^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 187,1 (2023)	12-Oct-2022

Measured γ, γγ, γ(θ), γ(t), excit.

^{141}Eu Levels

E(level)	Jπ†	$T_{1/2}$	E(level)	Jπ†	E(level)	Jπ†
0.0	5/2+		2749.5‡ *12*	(25/2+)	4417.2?# *12*	(35/2+)
96.0& *10*	11/2−	2.7 s *3*	2847.1# *12*	27/2(+)	4846.8c *12*	(35/2−)
622.2& *11*	15/2−		3008.6b *11*	(25/2−)	4934.2@ *13*	(37/2+)
670.8a *11*	13/2−		3023.6& *11*	27/2−	4985.1d *12*	
1153.7 *11*	15/2(+)		3075.5b *11*	27/2−	5020.9c *12*	(37/2−)
1308.8a *11*	(17/2−)		3162.2 *12*	27/2−	5191.3c *13*	(39/2−)
1344.4& *11*	19/2−		3182.3@ *12*	(29/2+)	5284.6&d *12*	(39/2−)
1635.9 *11*	15/2(+)		3417.2b *11*	29/2−	5528.2cd *13*	(41/2−)
1902.1‡ *11*	17/2(+)		3588.9# *12*	(31/2+)	5994.7c *13*	(43/2−)
2029.9‡ *11*	19/2(+)		3596.1& *12*	31/2−	6008.2d *13*	
2116.4a *11*	(21/2−)		3683.6b *12*	31/2−	6336.6?&d *13*	(43/2−)
2176.6& *11*	23/2−		3934.6 *12*	31/2−	6539.2?cd *14*	(45/2−)
2228.4‡ *11*	21/2(+)		4038.7@ *12*	(33/2+)	7049.2 *13*	
2440.2‡ *12*	23/2(+)		4155.7b *12*	33/2−		
2596.1@ *12*	25/2(+)		4368.7& *12*	35/2−		

† π=+ bands have been assigned on the basis of 1280 transition (from 1902, 17/2(+) level) being a D transition, and from suggested configurations, $((\pi\ g_{7/2})(\pi\ h_{11/2})^2)$ or $((\pi d_{5/2})(\pi\ h_{11/2})^2)$. See 1991Xu01 for discussion of possible configurations for the π=− bands.

‡ Band(A): π=+, ΔJ=1 band.

Band(B): π=+, ΔJ=2 band-1.

@ Band(C): π=+, ΔJ=2 band-2.

& Band(D): π=−, $h_{11/2}$ band, favored members.

a Band(E): π=−, $h_{11/2}$ band, unfavored members.

b Band(F): π=−, ΔJ=1 band-1.

c Band(G): π=−, ΔJ=1 band-2.

d Level not adopted because its γ transitions were relocated in the Adopted Levels, gammas dataset.

γ(^{141}Eu)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	α&	Comments
(53†)		3075.5	27/2−	3023.6	27/2−			
67.0 *3*	14.0#	3075.5	27/2−	3008.6	(25/2−)			
(96†)		96.0	11/2−	0.0	5/2+			
127.6 *3*	13.4 *2*	2029.9	19/2(+)	1902.1	17/2(+)	M1+E2	0.98 *5*	α(K)=0.70 *10*; α(L)=0.22 *11*; α(M)=0.05 *3*; α(N+..)=0.014 *7* Mult.: A_2=−0.345 *71*, A_4=+0.006 *79* (1991Xu01).
155.5 *3*	6.0 *3*	2596.1	25/2(+)	2440.2	23/2(+)	M1+E2	0.524 *14*	α(K)=0.39 *7*; α(L)=0.10 *4*; α(M)=0.023 *9*; α(N+..)=0.0064 *24*

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^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01 (continued)

γ(^{141}Eu) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[&]	Comments
								Mult.: A_2=−0.256 *66*, A_4=+0.02 *12* (1991Xu01).
170.4 *3*	9.8[‡] *2*	5191.3	(39/2$^-$)	5020.9	(37/2$^-$)	M1+E2	0.39 *2*	α(K)=0.30 *6*; α(L)=0.072 *23*; α(M)=0.016 *6*; α(N+..)=0.0045 *15* Mult.: A_2=−0.274 *60*, A_4=+0.054 *98* (1991Xu01).
174.1 *3*	10.1 *3*	5020.9	(37/2$^-$)	4846.8	(35/2$^-$)	M1+E2	0.37 *2*	α(K)=0.28 *5*; α(L)=0.067 *20*; α(M)=0.015 *5*; α(N+..)=0.0041 *13* Mult.: A_2=−0.392 *69*, A_4=+0.01 *12* (1991Xu01).
198.5 *3*	37.9 *3*	2228.4	21/2$^{(+)}$	2029.9	19/2$^{(+)}$	M1+E2	0.25 *3*	α(K)=0.19 *4*; α(L)=0.042 *9*; α(M)=0.0093 *23*; α(N+..)=0.0026 *6* Mult.: A_2=−0.409 *59*, A_4=−0.039 *94* (1991Xu01).
211.7 *3*	32.0 *3*	2440.2	23/2$^{(+)}$	2228.4	21/2$^{(+)}$	M1+E2	0.20 *3*	α(K)=0.16 *4*; α(L)=0.033 *6*; α(M)=0.0074 *15*; α(N+..)=0.0020 *4* Mult.: A_2=−0.250 *79*, A_4+0.01 *11* (1991Xu01).
250.5 *3*	≤5	2847.1	27/2$^{(+)}$	2596.1	25/2$^{(+)}$			
266.0 *3*	≤5	1902.1	17/2$^{(+)}$	1635.9	15/2$^{(+)}$			
266.5 *3*	21.9[‡] *4*	3683.6	31/2$^-$	3417.2	29/2$^-$	M1+E2	0.104 *19*	α(K)=0.084 *20*; α(L)=0.0153 *8*; α(M)=0.0034 *2*; α(N+..)=0.00093 *6* Mult.: A_2=−0.211 *64*, A_4=+0.109 *74* (1991Xu01).
309.3 *3*	9.9[‡] *3*	2749.5	(25/2$^+$)	2440.2	23/2$^{(+)}$			
335.0 *3*		3182.3	(29/2$^+$)	2847.1	27/2$^{(+)}$			
336.9 *3*	9.0[‡] *2*	5528.2	(41/2$^-$)	5191.3	(39/2$^-$)	M1+E2	0.053 *13*	α(K)=0.044 *12*; α(L)=0.0073 *5*; α(M)=0.00160 *7*; α(N+..)=0.00044 *2* Mult.: A_2=−0.201 *80*, A_4=0 (1991Xu01).
341.8 *3*	25.7[‡] *5*	3417.2	29/2$^-$	3075.5	27/2$^-$	M1+E2	0.051 *12*	α(K)=0.042 *12*; α(L)=0.0070 *5*; α(M)=0.00153 *8*; α(N+..)=0.00042 *3* Mult.: A_2=−0.301 *57*, A_4=+0.063 *97* (1991Xu01).
367.8 *3*	10.1 *2*	2596.1	25/2$^{(+)}$	2228.4	21/2$^{(+)}$	E2	0.0317	α(K)=0.0251; α(L)=0.00512; α(M)=0.00113; α(N+..)=0.00031 Mult.: A_2=+0.254 *77*, A_4=0 (1991Xu01).
393.5 *3*	5.0[‡] *2*	3417.2	29/2$^-$	3023.6	27/2$^-$			
407.3 *3*	9.0[#] *5*	2847.1	27/2$^{(+)}$	2440.2	23/2$^{(+)}$	E2	0.0235	α(K)=0.0189; α(L)=0.00365; α(M)=0.00081; α(N+..)=0.00022 Mult.: A_2=+0.212 *78*, A_4=0 (1991Xu01).
433.9 *3*	7.0 *1*	3596.1	31/2$^-$	3162.2	27/2$^-$	E2	0.0197	α(K)=0.0159; α(L)=0.00298; α(M)=0.00066; α(N+..)=0.00018 Mult.: A_2=+0.157 *77*, A_4=+0.08 *18* (1991Xu01).
466.5 *3*	≤5	5994.7	(43/2$^-$)	5528.2	(41/2$^-$)			
471.9 *3*	20.8[‡] *1*	4155.7	33/2$^-$	3683.6	31/2$^-$	M1+E2	0.022 *6*	α(K)=0.018 *6*; α(L)=0.0028 *5*; α(M)=0.00060 *10*; α(N+..)=0.00016 *3* Mult.: A_2=−0.275 *79*, A_4=+0.033 *67* (1991Xu01).
482.8 *3*	9.1 *1*	1153.7	15/2$^{(+)}$	670.8	13/2$^-$	D	0.00488	α(K)=0.00418; α(L)=0.00056; α(M)=0.00012 Mult.: A_2=−0.03 *10*, A_4=+0.055 *99* (1991Xu01), 1990Xu01 assigned (E1).

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^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01 (continued)

γ(^{141}Eu) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[&]	Comments
526.1 *3*	100	622.2	15/2$^-$	96.0	11/2$^-$	E2	0.0118	α(K)=0.0096; α(L)=0.00165 Mult.: A_2=+0.276 *60*, A_4=+0.078 *25* (1991Xu01).
544.5[a] *3*	≤5	6539.2?	(45/2$^-$)	5994.7	(43/2$^-$)			
572.4 *3*	11.1 *2*	3596.1	31/2$^-$	3023.6	27/2$^-$	E2	0.0095	α(K)=0.00780; α(L)=0.00129 Mult.: A_2=+0.22 *11*, A_4=0 (1991Xu01).
574.9 *3*	16.5 *2*	670.8	13/2$^-$	96.0	11/2$^-$	M1+E2	0.013 *4*	α(K)=0.011 *4*; α(L)=0.0016 *4* Mult.: A_2=−0.334 *43*, A_4=0 (1991Xu01).
586.2 *3*	9.4 *2*	3182.3	(29/2$^+$)	2596.1	25/2$^{(+)}$	E2	0.0090	α(K)=0.00736; α(L)=0.00121 Mult.: A_2=+0.122 *78*, A_4=+0.03 *11* (1991Xu01).
608.1 *3*	≤5	3683.6	31/2$^-$	3075.5	27/2$^-$			
616.4 *3*	7.5[‡] *2*	4985.1		4368.7	35/2$^-$			
638.2 *3*	9.0[‡] *3*	1308.8	(17/2$^-$)	670.8	13/2$^-$			
686.5 *3*	7.0[‡] *2*	1308.8	(17/2$^-$)	622.2	15/2$^-$			
690.9 *3*	≤5	4846.8	(35/2$^-$)	4155.7	33/2$^-$			
721.4 *3*	≤5	2029.9	19/2$^{(+)}$	1308.8	(17/2$^-$)			
722.3 *3*	76.8 *4*	1344.4	19/2$^-$	622.2	15/2$^-$	E2	0.00542	α(K)=0.00450; α(L)=0.00069 Mult.: A_2=+0.249 *67*, A_4=+0.031 *76* (1991Xu01).
741.8 *3*	9.0[#] *5*	3588.9	(31/2$^+$)	2847.1	27/2$^{(+)}$			
748.3 *3*	≤5	1902.1	17/2$^{(+)}$	1153.7	15/2$^{(+)}$			
772.1 *3*	≤5	2116.4	(21/2$^-$)	1344.4	19/2$^-$			
772.6 *3*	17.3 *2*	4368.7	35/2$^-$	3596.1	31/2$^-$	E2	0.00464	α(K)=0.00386; α(L)=0.00058 Mult.: A_2=+0.311 *54*, A_4=+0.07 *11* (1991Xu01).
807.5 *3*	8.0 *2*	2116.4	(21/2$^-$)	1308.8	(17/2$^-$)	E2	0.00420	α(K)=0.00350; α(L)=0.00052 Mult.: A_2=+0.28 *11*, A_4=+0.094 *81* (1991Xu01).
828.3[a] *3*	≤5	4417.2?	(35/2$^+$)	3588.9	(31/2$^+$)			
832.1 *3*	54.9 *3*	2176.6	23/2$^-$	1344.4	19/2$^-$	E2	0.00392	α(K)=0.00327; α(L)=0.00049 Mult.: A_2=+0.271 *68*, A_4=+0.01 *7* (1991Xu01).
846.9 *3*	34.8 *3*	3023.6	27/2$^-$	2176.6	23/2$^-$	E2	0.00377	α(K)=0.00315; α(L)=0.00047 Mult.: A_2=+0.214 *65*, A_4=+0.03 *12* (1991Xu01).
856.4 *3*	7.0 *2*	4038.7	(33/2$^+$)	3182.3	(29/2$^+$)	E2	0.00368	α(K)=0.00307; α(L)=0.00045 Mult.: A_2=+0.169 *81*, A_4=0 (1991Xu01).
892.3 *3*	7.9 *2*	3008.6	(25/2$^-$)	2116.4	(21/2$^-$)			
895.5 *3*	≤5	4934.2	(37/2$^+$)	4038.7	(33/2$^+$)	(E2)	0.00333	α(K)=0.00279; α(L)=0.00041 Mult.: A_2=+0.040 *80*, A_4=0 (1991Xu01).
898.8 *3*	19.8 *2*	3075.5	27/2$^-$	2176.6	23/2$^-$	E2	0.00331	α(K)=0.00277; α(L)=0.00040 Mult.: A_2=+0.344 *94*, A_4=+0.082 *48* (1991Xu01).
911.0 *3*	11.9 *2*	3934.6	31/2$^-$	3023.6	27/2$^-$	E2	0.00321	α(K)=0.00269; α(L)=0.00039 Mult.: A_2=+0.25 *11*, A_4=−0.04 *18* (1991Xu01).
915.9 *3*	9.9 *2*	5284.6	(39/2$^-$)	4368.7	35/2$^-$	E2	0.00318	α(K)=0.00266; α(L)=0.00039 Mult.: A_2=+0.380 *41*, A_4=+0.023 *82* (1991Xu01).
985.7 *3*	6.0 *1*	3162.2	27/2$^-$	2176.6	23/2$^-$	E2	0.00271	α(K)=0.00228; α(L)=0.00033 Mult.: A_2=+0.311 *75*, A_4=0 (1991Xu01).
1013.4 *3*	15.5 *2*	1635.9	15/2$^{(+)}$	622.2	15/2$^-$	D	0.00106	α(K)=0.00091; α(L)=0.00012

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^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01 (continued)

γ(^{141}Eu) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[&]	Comments
								Mult.: A_2=−0.08 *5*, A_4=+0.063 *89* (1991Xu01).
1023.1 *3*	9.0[‡] *2*	6008.2		4985.1		E2	0.00251	α(K)=0.00211; α(L)=0.00030 Mult.: A_2=+0.290 *74*, A_4=+0.03 *11* (1991Xu01).
1041.0 *3*	≤5	7049.2		6008.2				
1052.0[a] *3*	≤5	6336.6?	(43/2$^-$)	5284.6	(39/2$^-$)			
1163.3 *3*	9.9[‡] *3*	4846.8	(35/2$^-$)	3683.6	31/2$^-$			
1279.9 *3*	23.29 *2*	1902.1	17/2$^{(+)}$	622.2	15/2$^-$	D	0.00070	α(K)=0.00059 Mult.: A_2=−0.101 *84*, A_4=0 (1991Xu01).

† Transition deduced, not observed.
‡ From coin data.
# Lower limit from feeding transition intensity.
@ Only those multipolarities are given for which the A_2, A_4 values are given in 1991Xu01.
& 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.
[a] Placement of transition in the level scheme is uncertain.

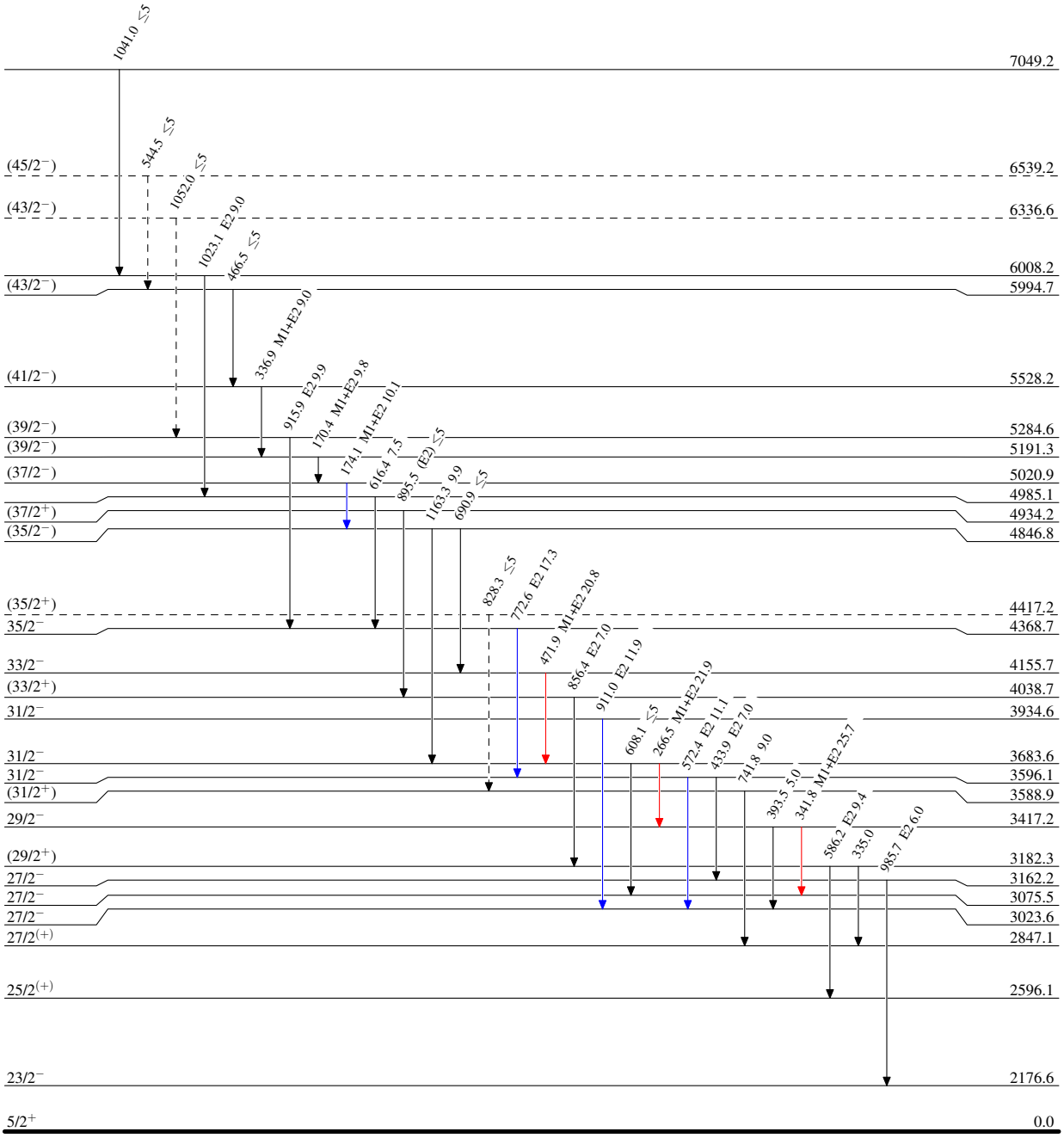
^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01

Level Scheme

Intensities: Relative I_γ

Legend

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



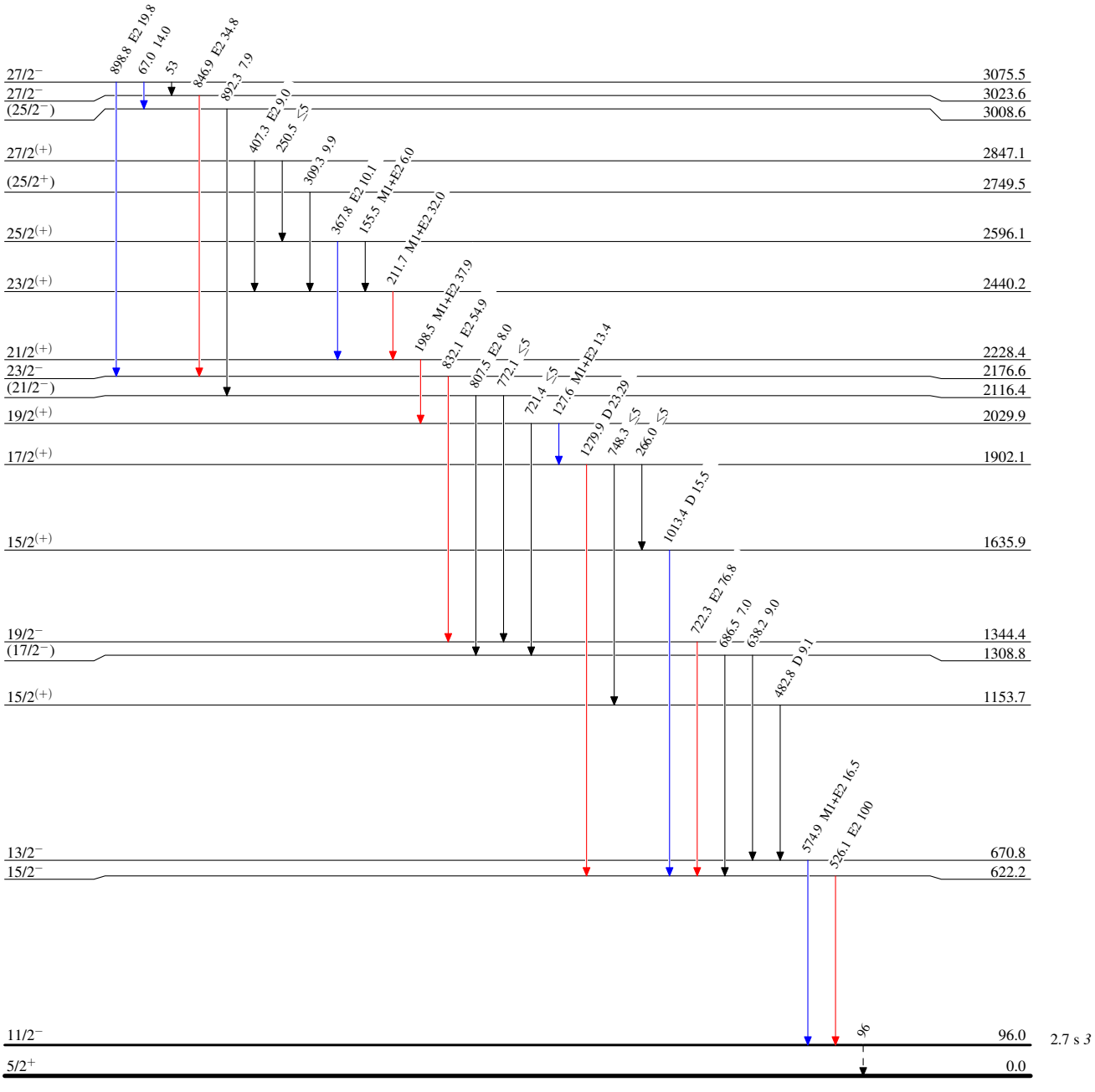
$^{141}_{63}Eu_{78}$

^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01

Level Scheme (continued)

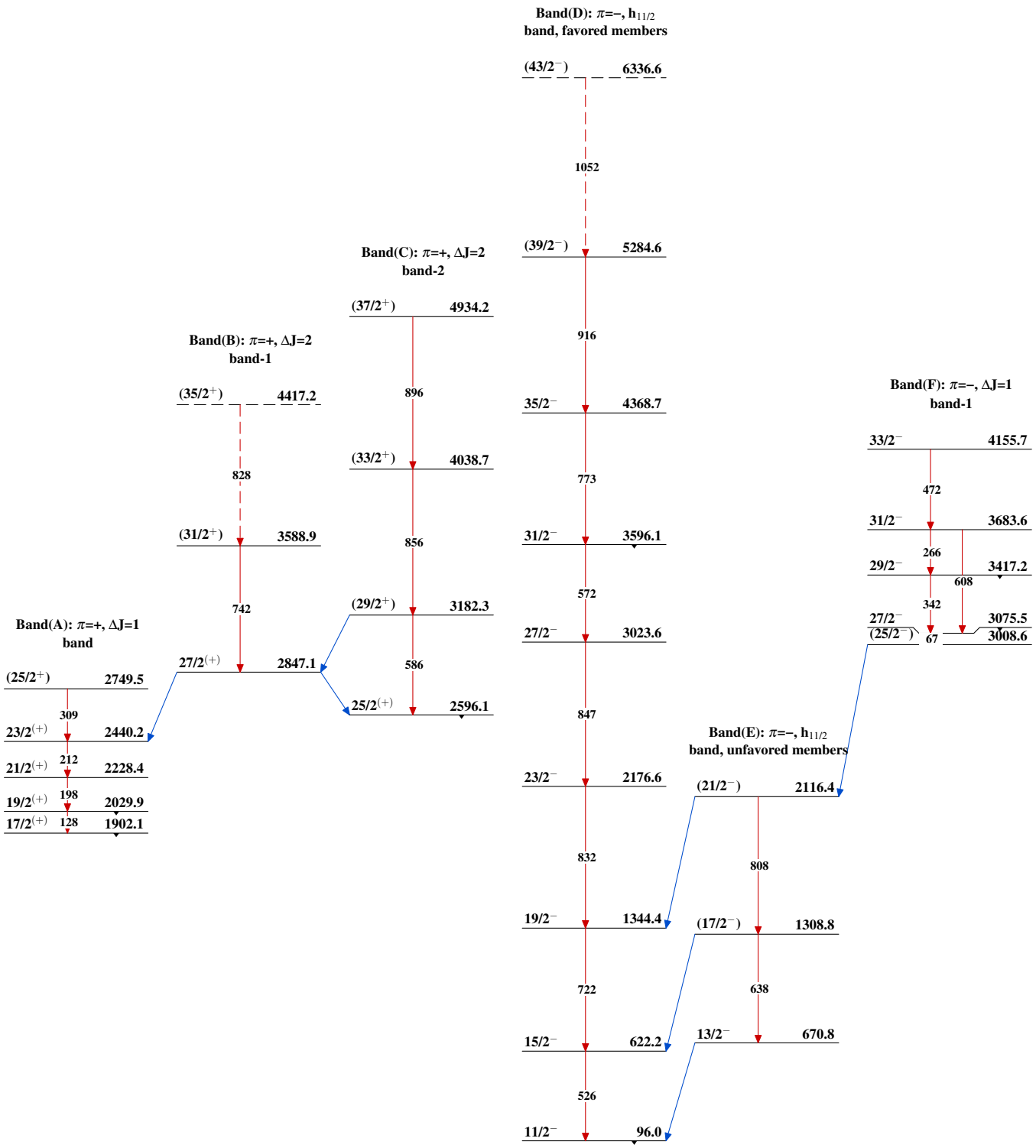
Intensities: Relative I_γ

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



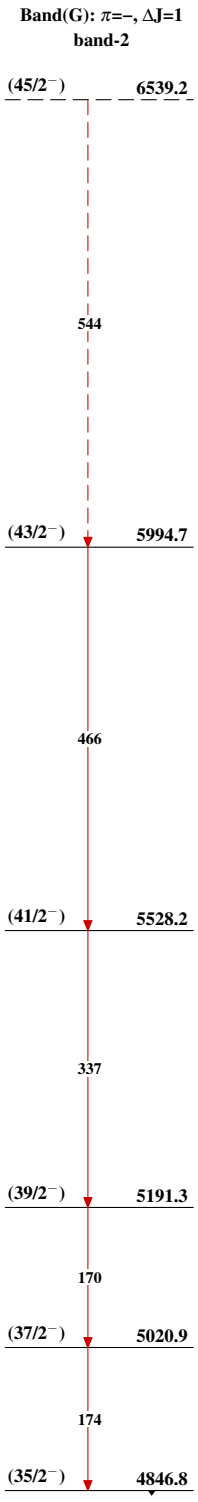
$^{141}_{63}Eu_{78}$

^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01



$^{141}_{63}Eu_{78}$

^{110}Cd(^{35}Cl,2p2nγ) 1991Xu01 (continued)



$^{141}_{63}Eu_{78}$