

¹⁶²Dy(³⁶S,4nγ) 1994Po08

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 177, 1 (2021)	3-Sep-2021

1994Po08: ¹⁶²Dy(³⁶S,4nγ) E=162 MeV at Daresbury. Measured E_γ, γγ, γ(θ), γγ(θ) (DCO) using EUROGAM array with 30 detectors.

1991Fa05: ¹⁶²Dy(³⁶S,4nγ) E=155 MeV at Daresbury. Measured E_γ, I_γ, γγ, γ(θ), ce. ¹⁵⁰Sm(⁴⁸Ca,4nγ) E=200 MeV. Measured recoil-γ, recoil-γγ, γ(θ).

Others: SD bands: 1995De26, 1994Kr18, 1993Ha20, 1993Ko08. See details in (HI,xny):SD dataset.

Level scheme proposed by 1994Po08 is in agreement with that of 1993Me12 in ¹⁵⁸Gd(⁴⁰Ar,4nγ), and is different from that in Adopted dataset, which is adopted by evaluators from that of 2009Ku03 in ¹⁶⁸Er(³⁰Si,4nγ) because of higher statistics and completeness.

¹⁹⁴Pb Levels

E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0.0	0 ⁺	3179.3 ¹⁷		4636.2 ^a ¹⁷	(13)	6020 [@] ³	21
931.0 ^d ¹⁰	0 ⁺	3282.3 ^c ¹⁵	10 ⁺	4700.6 [#] ¹⁷	18 ^{-#}	6197.2 ^b ²⁴	(18)
965.0 ³	2 ⁺	3474.2 ^{&} ¹⁵	12 ⁻	4794.6 ¹⁹	18 ⁺	6327 ^b ³	(19)
1309.0 ^d ⁹	2 ⁺	3560.3 ¹⁶	14 ⁺	4799.2 ^a ¹⁹	(14)	6330.2 ²³	
1540.0 ⁹	4 ⁺	3609.3 ¹⁶		4962.8 [@] ¹⁸	16	6374.6 ²⁴	22 ⁺
1820.0 ¹²	5 ⁻	3771.1 ^c ¹⁶	11 ⁺	5081.8 [@] ²¹	17	6396 [@] ³	22
2135.0 ^d ¹²	6 ⁺	3838.9 ^{&} ¹⁵	13 ⁻	5196.2 ^a ²¹	(15)	6464 ^b ³	(20)
2241.0 ¹³	7 ⁻	4001.9 [#] ¹⁶	15 ^{-#}	5226.8 [@] ²³	18	6676 ^b ³	(21)
2406.9 ¹⁵	9 ⁻	4135.3 ¹⁹	16 ⁺	5423.8 [@] ²⁵	19	6813 [@] ⁴	23
2437.0 ^c ¹³	8 ⁺	4235.9 ^c ¹⁵	12 ⁺	5549.6 ²²	20 ⁺	6904 ^b ⁴	(22)
2580.9 ¹⁵	10 ⁺	4333.0 ^a ¹⁵	(12)	5573.2 ^a ²¹	(16)	7171 ^b ⁴	(23)
2627.7 ¹⁶	12 ⁺	4365.1 ^{&} ¹⁶	14 ⁻	5684 [@] ³	20	7236 [@] ⁴	24
2645.6 ¹⁶	10 ⁺	4374.5 [#] ¹⁶	16 ^{-#}	5729.6 ¹⁷	20 ⁻	7478 ^b ⁴	
2930.1 ^c ¹⁵	9 ⁺	4375.3 ¹⁶		5936.2 ^b ²²	(17)	7839 ^b ⁴	
2932.8 ^{&} ¹⁵	11 ⁻	4447.8 ^{&} ¹⁵	15 ⁻	5982.2 ²³		8232 ^b ⁴	

[†] From a least-squares fit to γ-ray energies, assuming ΔE_γ=0.3 keV for energies quoted to tenth keV and 1 keV for those quoted to keV.

[‡] Proposed by 1994Po08, based on γ(θ), γγ(DCO) and band assignments, unless otherwise noted.

Proposed in 1991Fa05.

@ Band(A): ΔJ=1 band based on J=16. Configuration=((π 9/2[505])(π 13/2[606])(ν i_{13/2})²) (1994Po08).

& Band(B): Band based on 11⁻. Configuration=((π 9/2[505])(π 13/2[606])) (1994Po08) for 11-level.

^a Band(C): ΔJ=1 band based on J=(12). Configuration=((π 9/2[505])(π 13/2[606])(ν f_{5/2})(ν i_{13/2})) (1994Po08).

^b Band(D): ΔJ=1 band based on J=(17). Configuration=((π 9/2[505])(π 13/2[606])(ν f_{5/2})(ν i_{13/2})³) (1994Po08).

^c Band(E): ΔJ=1 band based on 8⁺. Configuration=((π 9/2[505])(π 7/2[514])) (1994Po08).

^d Seq.(F): Sequence based on 0⁺. Configuration=((π 9/2[505])²) (1994Po08). J^π=4⁺ member is missing probably due to mixing with 1540, 4⁺ (1994Po08).

γ(¹⁹⁴Pb)

Some transitions are placed differently from those in Adopted dataset, as noted.

$^{162}\text{Dy}(^{36}\text{S},4n\gamma)$ **1994Po08 (continued)** $\gamma(^{194}\text{Pb})$ (continued)

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
47		2627.7	12 ⁺	2580.9	10 ⁺		
65#&		2645.6	10 ⁺	2580.9	10 ⁺		
119#		5081.8	17	4962.8	16		
130#		6327	(19)	6197.2	(18)		
137#		6464	(20)	6327	(19)		
139		4375.3		4235.9	12 ⁺		
145#		5226.8	18	5081.8	17		
163#		4799.2	(14)	4636.2	(13)		
166		2406.9	9 ⁻	2241.0	7 ⁻		
174		2580.9	10 ⁺	2406.9	9 ⁻		
196		2437.0	8 ⁺	2241.0	7 ⁻		
197#		5423.8	19	5226.8	18		
212#		6676	(21)	6464	(20)		
228#		6904	(22)	6676	(21)		
231		1540.0	4 ⁺	1309.0	2 ⁺		
260#		5684	20	5423.8	19		
261#		4636.2	(13)	4375.3			
261#		6197.2	(18)	5936.2	(17)		
267#		7171	(23)	6904	(22)		
280		1820.0	5 ⁻	1540.0	4 ⁺		
302		2437.0	8 ⁺	2135.0	6 ⁺		
303#		4636.2	(13)	4333.0	(12)		
305		2932.8	11 ⁻	2627.7	12 ⁺		
307#		7478		7171	(23)		
326.1		4700.6	18 ⁻	4374.5	16 ⁻		E_γ : from ($^{48}\text{Ca},4n\gamma$) in 1991Fa05 ; not seen in 1994Po08 and 1991Fa05 with ($^{36}\text{S},4n\gamma$).
336#		6020	21	5684	20		
348#		6330.2		5982.2			
351.9 [‡]	9.6 10	2932.8	11 ⁻	2580.9	10 ⁺	E1	Mult.: $\alpha(\text{total})=0.037$ 23. E_γ : other: 352 (1994Po08).
352		3282.3	10 ⁺	2930.1	9 ⁺		
361#		7839		7478			
363#		5936.2	(17)	5573.2	(16)		
364	6.2 10	3838.9	13 ⁻	3474.2	12 ⁻	M1	Mult.: $\alpha(\text{total})=0.10$ 4. E_γ : other: 362.8 (1991Fa05) is discrepant with values from other studies.
372.6 [‡]	33.8 15	4374.5	16 ⁻	4001.9	15 ⁻	M1	Mult.: $\alpha(\text{total})=0.054$ 13. E_γ : from 1991Fa05 ; not reported in 1994Po08 .
376#		6396	22	6020	21		
377#		5573.2	(16)	5196.2	(15)		
393#		8232		7839			
397#		5196.2	(15)	4799.2	(14)		
409#		5982.2		5573.2	(16)		
417#		6813	23	6396	22		
421.0 [‡]	60.9 23	2241.0	7 ⁻	1820.0	5 ⁻	E2	Mult.: $\alpha(\text{total})=0.024$ 3. E_γ : other: 421 (1994Po08).
423		7236	24	6813	23		
441.6 [‡]	21.8 15	4001.9	15 ⁻	3560.3	14 ⁺		
465		4235.9	12 ⁺	3771.1	11 ⁺		

Continued on next page (footnotes at end of table)

$^{162}\text{Dy}(^{36}\text{S},4n\gamma)$ **1994Po08** (continued)

$\gamma(^{194}\text{Pb})$ (continued)

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
489		3771.1	11 ⁺	3282.3	10 ⁺		
493		2930.1	9 ⁺	2437.0	8 ⁺		
496		2932.8	11 ⁻	2437.0	8 ⁺	[E3]	
515		4962.8	16	4447.8	15 ⁻		
526		4365.1	14 ⁻	3838.9	13 ⁻		
534 [#]		3179.3		2645.6	10 ⁺		
537		4375.3		3838.9	13 ⁻		
541.4 [‡]	11.0 9	3474.2	12 ⁻	2932.8	11 ⁻	M1	Mult.: $\alpha(\text{total})=0.058$ 7. E $_\gamma$: other: 542 (1994Po08).
575		1540.0	4 ⁺	965.0	2 ⁺		
575		4135.3	16 ⁺	3560.3	14 ⁺		
595		2135.0	6 ⁺	1540.0	4 ⁺		
608.9 [‡]	10.3 10	4447.8	15 ⁻	3838.9	13 ⁻	E2	Mult.: $\alpha(\text{total})=0.015$ 3. E $_\gamma$: other: 609 (1994Po08).
659.3 [‡]	4.5 8	4794.6	18 ⁺	4135.3	16 ⁺	E2	Mult.: $\alpha(\text{total})=0.023$ 6. E $_\gamma$: other: 659 (1994Po08). I $_\gamma$: 0.06 10 in 1991Fa05 could be a typo.
668 ^{@&}		7839		7171	(23)		
723		4333.0	(12)	3609.3			
740 [#]		5936.2	(17)	5196.2	(15)		
754 ^{@&}		8232		7478			
755		5549.6	20 ⁺	4794.6	18 ⁺		
757 ^{@&}		6330.2		5573.2	(16)		
774 [#]		5573.2	(16)	4799.2	(14)		
825		6374.6	22 ⁺	5549.6	20 ⁺		
841		3771.1	11 ⁺	2930.1	9 ⁺		
845		3282.3	10 ⁺	2437.0	8 ⁺		
859		4333.0	(12)	3474.2	12 ⁻		
891		4365.1	14 ⁻	3474.2	12 ⁻		
906.3 [‡]	4.5 8	3838.9	13 ⁻	2932.8	11 ⁻	E2	Mult.: $\alpha(\text{total})=0.007$ 3. E $_\gamma$: other: 907 (1994Po08).
931		931.0	0 ⁺	0.0	0 ⁺		
932.6 [‡]	40.6 23	3560.3	14 ⁺	2627.7	12 ⁺	E2	Mult.: $\alpha(\text{total})=0.0057$ 6. E $_\gamma$: other: 933 (1994Po08).
953		4235.9	12 ⁺	3282.3	10 ⁺		
963 ^{@&}		3609.3		2645.6	10 ⁺		
965.0 [‡]	100 5	965.0	2 ⁺	0.0	0 ⁺	E2	Mult.: $\alpha(\text{total})=0.0068$ 7. E $_\gamma$: other: 965 (1994Po08).
982		3609.3		2627.7	12 ⁺		
1028		3609.3		2580.9	10 ⁺		
1029.0 [‡]	100 5	5729.6	20 ⁻	4700.6	18 ⁻	E2	Mult.: $\alpha(\text{total})=0.0007$ 1.
1154 [#]		4333.0	(12)	3179.3			
1303		4235.9	12 ⁺	2932.8	11 ⁻		
1309		1309.0	2 ⁺	0.0	0 ⁺		
1400		4333.0	(12)	2932.8	11 ⁻		
1688 [#]		4333.0	(12)	2645.6	10 ⁺		
1705		4333.0	(12)	2627.7	12 ⁺		

[†] From [1994Po08](#), unless otherwise noted.

[‡] From [1991Fa05](#), with multipolarity deduced based on ce data. Quoted values of intensities are from renormalization of original

$^{162}\text{Dy}(^{36}\text{S},4\text{n}\gamma)$ **1994Po08** (continued)

$\gamma(^{194}\text{Pb})$ (continued)

values to $I(965\gamma)=100$ by the evaluators.

Placed from a different level in Adopted Levels, Gammas.

@ Seen in **1994Po08** only; not placed in Adopted dataset.

& Placement of transition in the level scheme is uncertain.

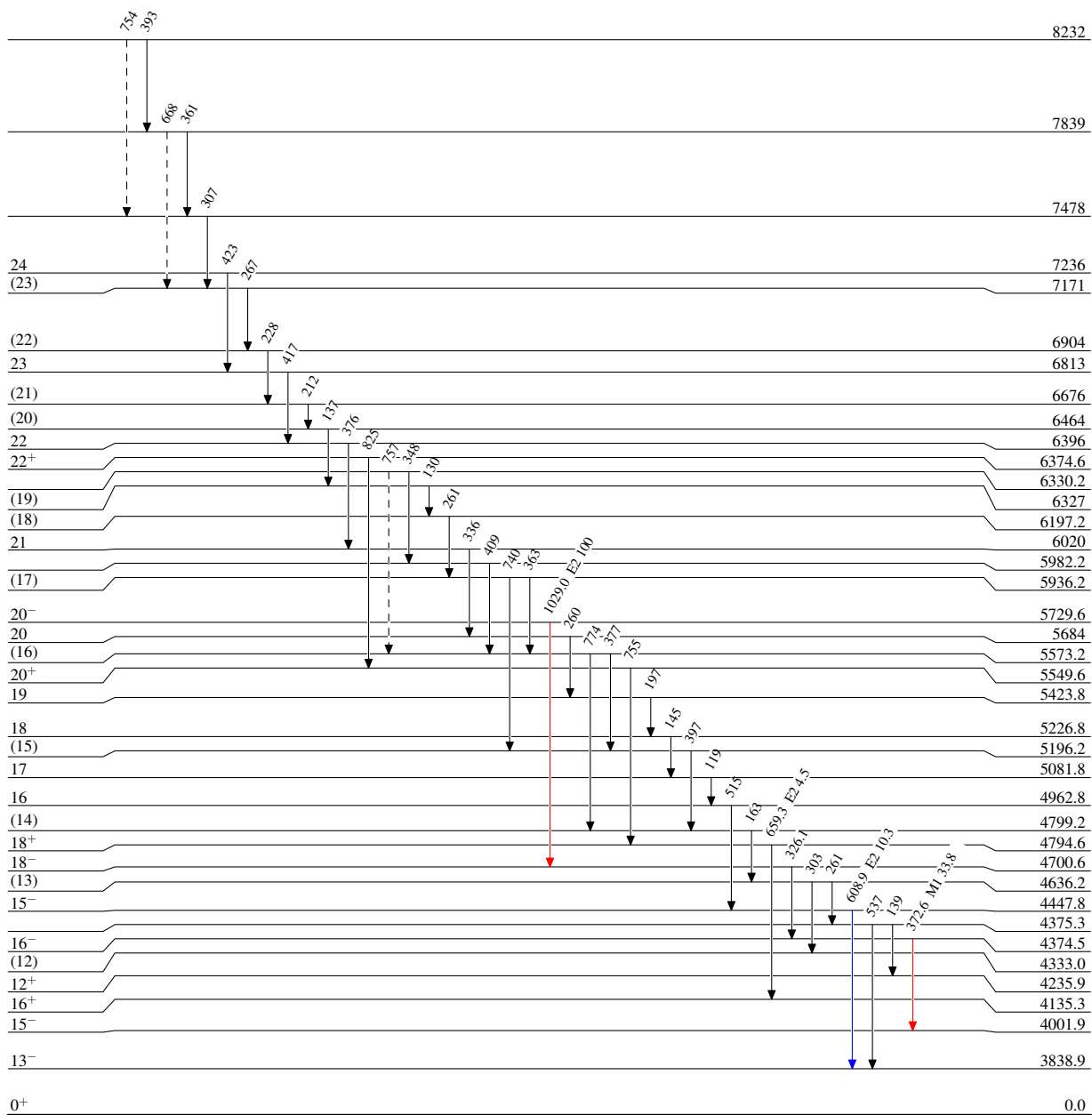
$^{162}\text{Dy}(^{36}\text{S},4n\gamma)$ 1994Po08

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)

 $^{194}_{82}\text{Pb}_{112}$

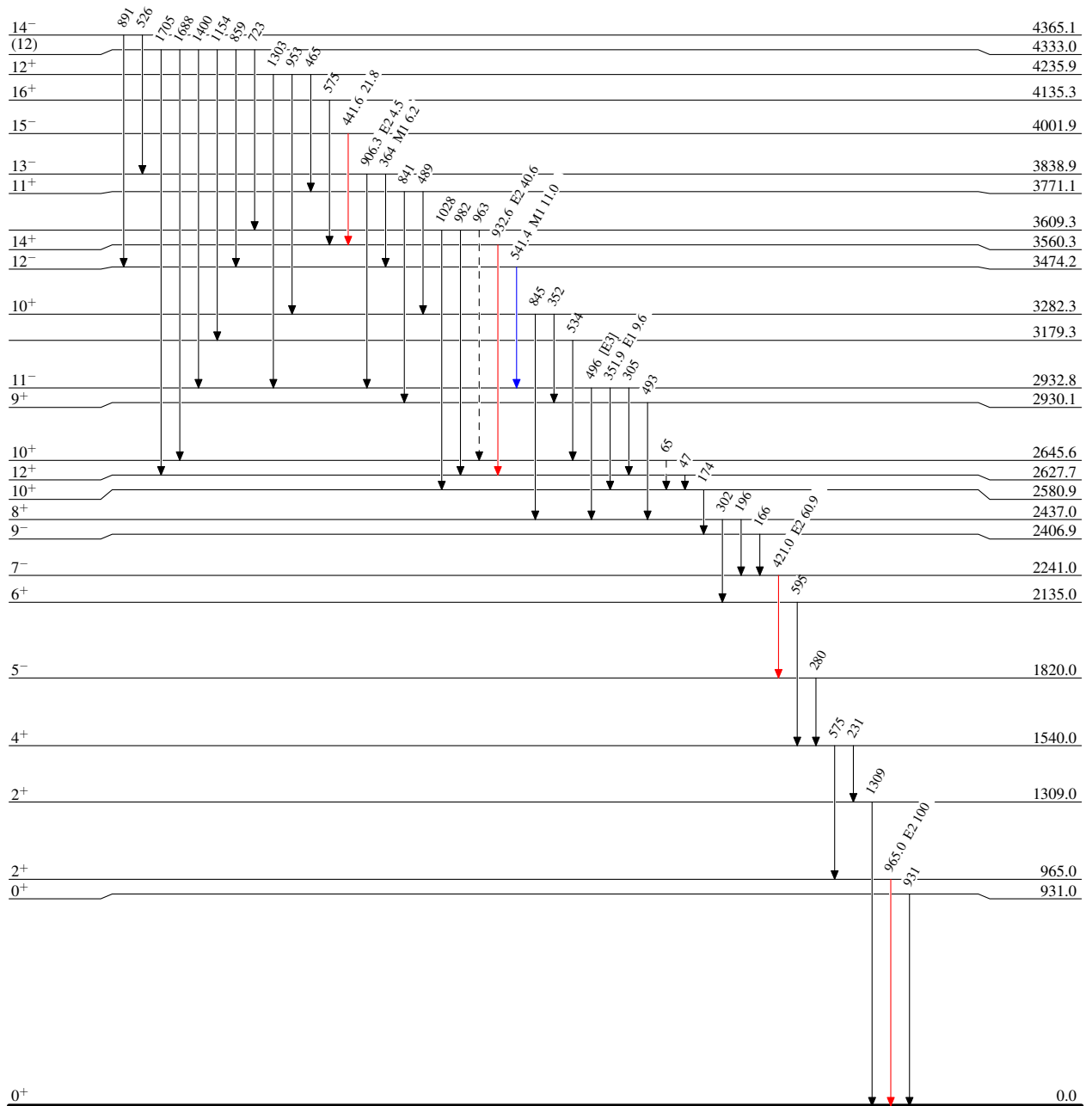
$^{162}\text{Dy}(^{36}\text{S},4n\gamma)$ 1994Po08

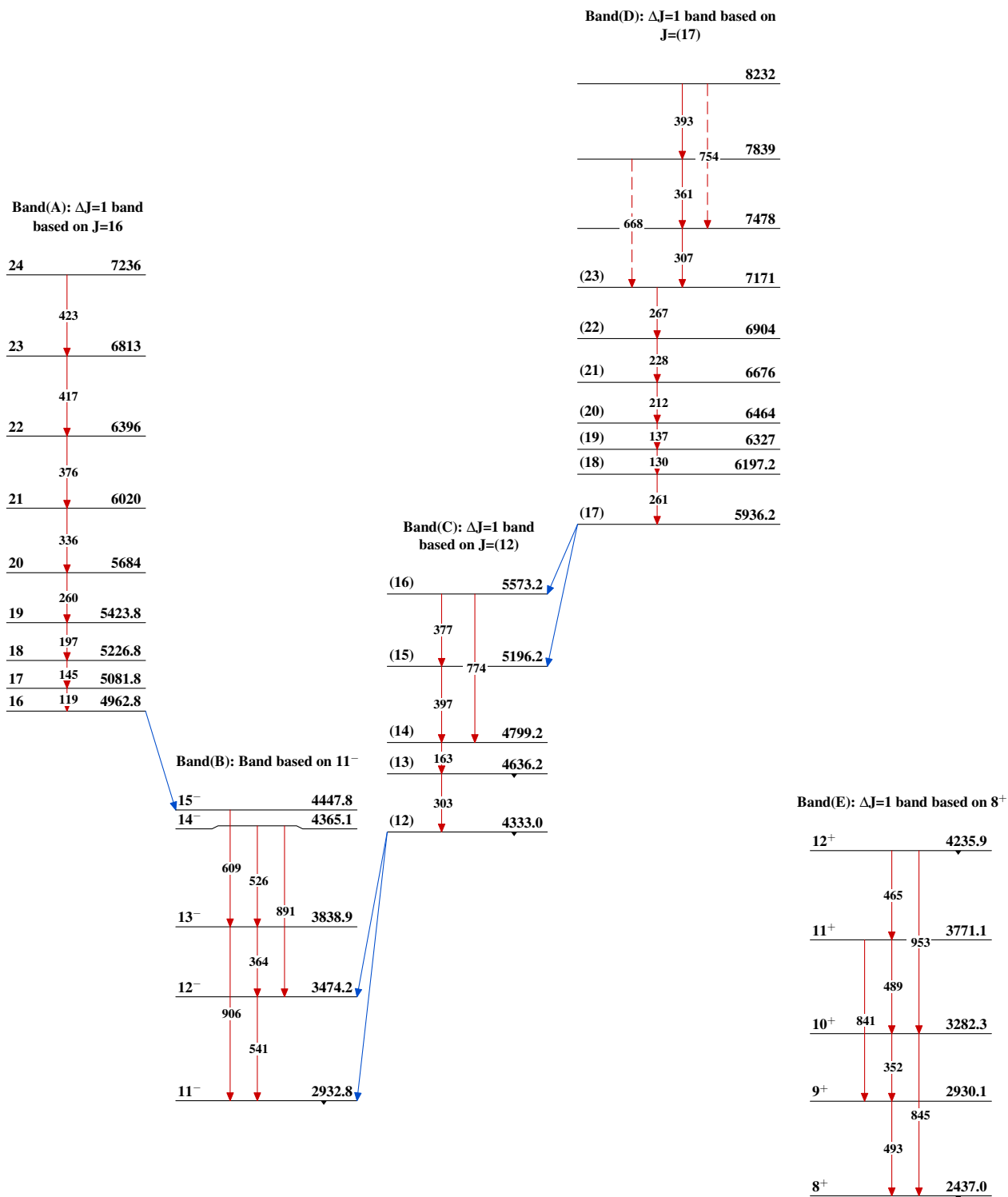
Level Scheme (continued)

Intensities: Relative I_γ

Legend

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



$^{162}\text{Dy}(^{36}\text{S}, 4n\gamma)$ 1994Po08

$^{162}\text{Dy}(^{36}\text{S},4n\gamma)$ 1994Po08 (continued)

Seq.(F): Sequence based
on 0^+

6^+ 2135.0
↓

2^+ 1309.0
↓

0^+ 931.0
↓

$^{194}_{82}\text{Pb}_{112}$