

Adopted Levels, Gammas

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

Q(β^-)=-6008 14; S(n)=8549 15; S(p)=5011 26; Q(α)=1225 15 2021Wa16
 S(2n)=19696 14, S(2p)=8495 29, Q(ϵ p)=1034 9 (2021Wa16).
 $\langle r^2 \rangle^{1/2}$ =4.9517 fm 34 (2013An02).

¹⁴¹Sm Levels

Cross Reference (XREF) Flags

A	¹⁴¹ Sm IT decay (22.6 min)	D	¹¹⁶ Cd(²⁹ Si,4n γ)
B	¹⁴¹ Eu ϵ decay (40.7 s)	E	¹¹⁶ Cd(³¹ P,p5n γ)
C	¹⁴¹ Eu ϵ decay (2.7 s)		

E(level) [†]	J ^{π} ^a	T _{1/2} ^{&}	XREF	Comments
0.0	1/2 ⁺	10.2 min 2	ABC	% ϵ +% β^+ =100 μ =-0.74 2 (2014StZZ) μ : from hfs (1988Al41). T _{1/2} : from 1977Ke03. Others: 11.0 min 10 (1973VaYZ), 11.3 min 3 (1972Ep01), 9.0 min 5 (1970Ar17). J ^{π} : atomic beam (1976Fu06), log ft=5.82 to 3/2 ⁺ .
1.58 4	3/2 ⁺		ABCDE	J ^{π} : M4 from 11/2 ⁻ , γ to 1/2 ⁺ g.s. E(level): from energy difference.
175.98 3	11/2 ⁻	22.6 min 2	ABCD	% ϵ +% β^+ =99.69 3; %IT=0.31 3 (1976Ke06) μ =-0.84 2 (2014StZZ) Q=+1.6 5 (2016St14) μ ,Q: from hfs (1988Al41). T _{1/2} : weighted average: 21.2 min 12 (1993Al03), 22.1 min 3 (1972Ep01), 22.8 min 2 (1972De23), 22.5 min 5 (1970Ar17), 22.9 min 5 (1968B113), 22.5 min 14 (1967He23). J ^{π} : atomic beam (1976Fu06), log ft=5.7 to 2091.6 negative-parity level of ¹⁴¹ Pm.
384.46 11	3/2 ⁺		B	J ^{π} : γ to 1/2 ⁺ is M1, log ft=6.0 via 5/2 ⁺ parent.
395.55 11	(5/2,3/2) ⁺		BC	J ^{π} : γ to 3/2 ⁺ is M1, log ft=5.9 via 5/2 ⁺ parent, γ to 1/2 ⁺ is much weaker than to 3/2 ⁺ .
545.3 3	(7/2 ⁻)		BC	J ^{π} : γ to 11/2 ⁻ and from 9/2 ⁻ ,11/2 ⁻ , no ϵ via 11/2 ⁻ and 5/2 ⁺ parent, syst for 7/2 ⁻ levels in N=79 nuclei.
594.71 13	(5/2 ⁺ ,3/2 ⁺)		B	J ^{π} : log ft=6.3 via 5/2 ⁺ parent. Strong γ to 3/2 ⁺ and weak γ to 1/2 ⁺ .
597.90 13	(3/2 ⁺ ,5/2 ⁺)		B	J ^{π} : γ to 1/2 ⁺ , log ft=6.4 via 5/2 ⁺ parent.
810.78 9	(15/2 ⁻)		D	J ^{π} : (E2) γ to 11/2 ⁻ .
829.41 19	(7/2)		BC	J ^{π} : γ 's to 5/2 ⁺ , no γ to 1/2 ⁺ or 3/2 ⁺ , ϵ via 5/2 ⁺ parent.
899.8 4	7/2 ⁻		B	J ^{π} : γ to 11/2 ⁻ , log ft=7.1 via 5/2 ⁺ parent.
990.5 3			B	
1001.45 19			BC	
1063.6? 4	(9/2,11/2) ⁻		C	J ^{π} : log ft=5.5 via 11/2 ⁻ parent, γ to (7/2 ⁻).
1083.45 16	(1/2 ⁺ ,3/2 ⁺ ,5/2 ⁺)		B	J ^{π} : γ 's to 1/2 ⁺ ,3/2 ⁺ ,5/2 ⁺ .
1085.5 9	(13/2 ⁻)		D	J ^{π} : (M1) γ to 11/2 ⁻ .
1160.5 4			B	
1180.4? 5	(9/2,11/2) ⁻		C	J ^{π} : log ft=6.3 via 11/2 ⁻ parent, γ 's to (7/2 ⁻).
1344.9 7			B	
1521.5 5			B	
1530.4 4			B	
1629.91 23			B	
1633.8? 4	(9/2,11/2) ⁻		C	J ^{π} : log ft=5.5 via 11/2 ⁻ parent, γ to (7/2 ⁻).

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Adopted Levels, Gammas (continued)

¹⁴¹Sm Levels (continued)

E(level) [†]	J ^π [‡] _a	T _{1/2} ^{&}	XREF	Comments
1766.5 3	(3/2 ⁺ ,5/2 ⁺)		B	J ^π : log ft=6.23 via 5/2 ⁺ parent, γ to 1/2 ⁺ .
1771.2? 4	(9/2,11/2) ⁻		C	J ^π : log ft=5.4 via 11/2 ⁻ parent, γ to (7/2 ⁻).
1895.13 22			B	
1899.7 ^g 12	(19/2 ⁻)		D	J ^π : (E2) γ to (15/2 ⁻).
1911.5 11	(15/2 ⁺)		D	J ^π : (E1) γ to (13/2 ⁻).
1935.1 ^g 12	(17/2 ⁻) [#]		D	
1956.3 6			B	
2139.7 11	(17/2 ⁺) [#]		D	
2221.8 3	(3/2 ⁺ ,5/2 ⁺)		B	J ^π : log ft=5.96 via 5/2 ⁺ parent, γ to 1/2 ⁺ .
2290.3 5			B	
2394.8 ^g 14	(21/2 ⁻) [#]		D	
2418.8 14	(23/2 ⁻)		D	J ^π : (E2) γ to (19/2 ⁻).
2563.4 11	(19/2 ⁺)		D	J ^π : (E1) γ to (17/2 ⁻).
2641.3 15	(25/2 ⁺)		D	J ^π : (E1) γ to (23/2 ⁻).
2722.6 ^h 12	(21/2 ⁺) [#]		D	
2822.9 ^h 14	(23/2 ⁺)		D	J ^π : (M1) γ to (21/2 ⁺).
2977.4 ^h 15	(25/2 ⁺)		D	J ^π : (M1) γ to (23/2 ⁺).
3191.2 ^h 18	(27/2 ⁺)		D	J ^π : (M1) γ to (25/2 ⁺).
3206.6 18	(27/2 ⁻) [#]		D	
3318.0 ^g 13	(23/2 ⁻) [#]		D	
3376.6 ⁱ 14	(25/2 ⁻)		D	J ^π : (M1) γ to (23/2 ⁻).
3509.2 ⁱ 14	(27/2 ⁻)	1.64 ps +31-27	DE	J ^π : M1+E2 γ to (25/2 ⁻).
3579.8 ^d 16	(27/2 ⁻)		D	J ^π : (M1) γ to (25/2 ⁻).
3624.2 ^h 20	(29/2 ⁺) [#]		D	
3818.6 ⁱ 14	(29/2 ⁻)	0.73 ps +15-13	DE	J ^π : M1+E2 γ to (27/2 ⁻).
3972.9 ^h 20	(31/2 ⁺)		D	J ^π : (E2) γ to (27/2 ⁺).
4066.9 ^d 19	(31/2 ⁻)		D	J ^π : (E2) γ to (27/2 ⁻).
4265.0 ⁱ 15	(31/2 ⁻)	0.50 ps +10-9	DE	J ^π : M1+E2 γ to (29/2 ⁻).
4482.2 ^b 22	(31/2) [#]		D	
4576.9 22			D	
4769.2 ^b 25	(33/2)		D	J ^π : γ to (29/2 ⁺) and band structure in ¹¹⁶ Cd(²⁹ Si,4nγ).
4792.8 ⁱ 15	(33/2 ⁻)	0.77 ps +16-10	DE	J ^π : M1+E2 γ to (31/2 ⁻).
4859.4 ^d 21	(35/2 ⁻)		D	J ^π : (E2) γ to (31/2 ⁻).
4886.9 22			D	
5001.9 ^e 21	(35/2)		D	
5097 ^b 3	(35/2)		D	
5205.9 22			D	
5323.0 15	(35/2 ⁻)		DE	J ^π : M1 γ to (33/2 ⁻).
5340.8 ^j 15	(35/2 ⁻)	0.28 ps 6	DE	J ^π : M1+E2 γ to (33/2 ⁻).
5365.8 ⁱ 15	(35/2 ⁻) [@]		E	
5434 ^b 3	(37/2) [#]		D	
5458.9 ^e 24	(39/2) [#]		D	
5576.4 ^c 23	(37/2) [#]		D	
5594.5 ^j 15	(37/2 ⁻)	1.30 ps +28-24	DE	J ^π : M1+E2 γ to (35/2 ⁻).
5641.1 15	(37/2 ⁻)		DE	J ^π : M1+E2 γ to (35/2 ⁻).
5903.4 ^d 23	(39/2) [#]		D	
5940.2 ^j 15	(39/2 ⁻)	<0.80 ps	DE	J ^π : M1+E2 γ to (37/2 ⁻).
6207 ^e 3	(43/2) [#]		D	

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Adopted Levels, Gammas (continued)

¹⁴¹Sm Levels (continued)

E(level) [†]	J ^π [‡] ^a	XREF	Comments
6350.4 ^c 24	(41/2) [#]	D	
6413.2 ^j 15	(41/2 ⁻)	DE	J ^π : (M1) γ to (39/2 ⁻).
6894.6 ^j 15	(43/2 ⁻)	DE	J ^π : (M1) γ to (41/2 ⁻).
7049 ^e 3	(47/2) [#]	D	
7143.4 ^d 25	(43/2) [#]	D	
7376 ^c 3	(45/2) [#]	D	
7384.6 ^j 16	(45/2 ⁻)	DE	J ^π : (M1) γ to (43/2 ⁻).
7833 ^f 3	(49/2) [#]	D	
7987 ^e 3	(51/2) [#]	D	
8284 ^c 3	(49/2) [#]	D	
8348 ^d 3	(47/2) [#]	D	
8558 ^f 3	(53/2) [#]	D	
9477 ^f 3	(57/2) [#]	D	
10586 ^f 4	(61/2) [#]	D	
11238 4	(63/2) [#]	D	

[†] From least-squares fit to E_γ data, assuming 0.3 keV uncertainty when not stated.

[‡] Unless otherwise noted, most assignments are based on mult and rotational band structure as reported in ¹¹⁶Cd(²⁹Si,4n_γ) and in ¹¹⁶Cd(³¹P,p5n_γ), respectively.

[#] Based on band structure and theoretical arguments in ¹¹⁶Cd(²⁹Si,4n_γ).

[@] Based on band structure and theoretical arguments in ¹¹⁶Cd(³¹P,p5n_γ).

[&] Above 3500 from ¹¹⁶Cd(³¹P,p5n_γ) (2016Ra33 by DSAM).

^a According to 1991Ca24 ((²⁹Si,4n_γ) dataset), bands are based on excitations of ¹⁴⁰Nd core (Z=60, N=80) denoted generically as “core^N” for band “N”, coupled to excitations of valence configurations.

^b Band(A): ΔJ=1 band, based on 31/2.

^c Band(B): ΔJ=2 band, Configuration=((ν h_{11/2})⁻¹(π h_{11/2})²) ⊗ core^B.

^d Band(C): ΔJ=2 band, Configuration=((ν h_{11/2})⁻¹(π h_{11/2})²) ⊗ core^C.

^e Band(D): ΔJ=2 band, Configuration=((ν h_{11/2})⁻¹(π h_{11/2})²) ⊗ core^D.

^f Band(d): ΔJ=2 band, Configuration=((ν h_{11/2})⁻¹(π h_{11/2})²) ⊗ core^d.

^g Band(E): Configuration=(ν h_{11/2})⁻¹ ⊗ core^E.

^h Band(F): ΔJ=1 band.

ⁱ Band(G): Magnetic-dipole band 1. Magnetic-dipole rotational (shears) band based on 25/2⁻ with proposed configuration=πh_{11/2}²⊗νh_{11/2}⁻¹ based on agreement of B(M1) values deduced from level lifetimes with the corresponding theoretical values.

^j Band(H): Magnetic-dipole band 2. Possible magnetic-dipole rotational (shears) band based on 35/2⁻ with tentative configuration=πh_{11/2}²⊗νh_{11/2}⁻³ (theoretical calculation cannot reproduce experimental B(M1) and spin values simultaneously).

Adopted Levels, Gammas (continued)

$\gamma(^{141}\text{Sm})$

All data with uncertainties are from decay, others are from ($^{29}\text{Si},4n\gamma$) unless noted otherwise.

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [†]	α^a	Comments
1.58	3/2 ⁺	(1.58 4)	100	0.0	1/2 ⁺			$E_\gamma, \Delta E$: calculated by 1977De25 (^{141}Eu ε decay (40.7 s)) by observing five pairs of relatively intense non-coincident γ rays, 384.5-382.9, 395.6-394.0, 594.7-593.1, 597.9-596.3 and 1083.6-1081.9 keV.
175.9	11/2 ⁻	174.2 3	100	1.58	3/2 ⁺	M4	68.2 12	$\alpha(\text{K})=36.5$ 6; $\alpha(\text{L})=24.0$ 5; $\alpha(\text{M})=6.06$ 11 $\alpha(\text{N})=1.374$ 24; $\alpha(\text{O})=0.183$ 4; $\alpha(\text{P})=0.00606$ 11 B(M4)(W.u.)=2.38 +23-24 Mult.: from ^{141}Sm IT decay (22.6 min).
384.46	3/2 ⁺	382.9 2 384.5 2	53.5 36 100 6	1.58	3/2 ⁺ 1/2 ⁺	M1 [‡]	0.0422	$\alpha(\text{K})=0.0359$ 5; $\alpha(\text{L})=0.00493$ 7; $\alpha(\text{M})=0.001057$ 15 $\alpha(\text{N})=0.000240$ 4; $\alpha(\text{O})=3.60 \times 10^{-5}$ 5; $\alpha(\text{P})=2.26 \times 10^{-6}$ 4
395.55	(5/2,3/2) ⁺	394.0 2	100 21	1.58	3/2 ⁺	M1 [‡]	0.0396	$\alpha(\text{K})=0.0337$ 5; $\alpha(\text{L})=0.00463$ 7; $\alpha(\text{M})=0.000992$ 14 $\alpha(\text{N})=0.000225$ 4; $\alpha(\text{O})=3.38 \times 10^{-5}$ 5; $\alpha(\text{P})=2.12 \times 10^{-6}$ 3
545.3	(7/2 ⁻)	395.6 2 369.5 2	18.2 5 100	0.0	1/2 ⁺			
594.71	(5/2 ⁺ ,3/2 ⁺)	593.1 2 594.7 2	100 8 14 2	1.58	3/2 ⁺ 1/2 ⁺			
597.90	(3/2 ⁺ ,5/2 ⁺)	202.3 3 213.5 3 596.3 2 597.9 2	14 4 10 4 41 4 100 9	395.55	(5/2,3/2) ⁺ 3/2 ⁺ 3/2 ⁺ 1/2 ⁺			
810.7	(15/2 ⁻)	634.8	100	175.9	11/2 ⁻	(E2)	0.00697	$\alpha(\text{K})=0.00581$ 9; $\alpha(\text{L})=0.000913$ 13; $\alpha(\text{M})=0.000198$ 3 $\alpha(\text{N})=4.46 \times 10^{-5}$ 7; $\alpha(\text{O})=6.48 \times 10^{-6}$ 9; $\alpha(\text{P})=3.40 \times 10^{-7}$ 5
829.41	(7/2)	234.6 3 433.9 2	10.0 19 100 10	594.71	(5/2 ⁺ ,3/2 ⁺) (5/2,3/2) ⁺			
899.8	7/2 ⁻	354.4 3 724.2 5	89 22 100 33	545.3	(7/2 ⁻) 11/2 ⁻			
990.5		395.8 3 606.0 4	51 11 100 14	594.71	(5/2 ⁺ ,3/2 ⁺) 3/2 ⁺			
1001.45		605.9 2 999.8 4	100 11 27 3	395.55	(5/2,3/2) ⁺ 3/2 ⁺			
1063.6?	(9/2,11/2) ⁻	518.8 5 887.3 3	100 51 64 14	545.3	(7/2 ⁻) 11/2 ⁻			
1083.45	(1/2 ⁺ ,3/2 ⁺ ,5/2 ⁺)	687.8 3 699.0 2 1081.9 3 1083.6 5	100 14 100 10 100 14 43 10	395.55	(5/2,3/2) ⁺ 3/2 ⁺ 3/2 ⁺ 1/2 ⁺			

Adopted Levels, Gammas (continued)

γ(¹⁴¹Sm) (continued)

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[†]</u>	<u>α^a</u>	<u>Comments</u>
1085.5	(13/2 ⁻)	909.6	100	175.9	11/2 ⁻	(M1)	0.00493	α(K)=0.00422 6; α(L)=0.000563 8; α(M)=0.0001202 17 α(N)=2.73×10 ⁻⁵ 4; α(O)=4.11×10 ⁻⁶ 6; α(P)=2.61×10 ⁻⁷ 4
1160.5		764.9 5	80 33	395.55	(5/2,3/2) ⁺			
		776.0 6	100 50	384.46	3/2 ⁺			
1180.4?	(9/2,11/2 ⁻)	116.0 6	100 30	1063.6?	(9/2,11/2) ⁻			
		635.6 5	60 20	545.3	(7/2 ⁻)			
1344.9		799.6 6	100	545.3	(7/2 ⁻)			
1521.5		976.2 3	100	545.3	(7/2 ⁻)			
1530.4		935.7 3	100	594.71	(5/2 ⁺ ,3/2 ⁺)			
1629.91		1234.4 3	63 13	395.55	(5/2,3/2) ⁺			
		1245.4 3	100 16	384.46	3/2 ⁺			
1633.8?	(9/2,11/2) ⁻	804.4 3	100	829.41	(7/2)			
1766.5	(3/2 ⁺ ,5/2 ⁺)	1382.1 3	53 11	384.46	3/2 ⁺			
		1766.2 5	100 20	0.0	1/2 ⁺			
1771.2?	(9/2,11/2) ⁻	1225.7 5	3.8 19	545.3	(7/2 ⁻)			
		1595.3 3	100 19	175.9	11/2 ⁻			
1895.13		893.6 5	23 5	1001.45				
		1300.4 3	56 10	594.71	(5/2 ⁺ ,3/2 ⁺)			
		1510.7 3	100 18	384.46	3/2 ⁺			
1899.7	(19/2 ⁻)	1088.8	100	810.7	(15/2 ⁻)	(E2)	0.00208	α(K)=0.001769 25; α(L)=0.000246 4; α(M)=5.27×10 ⁻⁵ 8 α(N)=1.191×10 ⁻⁵ 17; α(O)=1.770×10 ⁻⁶ 25; α(P)=1.053×10 ⁻⁷ 15
1911.5	(15/2 ⁺)	826.0	100	1085.5	(13/2 ⁻)	(E1)	1.49×10 ⁻³	α(K)=0.001280 18; α(L)=0.0001658 24; α(M)=3.52×10 ⁻⁵ 5 α(N)=7.97×10 ⁻⁶ 12; α(O)=1.191×10 ⁻⁶ 17; α(P)=7.38×10 ⁻⁸ 11
1935.1	(17/2 ⁻)	1124.5	100	810.7	(15/2 ⁻)			
1956.3		1560.7 5	100	395.55	(5/2,3/2) ⁺			
2139.7	(17/2 ⁺)	228.2		1911.5	(15/2 ⁺)			
		1329.0		810.7	(15/2 ⁻)			
2221.8	(3/2 ⁺ ,5/2 ⁺)	1392.4 5	58 15	829.41	(7/2)			
		1676.0 6	65 31	545.3	(7/2 ⁻)			
		1826.6 4	100 46	395.55	(5/2,3/2) ⁺			
		2221.6 6	73 27	0.0	1/2 ⁺			
2290.3		1744.9 4	100	545.3	(7/2 ⁻)			
2394.8	(21/2 ⁻)	495	100	1899.7	(19/2 ⁻)			
2418.8	(23/2 ⁻)	519.2	100	1899.7	(19/2 ⁻)	(E2)	0.01161	α(K)=0.00956 14; α(L)=0.001611 23; α(M)=0.000352 5 α(N)=7.89×10 ⁻⁵ 11; α(O)=1.133×10 ⁻⁵ 16; α(P)=5.52×10 ⁻⁷ 8
2563.4	(19/2 ⁺)	423.7		2139.7	(17/2 ⁺)			
		628.3		1935.1	(17/2 ⁻)	(E1)	0.00261	α(K)=0.00224 4; α(L)=0.000294 5; α(M)=6.25×10 ⁻⁵ 9 α(N)=1.412×10 ⁻⁵ 20; α(O)=2.10×10 ⁻⁶ 3; α(P)=1.282×10 ⁻⁷ 18
		651.9		1911.5	(15/2 ⁺)			
		663.6		1899.7	(19/2 ⁻)			

Adopted Levels, Gammas (continued)

E _i (level)	J _i ^π	E _γ	I _γ	E _f	J _f ^π	Mult. [†]	γ(¹⁴¹ Sm) (continued)		Comments
							δ&b	α ^a	
2641.3	(25/2 ⁺)	222.5	100	2418.8	(23/2 ⁻)	(E1)		0.0319	α(K)=0.0271 4; α(L)=0.00374 6; α(M)=0.000798 12 α(N)=0.000179 3; α(O)=2.61×10 ⁻⁵ 4; α(P)=1.451×10 ⁻⁶ 21
2722.6	(21/2 ⁺)	159.3		2563.4	(19/2 ⁺)				
		823.1		1899.7	(19/2 ⁻)				
2822.9	(23/2 ⁺)	100.2		2722.6	(21/2 ⁺)	(M1)		1.680	α(K)=1.424 20; α(L)=0.202 3; α(M)=0.0434 6 α(N)=0.00983 14; α(O)=0.001473 21; α(P)=9.09×10 ⁻⁵ 13
		181.6		2641.3	(25/2 ⁺)				
2977.4	(25/2 ⁺)	154.5		2822.9	(23/2 ⁺)	(M1)		0.493	α(K)=0.418 6; α(L)=0.0589 9; α(M)=0.01265 18 α(N)=0.00287 4; α(O)=0.000430 6; α(P)=2.66×10 ⁻⁵ 4
		336.1		2641.3	(25/2 ⁺)				
3191.2	(27/2 ⁺)	213.8	100	2977.4	(25/2 ⁺)	(M1)		0.201	α(K)=0.1707 24; α(L)=0.0239 4; α(M)=0.00512 8 α(N)=0.001162 17; α(O)=0.0001743 25; α(P)=1.084×10 ⁻⁵ 16
3206.6	(27/2 ⁻)	787.8	100	2418.8	(23/2 ⁻)				
3318.0	(23/2 ⁻)	595.5		2722.6	(21/2 ⁺)				
		923		2394.8	(21/2 ⁻)				
		1418.3		1899.7	(19/2 ⁻)				
3376.6	(25/2 ⁻)	58.7		3318.0	(23/2 ⁻)	(M1)		7.87	α(K)=6.66 10; α(L)=0.954 14; α(M)=0.205 3 α(N)=0.0465 7; α(O)=0.00695 10; α(P)=0.000427 6
		553.6		2822.9	(23/2 ⁺)				
3509.2	(27/2 ⁻)	132.6 [#] 1	100 [#]	3376.6	(25/2 ⁻)	M1+E2 [@]	0.97 28	0.81 5	α(K)=0.58 6; α(L)=0.173 83; α(M)=0.039 20 α(N)=0.0087 43; α(O)=0.00116 50; α(P)=3.24×10 ⁻⁵ 86 B(M1)(W.u.)=1.6 +6-5 Additional information 1.
		203.2		3376.6	(25/2 ⁻)	(M1)		0.231	α(K)=0.196 3; α(L)=0.0275 4; α(M)=0.00590 9 α(N)=0.001337 19; α(O)=0.000201 3; α(P)=1.246×10 ⁻⁵ 18
		602.5		2977.4	(25/2 ⁺)				
3624.2	(29/2 ⁺)	433.1	100	3191.2	(27/2 ⁺)				
3818.6	(29/2 ⁻)	309.4 [#] 1	100 [#]	3509.2	(27/2 ⁻)	M1+E2 [@]	0.11 7	0.0742 12	α(K)=0.0631 10; α(L)=0.00877 13; α(M)=0.00188 3 α(N)=0.000426 6; α(O)=6.40×10 ⁻⁵ 9; α(P)=3.98×10 ⁻⁶ 7 B(M1)(W.u.)=0.94 +20-16; B(E2)(W.u.)=7×10 ¹ +12-6
		348.9		3624.2	(29/2 ⁺)				
		781.6		3191.2	(27/2 ⁺)	(E2)		0.00427	α(K)=0.00359 5; α(L)=0.000533 8; α(M)=0.0001150 16 α(N)=2.59×10 ⁻⁵ 4; α(O)=3.80×10 ⁻⁶ 6; α(P)=2.12×10 ⁻⁷ 3
4066.9	(31/2 ⁻)	487.0	100	3579.8	(27/2 ⁻)	(E2)		0.01376	α(K)=0.01128 16; α(L)=0.00195 3; α(M)=0.000427 6 α(N)=9.57×10 ⁻⁵ 14; α(O)=1.367×10 ⁻⁵ 20; α(P)=6.47×10 ⁻⁷ 8
		446.4 [#] 1	100 [#]	3818.6	(29/2 ⁻)	M1+E2 [@]	0.18 8	0.0284 6	α(K)=0.0242 5; α(L)=0.00332 6; α(M)=0.000711 12 α(N)=0.000161 3; α(O)=2.42×10 ⁻⁵ 4; α(P)=1.51×10 ⁻⁶ 4 B(M1)(W.u.)=0.47 +10-8; B(E2)(W.u.)=45 +49-31
4482.2	(31/2)	858	100	3624.2	(29/2 ⁺)				
4576.9		604	100	3972.9	(31/2 ⁺)				

Adopted Levels, Gammas (continued)

γ(¹⁴¹ Sm) (continued)									
E _i (level)	J _i ^π	E _γ	I _γ	E _f	J _f ^π	Mult. †	δ&b	α ^a	Comments
4769.2	(33/2)	287	100	4482.2	(31/2)				
4792.8	(33/2 ⁻)	527.8 [#] 1	100 [#]	4265.0	(31/2 ⁻)	M1+E2 [@]	0.22 9	0.0184 4	α(K)=0.0157 4; α(L)=0.00215 4; α(M)=0.000460 9 α(N)=0.0001042 20; α(O)=1.56×10 ⁻⁵ 3; α(P)=9.80×10 ⁻⁷ 24 B(M1)(W.u.)=0.182 +26-33; B(E2)(W.u.)=19 +17-12
4859.4	(35/2 ⁻)	792.5	100	4066.9	(31/2 ⁻)	(E2)		0.00413	α(K)=0.00348 5; α(L)=0.000515 8; α(M)=0.0001111 16 α(N)=2.50×10 ⁻⁵ 4; α(O)=3.68×10 ⁻⁶ 6; α(P)=2.06×10 ⁻⁷ 3
4886.9		914	100	3972.9	(31/2 ⁺)				
5001.9	(35/2)	935	100	4066.9	(31/2 ⁻)				
5097	(35/2)	328	100	4769.2	(33/2)				
5205.9		1233	100	3972.9	(31/2 ⁺)				
5323.0	(35/2 ⁻)	530.0 [#] 3	100 [#]	4792.8	(33/2 ⁻)	M1 [@]		0.0186	α(K)=0.01585 23; α(L)=0.00215 3; α(M)=0.000461 7 α(N)=0.0001045 15; α(O)=1.572×10 ⁻⁵ 23; α(P)=9.91×10 ⁻⁷ 14
5340.8	(35/2 ⁻)	548.0 [#] 1	100 [#]	4792.8	(33/2 ⁻)	M1+E2 [@]	0.20 7	0.0168 4	α(K)=0.0143 3; α(L)=0.00195 4; α(M)=0.000418 7 α(N)=9.49×10 ⁻⁵ 16; α(O)=1.425×10 ⁻⁵ 25; α(P)=8.95×10 ⁻⁷ 18 B(M1)(W.u.)=0.45 +12-8; B(E2)(W.u.)=36 +31-21
5365.8	(35/2 ⁻)	573.0 3	100	4792.8	(33/2 ⁻)				
5434	(37/2)	337	100	5097	(35/2)				
5458.9	(39/2)	457	100	5001.9	(35/2)				
5576.4	(37/2)	717	100	4859.4	(35/2 ⁻)				
5594.5	(37/2 ⁻)	253.7 1	100	5340.8	(35/2 ⁻)	M1+E2	0.13 8	0.1260 20	α(K)=0.1069 18; α(L)=0.01501 23; α(M)=0.00322 5 α(N)=0.000731 12; α(O)=0.0001094 16; α(P)=6.76×10 ⁻⁶ 13 B(M1)(W.u.)=0.91 +20-17; B(E2)(W.u.)=1.4×10 ² +23-11
5641.1	(37/2 ⁻)	300.7 [#] 3	75 [#] 11	5340.8	(35/2 ⁻)	M1 [@]		0.0804	α(K)=0.0683 10; α(L)=0.00946 14; α(M)=0.00203 3 α(N)=0.000460 7; α(O)=6.91×10 ⁻⁵ 10; α(P)=4.32×10 ⁻⁶ 7
		318.0 [#] 3	100 [#] 17	5323.0	(35/2 ⁻)	M1 [@]		0.0693	α(K)=0.0590 9; α(L)=0.00815 12; α(M)=0.001747 25 α(N)=0.000396 6; α(O)=5.95×10 ⁻⁵ 9; α(P)=3.72×10 ⁻⁶ 6
5903.4	(39/2)	1044	100	4859.4	(35/2 ⁻)				
5940.2	(39/2 ⁻)	299.3 [#] 3	63 [#] 10	5641.1	(37/2 ⁻)	M1 [@]		0.0814	α(K)=0.0692 10; α(L)=0.00958 14; α(M)=0.00205 3 α(N)=0.000466 7; α(O)=7.00×10 ⁻⁵ 10; α(P)=4.37×10 ⁻⁶ 7 B(M1)(W.u.)>0.31
		345.5 [#] 3	100 [#] 11	5594.5	(37/2 ⁻)	M1+E2 [@]	0.16 7	0.0553 10	α(K)=0.0470 9; α(L)=0.00652 10; α(M)=0.001399 20 α(N)=0.000317 5; α(O)=4.76×10 ⁻⁵ 7; α(P)=2.96×10 ⁻⁶ 6 B(M1)(W.u.)>0.33; B(E2)(W.u.)>13.56
6207	(43/2)	748	100	5458.9	(39/2)				
6350.4	(41/2)	447		5903.4	(39/2)				
		774		5576.4	(37/2)				
6413.2	(41/2 ⁻)	473.0 [#] 3	100 [#]	5940.2	(39/2 ⁻)	(M1) [@]		0.0248	α(K)=0.0211 3; α(L)=0.00288 4; α(M)=0.000617 9 α(N)=0.0001399 20; α(O)=2.10×10 ⁻⁵ 3; α(P)=1.324×10 ⁻⁶ 19

Adopted Levels, Gammas (continued)

<u>γ(¹⁴¹Sm) (continued)</u>									
<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[†]</u>	<u>α^a</u>	<u>Comments</u>	
6894.6	(43/2 ⁻)	481.4 [#] 3	100 [#]	6413.2	(41/2 ⁻)	(M1) [@]	0.0237	α(K)=0.0202 3; α(L)=0.00275 4; α(M)=0.000589 9 α(N)=0.0001337 19; α(O)=2.01×10 ⁻⁵ 3; α(P)=1.266×10 ⁻⁶ 18	
7049	(47/2)	842	100	6207	(43/2)				
7143.4	(43/2)	1240	100	5903.4	(39/2)				
7376	(45/2)	1026	100	6350.4	(41/2)				
7384.6	(45/2 ⁻)	490.0 [#] 3	100 [#]	6894.6	(43/2 ⁻)	(M1) [@]	0.0227	α(K)=0.0193 3; α(L)=0.00263 4; α(M)=0.000563 8 α(N)=0.0001277 18; α(O)=1.92×10 ⁻⁵ 3; α(P)=1.210×10 ⁻⁶ 17	
7833	(49/2)	784	100	7049	(47/2)				
7987	(51/2)	938	100	7049	(47/2)				
8284	(49/2)	908	100	7376	(45/2)				
8348	(47/2)	1205	100	7143.4	(43/2)				
8558	(53/2)	571		7987	(51/2)				
		725		7833	(49/2)				
9477	(57/2)	919	100	8558	(53/2)				
10586	(61/2)	1109	100	9477	(57/2)				
11238	(63/2)	652	100	10586	(61/2)				

† From ¹¹⁶Cd(²⁹Si,4nγ), unless noted otherwise.

‡ From ¹⁴¹Eu ε decay (40.7 s).

From ¹¹⁶Cd(³¹P,p5nγ).

@ From ¹¹⁶Cd(³¹P,p5nγ) from γγ(θ)(DCO), γγ(θ)(ADO), γγ(linear polarization).

& From ¹¹⁶Cd(³¹P,p5nγ) from DCO data.

^a Additional information 2.

^b Additional information 3.

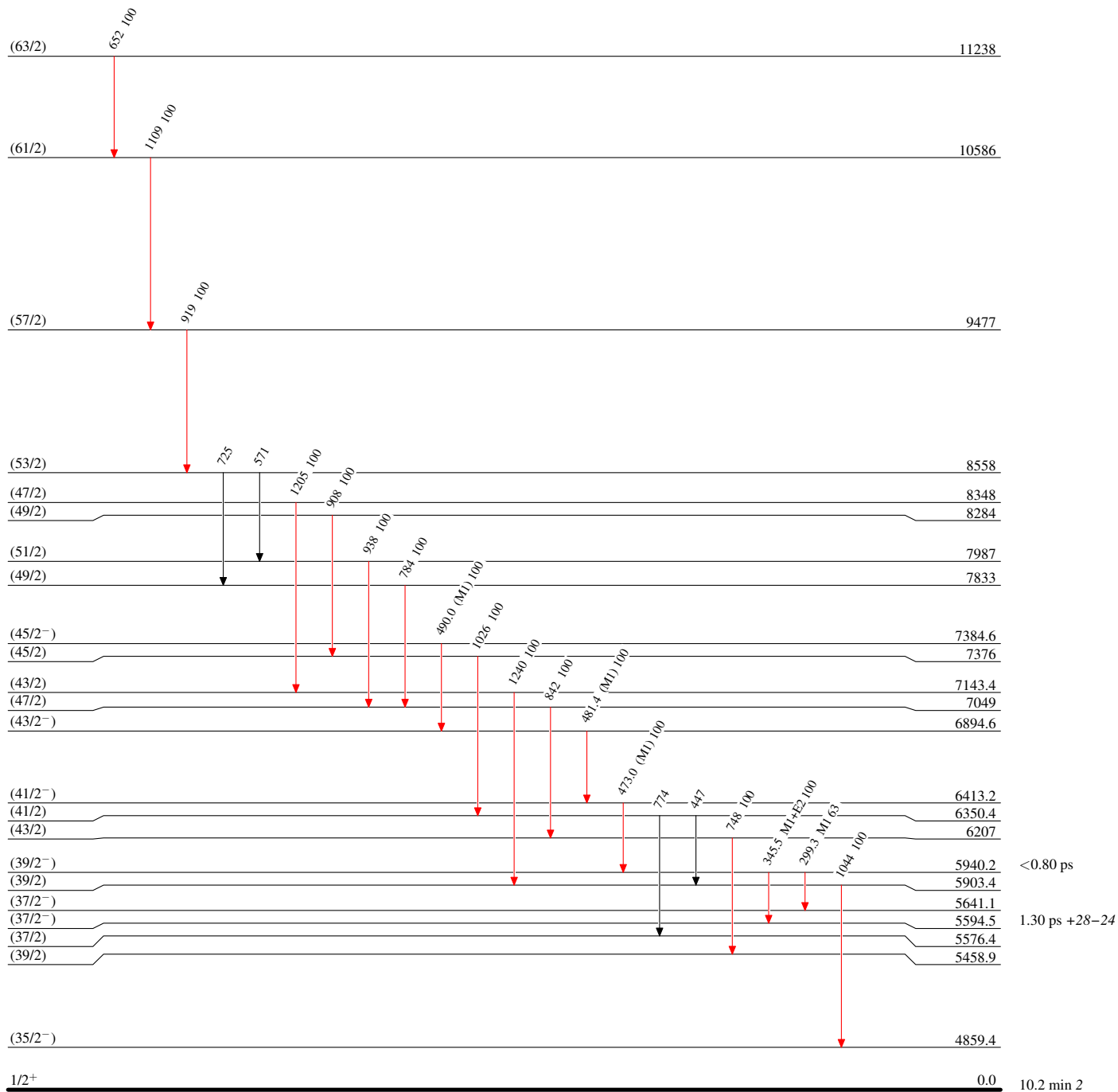
Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

Legend

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



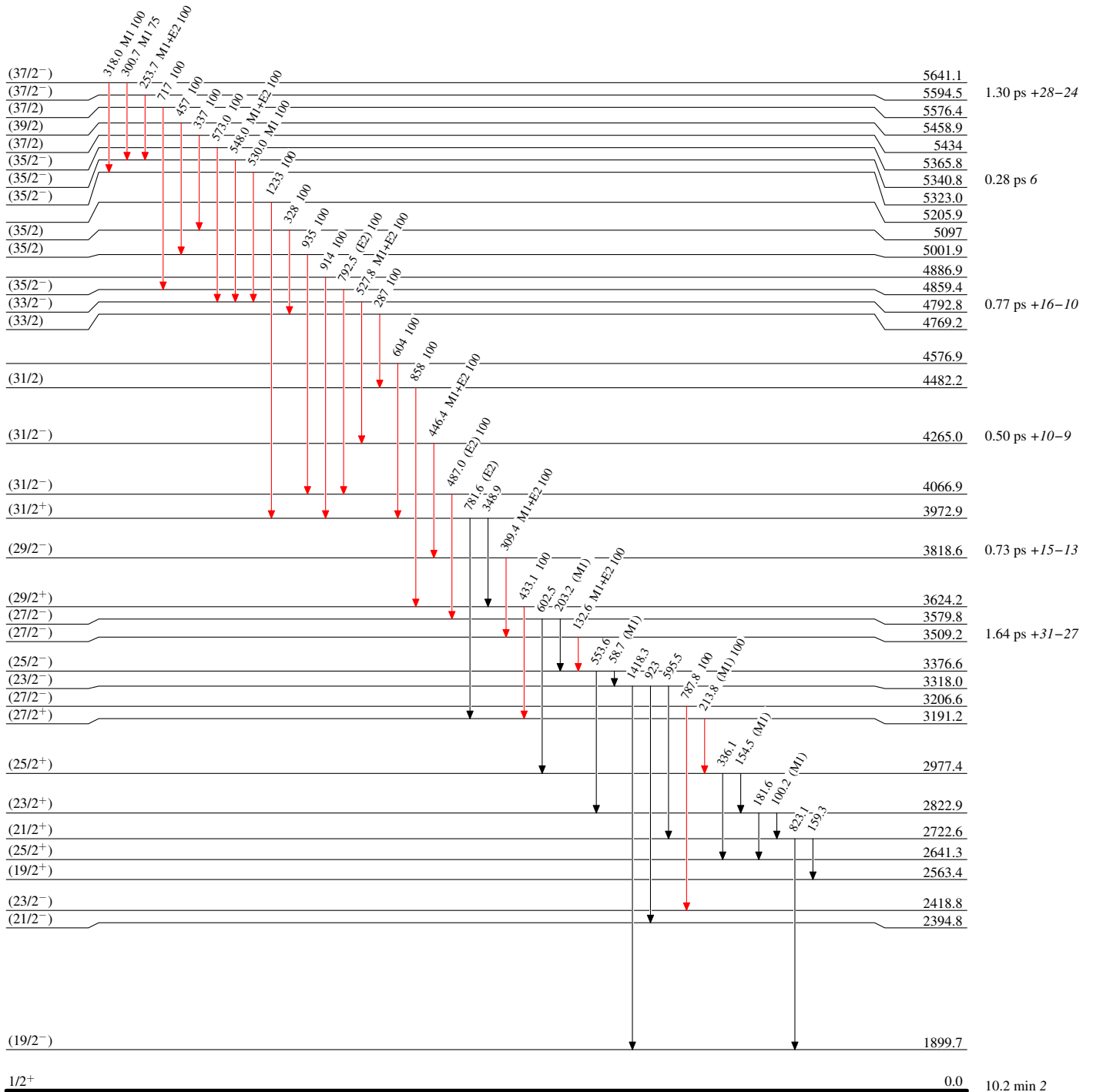
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

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



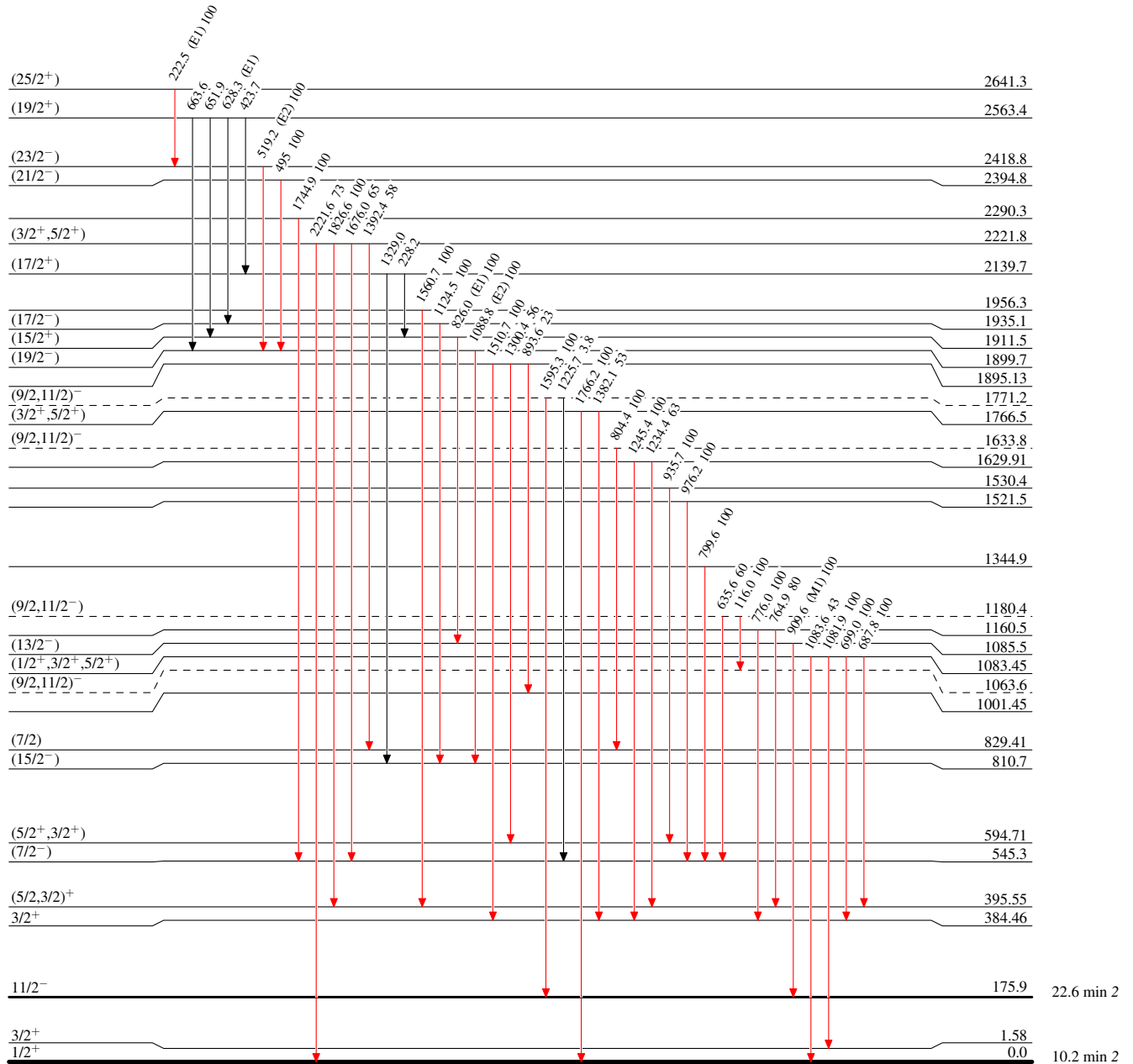
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

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



¹⁴¹Sm₆₂

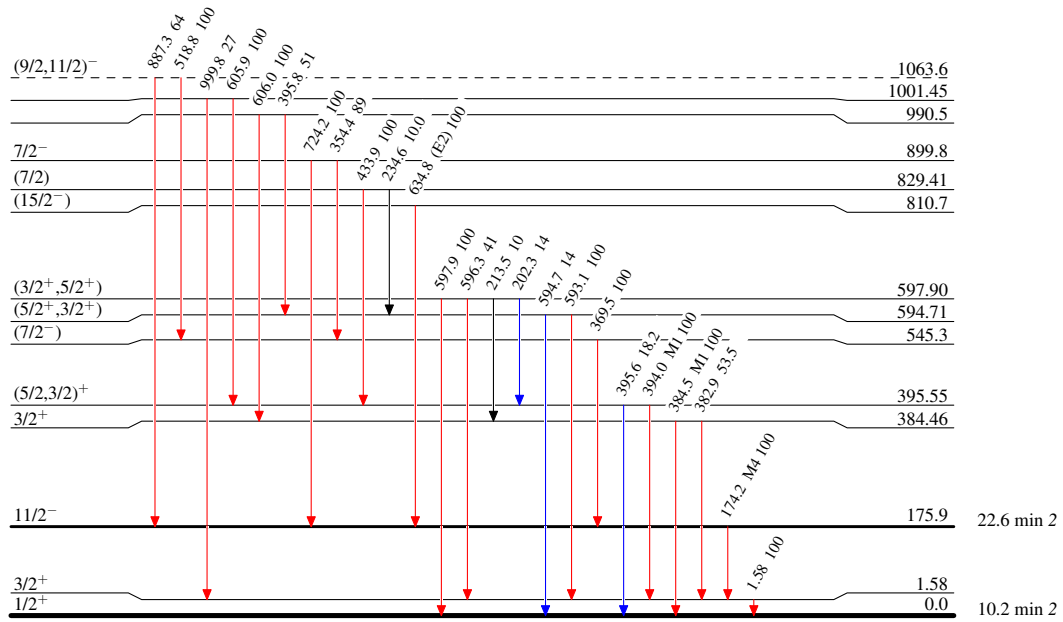
Adopted Levels, Gammas

Legend

Level Scheme (continued)

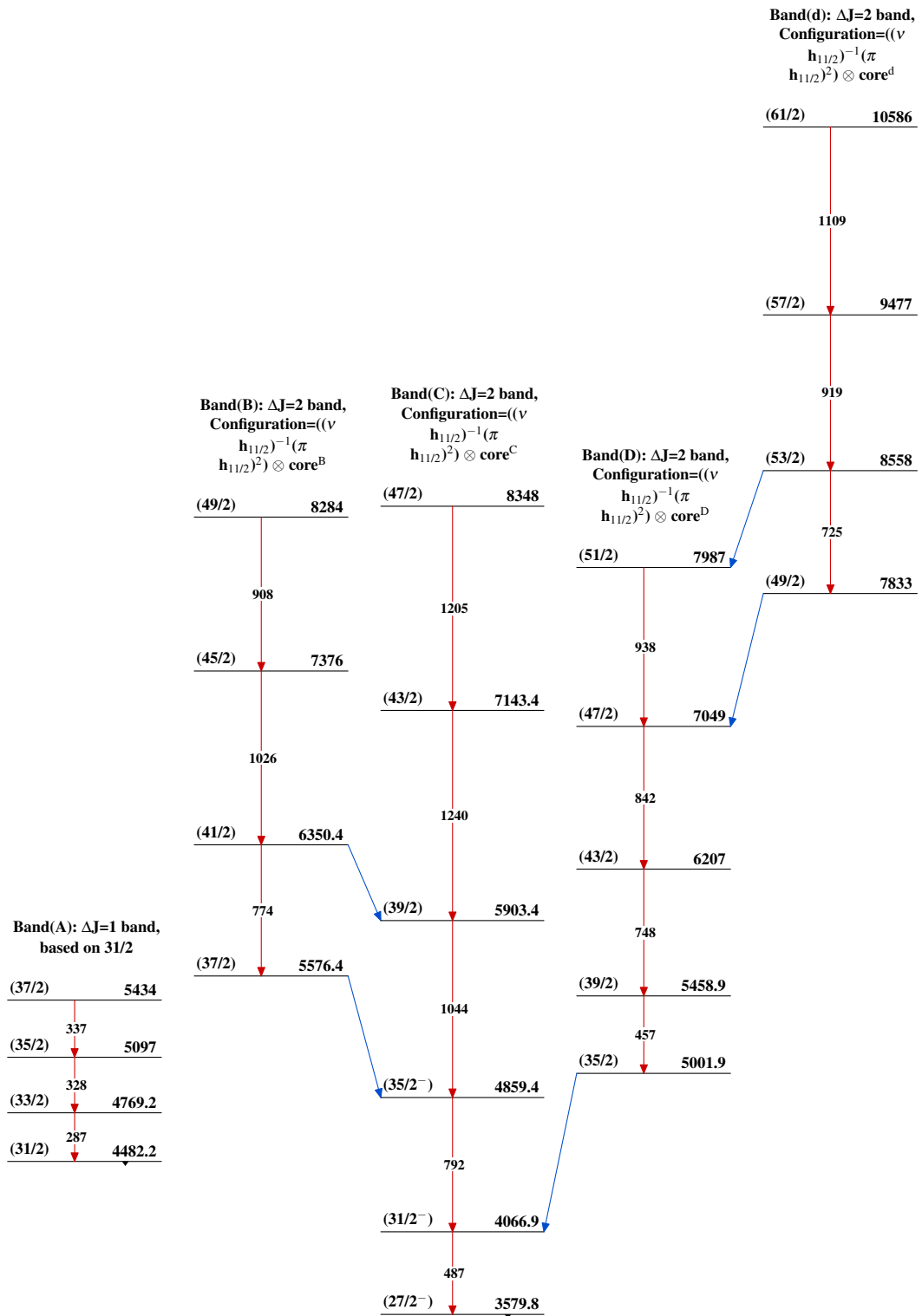
Intensities: Type not specified

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - → γ Decay (Uncertain)



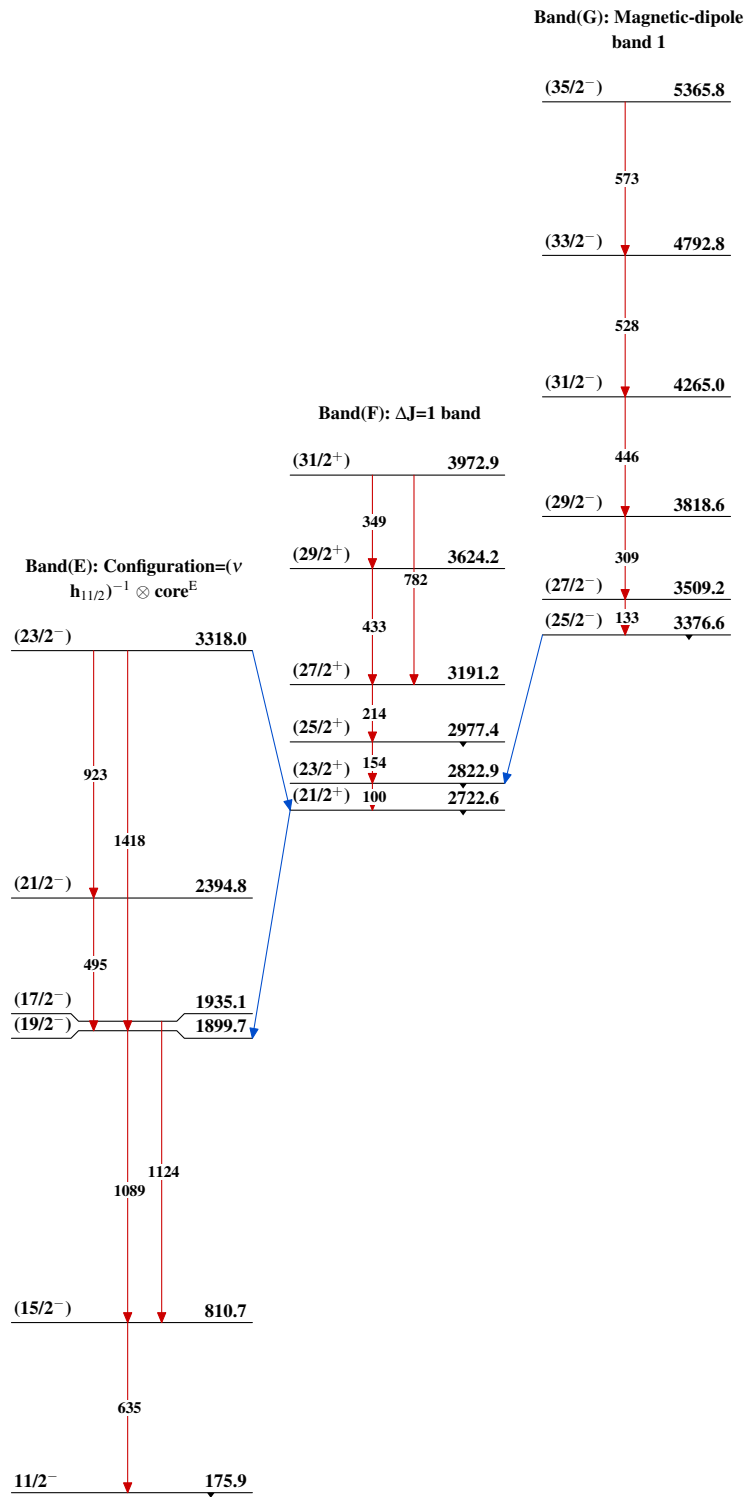
¹⁴¹Sm₇₉

Adopted Levels, Gammas

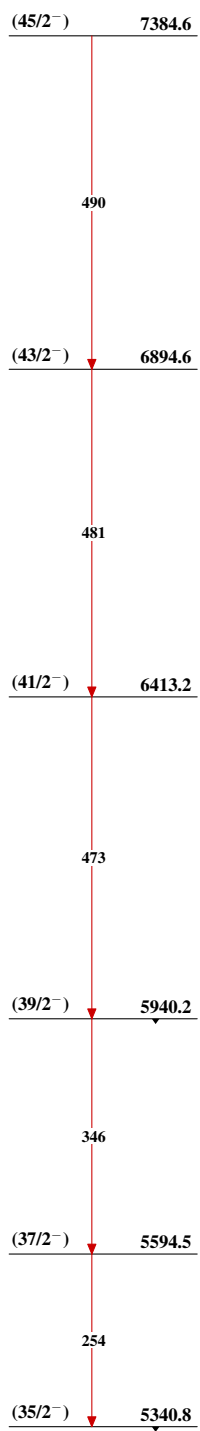


$^{141}_{62}\text{Sm}_{79}$

Adopted Levels, Gammas (continued)



$^{141}_{62}\text{Sm}_{79}$

Adopted Levels, Gammas (continued)**Band(H): Magnetic-dipole
band 2** $^{141}_{62}\text{Sm}_{79}$