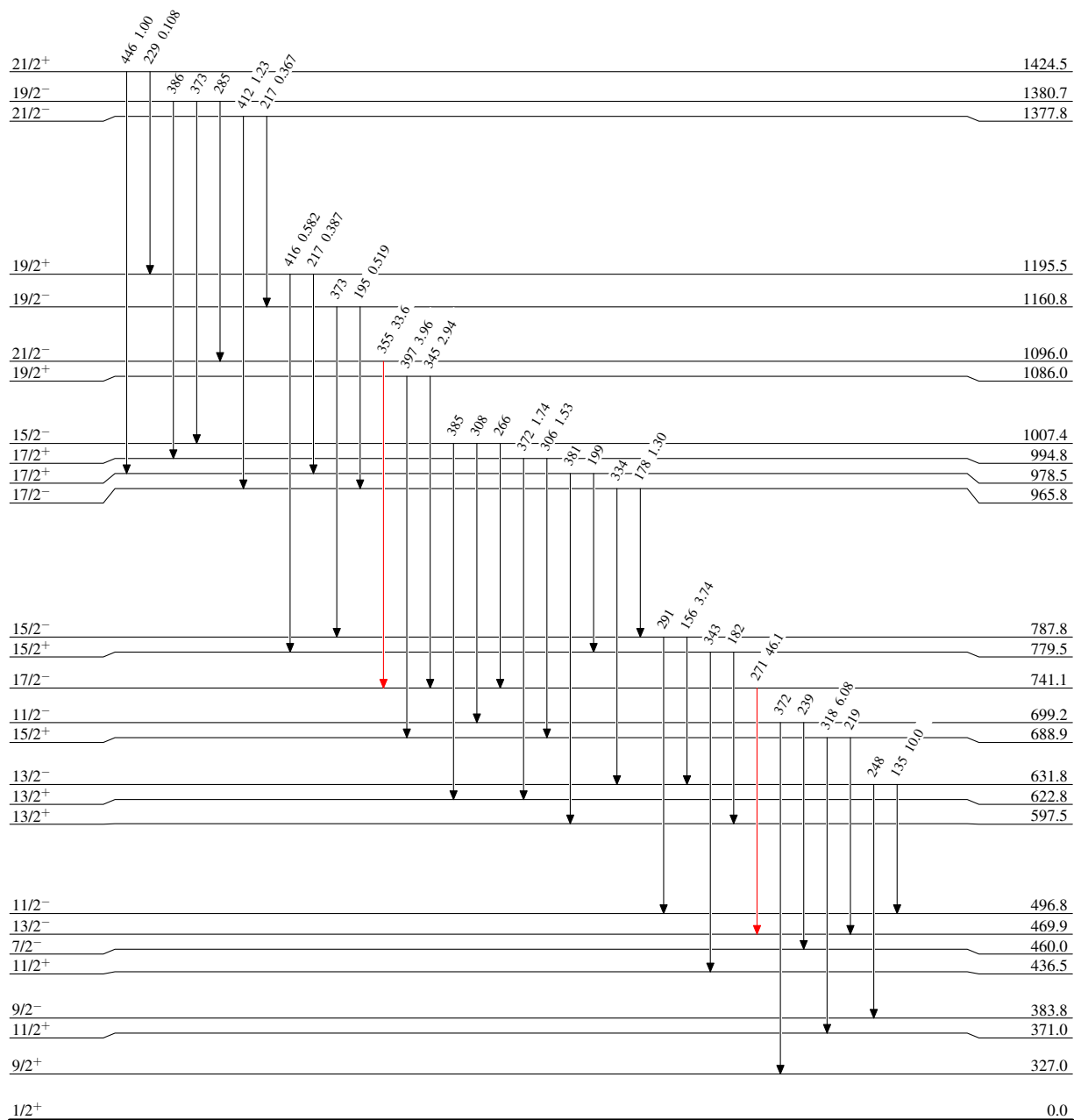
$^{164}\text{Dy}(\text{}^7\text{Li}, 4\text{n}\gamma)$ 2022Bu22

Level Scheme (continued)

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

 $^{167}_{69}\text{Tm}_{98}$

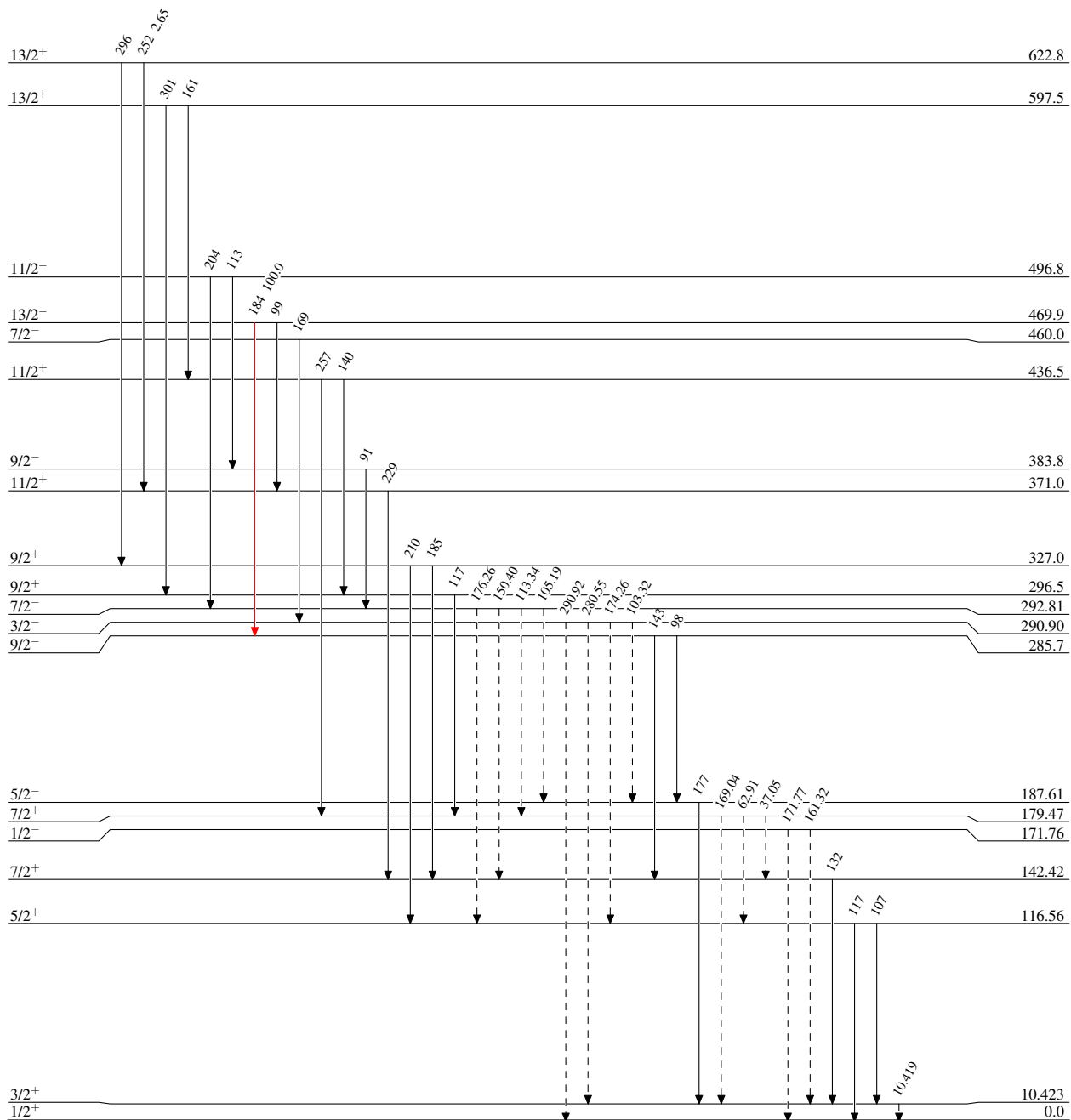
$^{164}\text{Dy}(\text{}^7\text{Li},4n\gamma)$ 2022Bu22

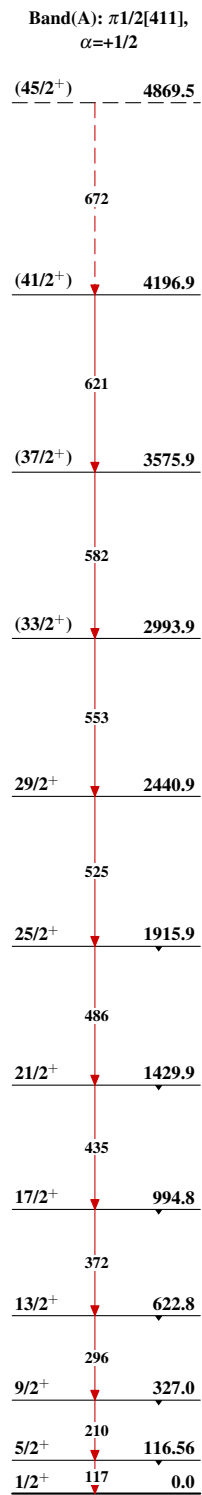
Level Scheme (continued)

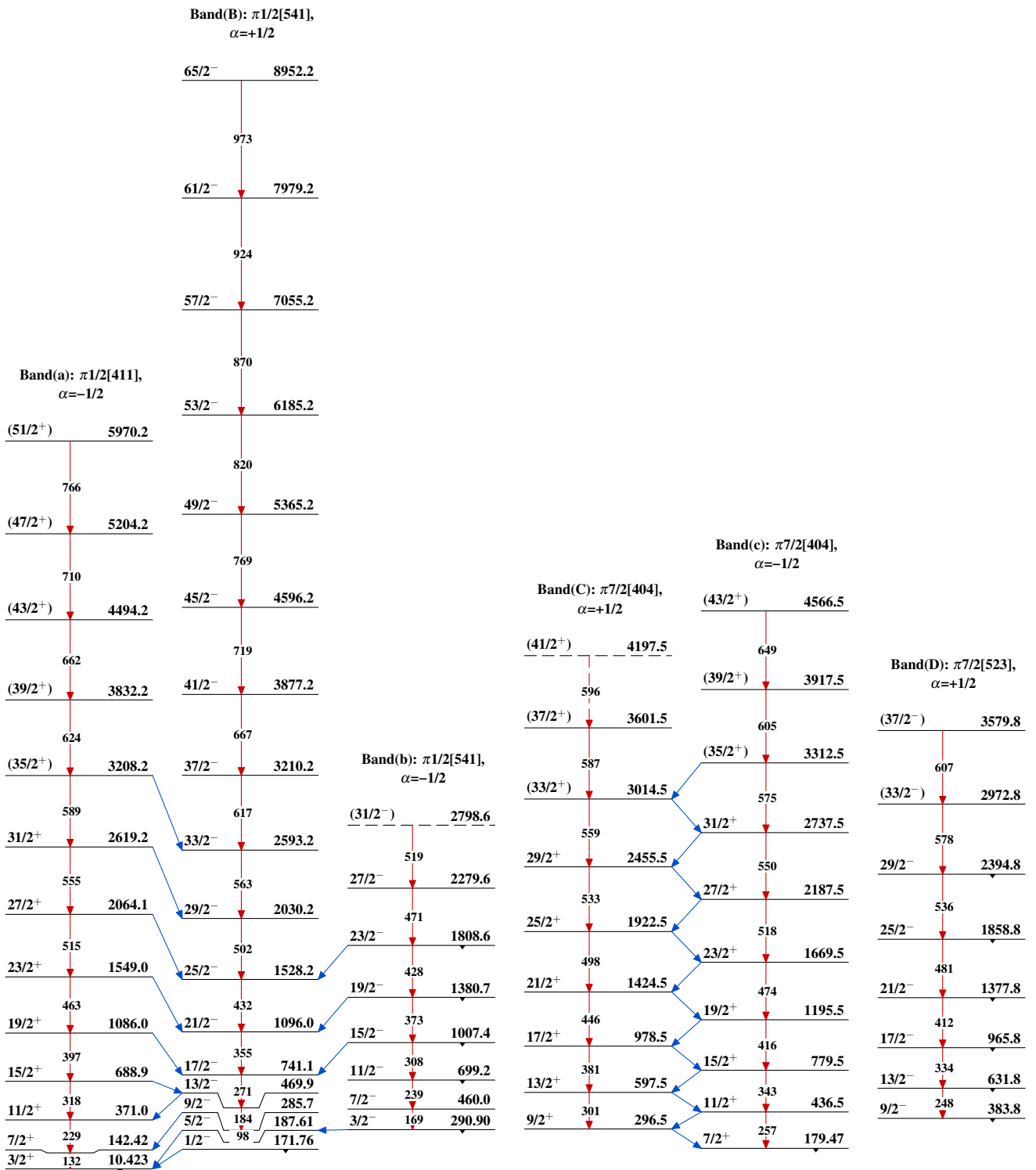
Intensities: Relative I_γ

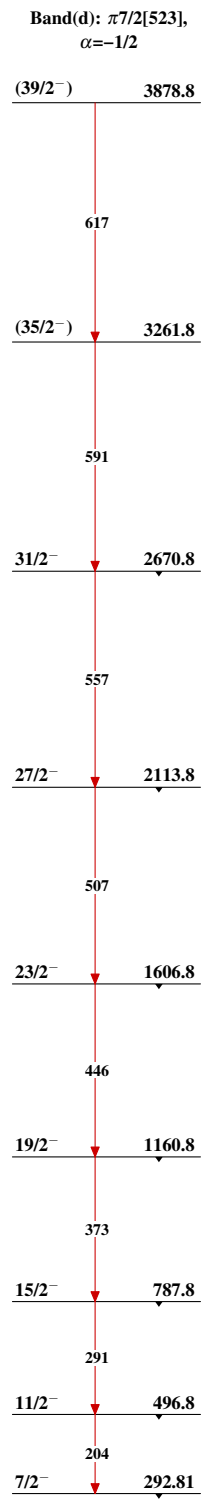
Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - -→ γ Decay (Uncertain)

 $^{167}_{69}\text{Tm}_{98}$

$^{164}\text{Dy}(^7\text{Li},4n\gamma)$ 2022Bu22 $^{167}_{69}\text{Tm}_{98}$

$^{164}\text{Dy}(^7\text{Li},4n\gamma)$ 2022Bu22 (continued) $^{167}\text{Tm}_{98}$

$^{164}\text{Dy}(^7\text{Li},4\text{n}\gamma)$ 2022Bu22 (continued) $^{167}_{69}\text{Tm}_{98}$