

$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ 1995Va25,1992A111

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli		NDS 112, 1949 (2011)	1-Jun-2010

1995Va25: E=2.0–to 3.3 MeV. Enriched target (93%). BGO Compton-suppressed HPGe-detectors. Measured γ , $\gamma(\theta)$, $\gamma(t)$, excit.

1992A111: E=reactor. Measured γ , $\gamma(\theta)$, linear pol.

Unless stated otherwise, data are from 1995Va25. Their results are mostly in agreement with 1992A111. However, some transitions from the following levels (γ energies are given in parentheses) given by 1992A111 were not confirmed by 1995Va25: 2044.5(390 γ), 2278.0(272 γ), 2570.2(827.4 γ), 2680.6(1027 γ), 2697.3(2697 γ), 2698.6(586 γ), 2715.4(671 γ), 2742(2742 γ), 2887.8(2888 γ), 2999.0(1463 γ), 3061.8(3061 γ), 3089.9(3091 γ), 3106.1(1101 γ ,1569 γ), and 3153.6(1618 γ). These have been left out of the level scheme.

 ^{142}Ce Levels

E(level) [‡]	J ^π	T _{1/2} [†]	Comments
0	0 ⁺		
641.19 6	2 ⁺ #		
1219.30 7	4 ⁺ #		
1536.27 7	2 ⁺	<0.83 ps	
1652.85 7	3 ⁻ #	>1.8 ps	
1742.97 8	6 ⁺ #		
2004.84 9	2 ⁺	0.045 ps +5–4	
2030.90 12	0 ⁺	0.17 ps +15–6	
2044.43 8	4 ⁺ #	0.33 ps +11–7	
2111.80 12	4 ⁺ #	0.37 ps +30–12	
2124.83 10	5 ⁻ #	>0.41 ps	
2181.88 8	3 ⁺	0.26 ps +55–11	
2187.46 15	1 ⁻	0.011 ps 2	
2210.52@ 8	6 ⁺		
2278.07 10	4 ⁺ #	0.083 ps +49–28	
2329.82 11	3 ⁺	0.21 ps +21–8	
2364.81 15	2 ⁺	0.016 ps +3–2	
2374.88 10	⁺	>0.69 ps	J ^π : suggested J=6 is not consistent with D+Q γ to 4 ⁺ .
2384.38 9	4 ⁻	0.060 ps +76–28	
2398.36 9	1 ⁺	0.076 ps +21–14	
2539.64 11	4 ⁺ #	0.041 ps +18–12	
2542.82 20	1	<0.014 ps	
2543.21 10	2 ⁺	0.21 ps +25–8	
2570.00 12	5 ⁺	0.12 ps +18–6	
2576.16 8	3 ⁺	>0.69 ps	
2598.22 11	2 ⁺ #	>1.66 ps	
2602.48 9	(3,2) ⁺	0.24 ps +25–8	
2606.40 10	4 ⁺ #	0.049 ps +83–28	
2667.17 10	1	0.054 ps +24–15	
2680.40 21	(2,3,4) ⁺	0.15 ps +15–6	
2697.01 9	2,(3) ⁺	0.08 ps +6–3	
2698.50 12	4 ⁺ #	0.076 ps +21–15	
2715.07 9	3 ⁺	0.12 ps +13–5	
2725.68 12	5 ⁺	0.049 ps +26–16	
2727.81 8	2 ⁽⁻⁾	0.27 ps +29–8	
2734.70 11	(3,2) ⁺	>0.37 ps	
2741.90 11	(2,3)	0.076 ps +28–14	
2767.80 9	(1,2,3)	0.055 ps +18–12	

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$^{142}\text{Ce}(n,n'\gamma)$ **1995Va25,1992Al11** (continued) ^{142}Ce Levels (continued)

E(level) [‡]	J ^π	T _{1/2} [†]	Comments
2773.85 10	(3)	>0.69 ps	
2784.71 21	(3,4,5)	0.23 ps +63-10	
2800.72 10	1 ⁽⁺⁾	0.010 ps 2	
2806.35 10	3 ⁺	0.10 ps +7-3	
2842.48 13	(2,3)	0.038 ps +10-8	
2853.28 13	2 ⁺	0.076 ps +42-21	
2859.68 11	4	>0.69 ps	
2868.90 11	(4)	>0.46 ps	
2887.66 16	3	0.041 ps +12-9	
2933.91 21	(2,3,4)	>0.48 ps	
2956.31 16	3	0.017 ps +7-6	
2998.97 15	1	0.017 ps +13-8	
3009.81 21		>0.69 ps	
3011.93 20	1	0.016 ps +6-4	
3042.21 16		0.18 ps +34-8	J ^π : suggested J=6 is not consistent with D+Q to 4 ⁺ .
3051.71 16	(3)	>0.69 ps	
3061.39 16		0.09 ps +11-4	
3089.61 21	(2,3)	0.058 ps +29-17	
3105.96 16	3	0.053 ps +26-15	
3109.71 16		>0.69 ps	
3125.61 21	(1,2,3)	>0.65 ps	
3144.50 16	3 ⁺		
3153.62 15	2 ⁺	0.11 ps +15-5	
3155.29 16		>0.69 ps	
3180.35 17	1	>0.69 ps	
3208.86 16	3	0.043 ps +41-18	
3218.11 21		>0.69 ps	
3228.58 11	(3 ⁻)		E(level): from 1992Al11 seen also in (t,p), (e,e'). Not seen by 1995Va25. J ^π : from γ(θ) (1992Al11).
3300.68 21		>0.69 ps	

[†] From DSA (1995Va25).[‡] From 1995Va25.

Consistent with γ linear pol data (1992Al11).

@ From 1992Al11. Although level and its depopulating transitions not seen by 1995Va25 the level was confirmed in (e,e').

 $\gamma(^{142}\text{Ce})$

E _i (level)	J _i ^π	E _γ	I _γ [@]	E _f	J _f ^π	Mult.	δ	α [†]	Comments
641.19	2 ⁺	641.3 1	100	0	0 ⁺	E2 [‡]		0.00563 8	α=0.00563 8; α(K)=0.00475 7; α(L)=0.000695 10; α(M)=0.0001463 21; α(N+..)=3.77×10 ⁻⁵ 6 α(N)=3.22×10 ⁻⁵ 5; α(O)=5.11×10 ⁻⁶ 8; α(P)=3.40×10 ⁻⁷ 5
1219.30	4 ⁺	578.1 1	100	641.19	2 ⁺	E2		0.00733 11	α=0.00733 11; α(K)=0.00616 9; α(L)=0.000925 13; α(M)=0.000195 3; α(N+..)=5.02×10 ⁻⁵ 7 α(N)=4.30×10 ⁻⁵ 6; α(O)=6.79×10 ⁻⁶ 10; α(P)=4.38×10 ⁻⁷ 7
1536.27	2 ⁺	895.1 1	99	641.19	2 ⁺	M1+E2	-1.5 +6-13	0.0029 3	α=0.0029 3; α(K)=0.0025 3; α(L)=0.00034 3; α(M)=7.0×10 ⁻⁵ 6; α(N+..)=1.82×10 ⁻⁵

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$^{142}\text{Ce}(n,n'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
1536.27	2 ⁺	1537.4 2	1	0	0 ⁺	E2 [#]		0.000934 13	16 $\alpha(\text{N})=1.55\times 10^{-5}$ 14; $\alpha(\text{O})=2.50\times 10^{-6}$ 23; $\alpha(\text{P})=1.85\times 10^{-7}$ 22 $\alpha=0.000934$ 13; $\alpha(\text{K})=0.000726$ 11; $\alpha(\text{L})=9.30\times 10^{-5}$ 13; $\alpha(\text{M})=1.93\times 10^{-5}$ 3; $\alpha(\text{N}+..)=9.56\times 10^{-5}$ 14 $\alpha(\text{N})=4.28\times 10^{-6}$ 6; $\alpha(\text{O})=6.94\times 10^{-7}$ 10; $\alpha(\text{P})=5.28\times 10^{-8}$ 8; $\alpha(\text{IPF})=9.06\times 10^{-5}$ 13
1652.85	3 ⁻	433.2 1	13	1219.30	4 ⁺	E1 [‡]		0.00501 7	$\alpha=0.00501$ 7; $\alpha(\text{K})=0.00431$ 6; $\alpha(\text{L})=0.000555$ 8; $\alpha(\text{M})=0.0001153$ 17; $\alpha(\text{N}+..)=2.99\times 10^{-5}$ 5 $\alpha(\text{N})=2.55\times 10^{-5}$ 4; $\alpha(\text{O})=4.09\times 10^{-6}$ 6; $\alpha(\text{P})=2.99\times 10^{-7}$ 5
		1011.7 1	87	641.19	2 ⁺	E1 [‡]		0.000827 12	$\alpha=0.000827$ 12; $\alpha(\text{K})=0.000715$ 10; $\alpha(\text{L})=8.90\times 10^{-5}$ 13; $\alpha(\text{M})=1.84\times 10^{-5}$ 3; $\alpha(\text{N}+..)=4.80\times 10^{-6}$ 7 $\alpha(\text{N})=4.08\times 10^{-6}$ 6; $\alpha(\text{O})=6.62\times 10^{-7}$ 10; $\alpha(\text{P})=5.08\times 10^{-8}$ 8
1742.97	6 ⁺	523.5 1	100	1219.30	4 ⁺	E2 [‡]		0.00952 14	$\alpha=0.00952$ 14; $\alpha(\text{K})=0.00797$ 12; $\alpha(\text{L})=0.001231$ 18; $\alpha(\text{M})=0.000260$ 4; $\alpha(\text{N}+..)=6.68\times 10^{-5}$ 10 $\alpha(\text{N})=5.73\times 10^{-5}$ 8; $\alpha(\text{O})=9.00\times 10^{-6}$ 13; $\alpha(\text{P})=5.62\times 10^{-7}$ 8
2004.84	2 ⁺	352.1 1 1363.6 1	2 70	1652.85 641.19	3 ⁻ 2 ⁺	M1+E2	-0.26 +14-17	0.00144 4	$\alpha=0.00144$ 4; $\alpha(\text{K})=0.00121$ 4; $\alpha(\text{L})=0.000154$ 5; $\alpha(\text{M})=3.20\times 10^{-5}$ 9; $\alpha(\text{N}+..)=4.42\times 10^{-5}$ 7 $\alpha(\text{N})=7.10\times 10^{-6}$ 19; $\alpha(\text{O})=1.16\times 10^{-6}$ 4; $\alpha(\text{P})=9.0\times 10^{-8}$ 3; $\alpha(\text{IPF})=3.59\times 10^{-5}$ 5
		2004.9 2	28	0	0 ⁺	E2 [#]		0.000808 12	$\alpha=0.000808$ 12; $\alpha(\text{K})=0.000443$ 7; $\alpha(\text{L})=5.56\times 10^{-5}$ 8; $\alpha(\text{M})=1.154\times 10^{-5}$ 17; $\alpha(\text{N}+..)=0.000298$ 5 $\alpha(\text{N})=2.56\times 10^{-6}$ 4; $\alpha(\text{O})=4.16\times 10^{-7}$ 6; $\alpha(\text{P})=3.22\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.000295$ 5
2030.90	0 ⁺	1389.7 1	100	641.19	2 ⁺				
2044.43	4 ⁺	825.2 1	3	1219.30	4 ⁺	M1(+E2)	-0.06 +14-23	0.00457 13	$\alpha=0.00457$ 13; $\alpha(\text{K})=0.00393$ 12;

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ @	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
									$\alpha(\text{L})=0.000506$ 13; $\alpha(\text{M})=0.000105$ 3; $\alpha(\text{N}+..)=2.75\times 10^{-5}$ 7 $\alpha(\text{N})=2.34\times 10^{-5}$ 6; $\alpha(\text{O})=3.81\times 10^{-6}$ 10; $\alpha(\text{P})=2.96\times 10^{-7}$ 9
2044.43	4 ⁺	1403.0 1	97	641.19	2 ⁺	E2 [#]		0.001054 15	$\alpha=0.001054$ 15; $\alpha(\text{K})=0.000867$ 13; $\alpha(\text{L})=0.0001117$ 16; $\alpha(\text{M})=2.32\times 10^{-5}$ 4; $\alpha(\text{N}+..)=5.25\times 10^{-5}$ $\alpha(\text{N})=5.15\times 10^{-6}$ 8; $\alpha(\text{O})=8.34\times 10^{-7}$ 12; $\alpha(\text{P})=6.30\times 10^{-8}$ 9; $\alpha(\text{IPF})=4.65\times 10^{-5}$ 7
2111.80	4 ⁺	892.5 1	100	1219.30	4 ⁺	M1+E2	-0.43 +4-9	0.00361 9	$\alpha=0.00361$ 9; $\alpha(\text{K})=0.00310$ 8; $\alpha(\text{L})=0.000402$ 9; $\alpha(\text{M})=8.36\times 10^{-5}$ 19; $\alpha(\text{N}+..)=2.18\times 10^{-5}$ 5 $\alpha(\text{N})=1.86\times 10^{-5}$ 4; $\alpha(\text{O})=3.02\times 10^{-6}$ 7; $\alpha(\text{P})=2.32\times 10^{-7}$ 6
2124.83	5 ⁻	381.8 1 471 & 1 905.6 1	9 10 80	1742.97 6 ⁺ 1652.85 3 ⁻ 1219.30 4 ⁺		E1 [#]		0.001021 15	$\alpha=0.001021$ 15; $\alpha(\text{K})=0.000882$ 13; $\alpha(\text{L})=0.0001103$ 16; $\alpha(\text{M})=2.29\times 10^{-5}$ 4; $\alpha(\text{N}+..)=5.95\times 10^{-6}$ $\alpha(\text{N})=5.06\times 10^{-6}$ 7; $\alpha(\text{O})=8.20\times 10^{-7}$ 12; $\alpha(\text{P})=6.26\times 10^{-8}$ 9
2181.88	3 ⁺	528.7 1 645.6 1	4 12	1652.85 3 ⁻ 1536.27 2 ⁺		M1+E2	-0.40 +8-11	0.00789 22	$\alpha=0.00789$ 22; $\alpha(\text{K})=0.00676$ 19; $\alpha(\text{L})=0.000889$ 21; $\alpha(\text{M})=0.000185$ 5; $\alpha(\text{N}+..)=4.83\times 10^{-5}$ 12 $\alpha(\text{N})=4.11\times 10^{-5}$ 10; $\alpha(\text{O})=6.67\times 10^{-6}$ 16; $\alpha(\text{P})=5.09\times 10^{-7}$ 16
		962.5 1	46	1219.30 4 ⁺		M1(+E2)	-0.5 +15-17	0.0030 7	$\alpha=0.0030$ 7; $\alpha(\text{K})=0.0026$ 6; $\alpha(\text{L})=0.00033$ 7; $\alpha(\text{M})=6.9\times 10^{-5}$ 13; $\alpha(\text{N}+..)=1.8\times 10^{-5}$ 4 $\alpha(\text{N})=1.5\times 10^{-5}$ 3; $\alpha(\text{O})=2.5\times 10^{-6}$ 5; $\alpha(\text{P})=1.9\times 10^{-7}$ 5
		1540.9 1	39	641.19 2 ⁺		M1+E2	+0.09 +4-3	0.001180 17	$\alpha=0.001180$ 17; $\alpha(\text{K})=0.000936$ 14; $\alpha(\text{L})=0.0001184$ 17; $\alpha(\text{M})=2.46\times 10^{-5}$ 4; $\alpha(\text{N}+..)=0.000100$ $\alpha(\text{N})=5.46\times 10^{-6}$ 8; $\alpha(\text{O})=8.90\times 10^{-7}$ 13; $\alpha(\text{P})=6.98\times 10^{-8}$ 10; $\alpha(\text{IPF})=9.42\times 10^{-5}$ 14
2187.46	1 ⁻	534 & 1	<0.3	1652.85 3 ⁻					

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11 (continued)** $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2187.46	1 ⁻	1546.3 2	41	641.19	2 ⁺	E1		0.000640 9	$\alpha=0.000640$ 9; $\alpha(\text{K})=0.000337$ 5; $\alpha(\text{L})=4.15\times 10^{-5}$ 6; $\alpha(\text{M})=8.58\times 10^{-6}$ 12; $\alpha(\text{N}+..)=0.000253$ 4 $\alpha(\text{N})=1.90\times 10^{-6}$ 3; $\alpha(\text{O})=3.09\times 10^{-7}$ 5; $\alpha(\text{P})=2.41\times 10^{-8}$ 4; $\alpha(\text{IPF})=0.000250$ 4
		2187.4 2	58	0	0 ⁺	E1 [#]		0.000941 14	$\alpha=0.000941$ 14; $\alpha(\text{K})=0.000193$ 3; $\alpha(\text{L})=2.35\times 10^{-5}$ 4; $\alpha(\text{M})=4.86\times 10^{-6}$ 7; $\alpha(\text{N}+..)=0.000719$ 10 $\alpha(\text{N})=1.079\times 10^{-6}$ 16; $\alpha(\text{O})=1.757\times 10^{-7}$ 25; $\alpha(\text{P})=1.377\times 10^{-8}$ 20; $\alpha(\text{IPF})=0.000718$ 10
2210.52	6 ⁺	467.55 2 991.21 6	83 17	1742.97 6 ⁺ 1219.30 4 ⁺	E2			0.00206 3	$\alpha=0.00206$ 3; $\alpha(\text{K})=0.001757$ 25; $\alpha(\text{L})=0.000236$ 4; $\alpha(\text{M})=4.93\times 10^{-5}$ 7; $\alpha(\text{N}+..)=1.279\times 10^{-5}$ 18 $\alpha(\text{N})=1.091\times 10^{-5}$ 16; $\alpha(\text{O})=1.754\times 10^{-6}$ 25; $\alpha(\text{P})=1.274\times 10^{-7}$ 18
2278.07	4 ⁺	1058.5 1	29	1219.30 4 ⁺	M1+E2	2.1 +18-3		0.00193 10	$\alpha=0.00193$ 10; $\alpha(\text{K})=0.00165$ 9; $\alpha(\text{L})=0.000218$ 10; $\alpha(\text{M})=4.54\times 10^{-5}$ 21; $\alpha(\text{N}+..)=1.18\times 10^{-5}$ 6 $\alpha(\text{N})=1.01\times 10^{-5}$ 5; $\alpha(\text{O})=1.62\times 10^{-6}$ 8; $\alpha(\text{P})=1.21\times 10^{-7}$ 7
		1636.8 2	71	641.19 2 ⁺	E2 [#]			0.000878 13	$\alpha=0.000878$ 13; $\alpha(\text{K})=0.000645$ 9; $\alpha(\text{L})=8.21\times 10^{-5}$ 12; $\alpha(\text{M})=1.706\times 10^{-5}$ 24; $\alpha(\text{N}+..)=0.0001335$ $\alpha(\text{N})=3.78\times 10^{-6}$ 6; $\alpha(\text{O})=6.14\times 10^{-7}$ 9; $\alpha(\text{P})=4.69\times 10^{-8}$ 7; $\alpha(\text{IPF})=0.0001290$ 18
2329.82	3 ⁺	793.4 1	30	1536.27 2 ⁺	M1+E2	0.37 +23-18		0.00483 25	$\alpha=0.00483$ 25; $\alpha(\text{K})=0.00415$ 22; $\alpha(\text{L})=0.000538$ 24; $\alpha(\text{M})=0.000112$ 5; $\alpha(\text{N}+..)=2.92\times 10^{-5}$ 13 $\alpha(\text{N})=2.49\times 10^{-5}$ 11; $\alpha(\text{O})=4.04\times 10^{-6}$ 19; $\alpha(\text{P})=3.11\times 10^{-7}$ 18
		1689.2 2	70	641.19 2 ⁺	M1+E2	-0.16 13		0.001040 18	$\alpha=0.001040$ 18; $\alpha(\text{K})=0.000762$ 14; $\alpha(\text{L})=9.61\times 10^{-5}$ 17; $\alpha(\text{M})=2.00\times 10^{-5}$ 4; $\alpha(\text{N}+..)=0.0001619$ $\alpha(\text{N})=4.43\times 10^{-6}$ 8; $\alpha(\text{O})=7.22\times 10^{-7}$ 13; $\alpha(\text{P})=5.67\times 10^{-8}$ 11; $\alpha(\text{IPF})=0.0001567$ 23

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11 (continued)** $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2364.81	2 ⁺	1723.6 2	76	641.19	2 ⁺	M1(+E2)	-0.03 +9-10	0.001022 15	$\alpha=0.001022$ 15; $\alpha(\text{K})=0.000733$ 11; $\alpha(\text{L})=9.23\times 10^{-5}$ 14; $\alpha(\text{M})=1.92\times 10^{-5}$ 3; $\alpha(\text{N}+..)=0.0001777$ $\alpha(\text{N})=4.26\times 10^{-6}$ 7; $\alpha(\text{O})=6.94\times 10^{-7}$ 10; $\alpha(\text{P})=5.46\times 10^{-8}$ 8; $\alpha(\text{IPF})=0.0001727$ 25
		2364.8 2	24	0	0 ⁺	E2		0.000848 12	$\alpha=0.000848$ 12; $\alpha(\text{K})=0.000329$ 5; $\alpha(\text{L})=4.10\times 10^{-5}$ 6; $\alpha(\text{M})=8.49\times 10^{-6}$ 12; $\alpha(\text{N}+..)=0.000470$ 7 $\alpha(\text{N})=1.88\times 10^{-6}$ 3; $\alpha(\text{O})=3.07\times 10^{-7}$ 5; $\alpha(\text{P})=2.39\times 10^{-8}$ 4; $\alpha(\text{IPF})=0.000468$ 7
2374.88	+	631.8 1	48	1742.97	6 ⁺	M1+E2	<-1.5	0.0077 10	$\alpha=0.0077$ 10; $\alpha(\text{K})=0.0066$ 9; $\alpha(\text{L})=0.00089$ 9; $\alpha(\text{M})=0.000185$ 18; $\alpha(\text{N}+..)=4.8\times 10^{-5}$ 5 $\alpha(\text{N})=4.1\times 10^{-5}$ 4; $\alpha(\text{O})=6.6\times 10^{-6}$ 7; $\alpha(\text{P})=4.9\times 10^{-7}$ 8
		1155.7 1	52	1219.30	4 ⁺	M1(+E2)	-0.09 +6-11	0.00208 4	$\alpha=0.00208$ 4; $\alpha(\text{K})=0.00179$ 3; $\alpha(\text{L})=0.000228$ 4; $\alpha(\text{M})=4.74\times 10^{-5}$ 8; $\alpha(\text{N}+..)=1.460\times 10^{-5}$ 23 $\alpha(\text{N})=1.053\times 10^{-5}$ 17; $\alpha(\text{O})=1.72\times 10^{-6}$ 3; $\alpha(\text{P})=1.341\times 10^{-7}$ 23; $\alpha(\text{IPF})=2.22\times 10^{-6}$ 4
2384.38	4 ⁻	202.3 1 731.5 1	5 79	2181.88 3 ⁺ 1652.85 3 ⁻		M1+E2	-0.8 +3-4	0.0053 5	$\alpha=0.0053$ 5; $\alpha(\text{K})=0.0046$ 4; $\alpha(\text{L})=0.00061$ 4; $\alpha(\text{M})=0.000126$ 8; $\alpha(\text{N}+..)=3.29\times 10^{-5}$ 21 $\alpha(\text{N})=2.80\times 10^{-5}$ 18; $\alpha(\text{O})=4.5\times 10^{-6}$ 3; $\alpha(\text{P})=3.4\times 10^{-7}$ 3
2398.36	1 ⁺	1165.3 1 862.1 1	16 8	1219.30 4 ⁺ 1536.27 2 ⁺		M1(+E2)	0.03 5	0.00412 6	$\alpha=0.00412$ 6; $\alpha(\text{K})=0.00355$ 5; $\alpha(\text{L})=0.000456$ 7; $\alpha(\text{M})=9.50\times 10^{-5}$ 14; $\alpha(\text{N}+..)=2.48\times 10^{-5}$ 4 $\alpha(\text{N})=2.11\times 10^{-5}$ 3; $\alpha(\text{O})=3.43\times 10^{-6}$ 5; $\alpha(\text{P})=2.67\times 10^{-7}$ 4
		1757.1 1	14	641.19 2 ⁺		M1+E2	-1.6 +3-4	0.000882 20	$\alpha=0.000882$ 20; $\alpha(\text{K})=0.000603$ 16; $\alpha(\text{L})=7.63\times 10^{-5}$ 19; $\alpha(\text{M})=1.58\times 10^{-5}$ 4; $\alpha(\text{N}+..)=0.000187$ 3 $\alpha(\text{N})=3.51\times 10^{-6}$ 9; $\alpha(\text{O})=5.71\times 10^{-7}$ 15; $\alpha(\text{P})=4.42\times 10^{-8}$ 12; $\alpha(\text{IPF})=0.000183$ 3
		2398.5 2	78	0	0 ⁺	M1 [#]		0.000934 13	$\alpha=0.000934$ 13; $\alpha(\text{K})=0.000361$ 5;

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11 (continued)** $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
									$\alpha(\text{L})=4.51\times 10^{-5}$ 7; $\alpha(\text{M})=9.36\times 10^{-6}$ 14; $\alpha(\text{N}+..)=0.000519$ 8 $\alpha(\text{N})=2.08\times 10^{-6}$ 3; $\alpha(\text{O})=3.39\times 10^{-7}$ 5; $\alpha(\text{P})=2.67\times 10^{-8}$ 4; $\alpha(\text{IPF})=0.000516$ 8
2539.64	4 ⁺	358.7 ^{&} 1	67	2181.88	3 ⁺	(M1+E2)	-0.5859	0.0341	$\alpha(\text{K})=0.0289$ 4; $\alpha(\text{L})=0.00409$ 6; $\alpha(\text{M})=0.000860$ 12; $\alpha(\text{N}+..)=0.000223$ 4 $\alpha(\text{N})=0.000190$ 3; $\alpha(\text{O})=3.05\times 10^{-5}$ 5; $\alpha(\text{P})=2.16\times 10^{-6}$ 3
		1320.3 1	18	1219.30	4 ⁺	E2 [‡]		0.001162 17	$\alpha=0.001162$ 17; $\alpha(\text{K})=0.000976$ 14; $\alpha(\text{L})=0.0001266$ 18; $\alpha(\text{M})=2.64\times 10^{-5}$ 4; $\alpha(\text{N}+..)=3.22\times 10^{-5}$ $\alpha(\text{N})=5.84\times 10^{-6}$ 9; $\alpha(\text{O})=9.44\times 10^{-7}$ 14; $\alpha(\text{P})=7.10\times 10^{-8}$ 10; $\alpha(\text{IPF})=2.54\times 10^{-5}$ 4
		1898.6 2	14	641.19	2 ⁺	E2 [#]		0.000812 12	$\alpha=0.000812$ 12; $\alpha(\text{K})=0.000489$ 7; $\alpha(\text{L})=6.16\times 10^{-5}$ 9; $\alpha(\text{M})=1.279\times 10^{-5}$ 18; $\alpha(\text{N}+..)=0.000248$ 4 $\alpha(\text{N})=2.84\times 10^{-6}$ 4; $\alpha(\text{O})=4.61\times 10^{-7}$ 7; $\alpha(\text{P})=3.56\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.000245$ 4
2542.82	1	2542.8 2	100	0	0 ⁺				
2543.21	2 ⁺	1323.9 1	23	1219.30	4 ⁺				
		1902.1 2	31	641.19	2 ⁺	M1+E2	-0.19 +14-10	0.000939 15	$\alpha=0.000939$ 15; $\alpha(\text{K})=0.000588$ 10; $\alpha(\text{L})=7.39\times 10^{-5}$ 12; $\alpha(\text{M})=1.534\times 10^{-5}$ 25; $\alpha(\text{N}+..)=0.000263$ $\alpha(\text{N})=3.41\times 10^{-6}$ 6; $\alpha(\text{O})=5.55\times 10^{-7}$ 9; $\alpha(\text{P})=4.37\times 10^{-8}$ 8; $\alpha(\text{IPF})=0.000259$ 4
		2543.1 2	46	0	0 ⁺				
2570.00	5 ⁺	827.4 ^{&} 1	13	1742.97	6 ⁺	(M1+E2)	-0.5 +21-3	0.0042 8	$\alpha=0.0042$ 8; $\alpha(\text{K})=0.0036$ 7; $\alpha(\text{L})=0.00048$ 8; $\alpha(\text{M})=9.9\times 10^{-5}$ 16; $\alpha(\text{N}+..)=2.6\times 10^{-5}$ 4 $\alpha(\text{N})=2.2\times 10^{-5}$ 4; $\alpha(\text{O})=3.6\times 10^{-6}$ 6; $\alpha(\text{P})=2.7\times 10^{-7}$ 6
		1350.7 1	87	1219.30	4 ⁺	M1+E2	-0.6 +16-10	0.00139 18	$\alpha=0.00139$ 18; $\alpha(\text{K})=0.00117$ 15; $\alpha(\text{L})=0.000149$ 18; $\alpha(\text{M})=3.1\times 10^{-5}$ 4; $\alpha(\text{N}+..)=4.06\times 10^{-5}$ 12 $\alpha(\text{N})=6.9\times 10^{-6}$ 9; $\alpha(\text{O})=1.12\times 10^{-6}$ 14;

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2576.16	3 ⁺	297.8 1	15	2278.07	4 ⁺	M1+E2	1.1 +6-4	0.0539 21	$\alpha(\text{P})=8.7\times 10^{-8}$ 12; $\alpha(\text{IPF})=3.25\times 10^{-5}$ 5 $\alpha(\text{K})=0.0446$ 24; $\alpha(\text{L})=0.0073$ 3; $\alpha(\text{M})=0.00155$ 7; $\alpha(\text{N}+..)=0.000396$ 14 $\alpha(\text{N})=0.000340$ 13; $\alpha(\text{O})=5.31\times 10^{-5}$ 13; $\alpha(\text{P})=3.2\times 10^{-6}$ 3
		394.0 & 1	19	2181.88	3 ⁺	(M1+E2)	0.5 +5-4	0.0270 22	$\alpha(\text{K})=0.0230$ 21; $\alpha(\text{L})=0.00317$ 9; $\alpha(\text{M})=0.000664$ 15; $\alpha(\text{N}+..)=0.000172$ 5 $\alpha(\text{N})=0.000147$ 4; $\alpha(\text{O})=2.36\times 10^{-5}$ 9; $\alpha(\text{P})=1.72\times 10^{-6}$ 20
		531.9 1	31	2044.43	4 ⁺	M1(+E2)	0.00 +6-9	0.01331	$\alpha(\text{K})=0.01143$ 16; $\alpha(\text{L})=0.001494$ 21; $\alpha(\text{M})=0.000311$ 5; $\alpha(\text{N}+..)=8.12\times 10^{-5}$ 12 $\alpha(\text{N})=6.91\times 10^{-5}$ 10; $\alpha(\text{O})=1.124\times 10^{-5}$ 16; $\alpha(\text{P})=8.67\times 10^{-7}$ 13
		923.4 1 1039.9 1	12 24	1652.85 3 ⁻ 1536.27 2 ⁺		M1+E2	-0.8 +4-7	0.00234 25	$\alpha=0.00234$ 25; $\alpha(\text{K})=0.00201$ 22; $\alpha(\text{L})=0.000261$ 25; $\alpha(\text{M})=5.4\times 10^{-5}$ 5; $\alpha(\text{N}+..)=1.42\times 10^{-5}$ 14 $\alpha(\text{N})=1.21\times 10^{-5}$ 12; $\alpha(\text{O})=1.96\times 10^{-6}$ 19; $\alpha(\text{P})=1.50\times 10^{-7}$ 18
2598.22	2 ⁺	1062.0 1	54	1536.27	2 ⁺	M1+E2	-0.26 +11-7	0.00248 5	$\alpha=0.00248$ 5; $\alpha(\text{K})=0.00214$ 4; $\alpha(\text{L})=0.000274$ 5; $\alpha(\text{M})=5.69\times 10^{-5}$ 11; $\alpha(\text{N}+..)=1.49\times 10^{-5}$ 3 $\alpha(\text{N})=1.264\times 10^{-5}$ 23; $\alpha(\text{O})=2.06\times 10^{-6}$ 4; $\alpha(\text{P})=1.60\times 10^{-7}$ 4
		2598.0 2	46	0	0 ⁺	E2 [#]		0.000899 13	$\alpha=0.000899$ 13; $\alpha(\text{K})=0.000278$ 4; $\alpha(\text{L})=3.45\times 10^{-5}$ 5; $\alpha(\text{M})=7.16\times 10^{-6}$ 10; $\alpha(\text{N}+..)=0.000579$ 9 $\alpha(\text{N})=1.588\times 10^{-6}$ 23; $\alpha(\text{O})=2.59\times 10^{-7}$ 4; $\alpha(\text{P})=2.02\times 10^{-8}$ 3; $\alpha(\text{IPF})=0.000577$ 8
2602.48	(3,2) ⁺	557.7 1	13	2044.43	4 ⁺				
		1066.1 & 2	<4	1536.27	2 ⁺	(M1+E2)	1.2 +23-7	0.0021 3	$\alpha=0.0021$ 3; $\alpha(\text{K})=0.0018$ 3; $\alpha(\text{L})=0.00023$ 3; $\alpha(\text{M})=4.8\times 10^{-5}$ 7; $\alpha(\text{N}+..)=1.25\times 10^{-5}$ 17 $\alpha(\text{N})=1.07\times 10^{-5}$ 14; $\alpha(\text{O})=1.73\times 10^{-6}$ 23; $\alpha(\text{P})=1.31\times 10^{-7}$ 21
		1383.3 1	15	1219.30	4 ⁺	M1+E2	1.1 +6-4	0.00123 8	$\alpha=0.00123$ 8; $\alpha(\text{K})=0.00103$ 7;

Continued on next page (footnotes at end of table)

$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ @	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2602.48	(3,2) ⁺	1961.5 1	68	641.19 2 ⁺	M1(+E2)	0.03 3		0.000930 13	$\alpha(\text{L})=0.000131$ 9; $\alpha(\text{M})=2.73\times 10^{-5}$ 17; $\alpha(\text{N}+..)=4.82\times 10^{-5}$ 9 $\alpha(\text{N})=6.1\times 10^{-6}$ 4; $\alpha(\text{O})=9.8\times 10^{-7}$ 7; $\alpha(\text{P})=7.6\times 10^{-8}$ 6; $\alpha(\text{IPF})=4.11\times 10^{-5}$ 6 $\alpha=0.000930$ 13; $\alpha(\text{K})=0.000553$ 8; $\alpha(\text{L})=6.95\times 10^{-5}$ 10; $\alpha(\text{M})=1.442\times 10^{-5}$ 21; $\alpha(\text{N}+..)=0.000293$ $\alpha(\text{N})=3.20\times 10^{-6}$ 5; $\alpha(\text{O})=5.22\times 10^{-7}$ 8; $\alpha(\text{P})=4.11\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000289$ 4
2606.40	4 ⁺	1387.1 1	86	1219.30 4 ⁺	M1+E2	1.1 +4-4		0.00123 8	$\alpha=0.00123$ 8; $\alpha(\text{K})=0.00102$ 7; $\alpha(\text{L})=0.000131$ 8; $\alpha(\text{M})=2.72\times 10^{-5}$ 17; $\alpha(\text{N}+..)=4.92\times 10^{-5}$ 9 $\alpha(\text{N})=6.0\times 10^{-6}$ 4; $\alpha(\text{O})=9.8\times 10^{-7}$ 7; $\alpha(\text{P})=7.5\times 10^{-8}$ 6; $\alpha(\text{IPF})=4.22\times 10^{-5}$ 6
2667.17	1	1965.2 1 1130.9 1	14 21	641.19 2 ⁺ 1536.27 2 ⁺	M1			0.00219 3	$\alpha=0.00219$ 3; $\alpha(\text{K})=0.00188$ 3; $\alpha(\text{L})=0.000240$ 4; $\alpha(\text{M})=5.00\times 10^{-5}$ 7; $\alpha(\text{N}+..)=1.412\times 10^{-5}$ 20 $\alpha(\text{N})=1.110\times 10^{-5}$ 16; $\alpha(\text{O})=1.81\times 10^{-6}$ 3; $\alpha(\text{P})=1.413\times 10^{-7}$ 20; $\alpha(\text{IPF})=1.071\times 10^{-6}$ 16
		2026.1 2	30	641.19 2 ⁺	M1			0.000920 13	$\alpha=0.000920$ 13; $\alpha(\text{K})=0.000516$ 8; $\alpha(\text{L})=6.48\times 10^{-5}$ 9; $\alpha(\text{M})=1.344\times 10^{-5}$ 19; $\alpha(\text{N}+..)=0.000326$ 5 $\alpha(\text{N})=2.99\times 10^{-6}$ 5; $\alpha(\text{O})=4.87\times 10^{-7}$ 7; $\alpha(\text{P})=3.83\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000322$ 5
2680.40	(2,3,4) ⁺	2667.0 2 2039.2 2	49 100	0 0 ⁺ 641.19 2 ⁺	D [#] M1(+E2)		0.06 +14-9	0.000918 14	$\alpha=0.000918$ 14; $\alpha(\text{K})=0.000509$ 8; $\alpha(\text{L})=6.38\times 10^{-5}$ 10; $\alpha(\text{M})=1.325\times 10^{-5}$ 20; $\alpha(\text{N}+..)=0.000332$ $\alpha(\text{N})=2.94\times 10^{-6}$ 5; $\alpha(\text{O})=4.80\times 10^{-7}$ 8; $\alpha(\text{P})=3.78\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000329$ 5
2697.01	2,(3) ⁺	1044.1 1 1160.8 1	41 27	1652.85 3 ⁻ 1536.27 2 ⁺	M1+E2		-0.19 17	0.00204 6	$\alpha=0.00204$ 6; $\alpha(\text{K})=0.00176$ 5; $\alpha(\text{L})=0.000224$ 6; $\alpha(\text{M})=4.66\times 10^{-5}$ 12;

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2697.01	2,(3) ⁺	2055.8 2	32	641.19	2 ⁺	M1+E2	-1.2 +7-19	0.00085 5	$\alpha(\text{N}+..)=1.47\times 10^{-5}$ 4 $\alpha(\text{N})=1.04\times 10^{-5}$ 3; $\alpha(\text{O})=1.69\times 10^{-6}$ 5; $\alpha(\text{P})=1.32\times 10^{-7}$ 4; $\alpha(\text{IPF})=2.54\times 10^{-6}$ 4 $\alpha=0.00085$ 5; $\alpha(\text{K})=0.00045$ 3; $\alpha(\text{L})=5.7\times 10^{-5}$ 4; $\alpha(\text{M})=1.18\times 10^{-5}$ 8; $\alpha(\text{N}+..)=0.000330$ 9 $\alpha(\text{N})=2.63\times 10^{-6}$ 18; $\alpha(\text{O})=4.3\times 10^{-7}$ 3; $\alpha(\text{P})=3.3\times 10^{-8}$ 3; $\alpha(\text{IPF})=0.000327$ 9
2698.50	4 ⁺	1479.2 1	100	1219.30	4 ⁺	M1+E2	1.3 +18-3	0.00108 8	$\alpha=0.00108$ 8; $\alpha(\text{K})=0.00087$ 7; $\alpha(\text{L})=0.000111$ 9; $\alpha(\text{M})=2.32\times 10^{-5}$ 18; $\alpha(\text{N}+..)=7.68\times 10^{-5}$ 14 $\alpha(\text{N})=5.1\times 10^{-6}$ 4; $\alpha(\text{O})=8.3\times 10^{-7}$ 7; $\alpha(\text{P})=6.4\times 10^{-8}$ 6; $\alpha(\text{IPF})=7.08\times 10^{-5}$ 11
2715.07	3 ⁺	1178.8 1	20	1536.27	2 ⁺	M1+E2	-0.8 +4-4	0.00177 15	$\alpha=0.00177$ 15; $\alpha(\text{K})=0.00152$ 13; $\alpha(\text{L})=0.000196$ 15; $\alpha(\text{M})=4.1\times 10^{-5}$ 3; $\alpha(\text{N}+..)=1.46\times 10^{-5}$ 8 $\alpha(\text{N})=9.0\times 10^{-6}$ 7; $\alpha(\text{O})=1.47\times 10^{-6}$ 12; $\alpha(\text{P})=1.13\times 10^{-7}$ 10; $\alpha(\text{IPF})=3.94\times 10^{-6}$ 6
		1495.8 1	50	1219.30	4 ⁺	M1+E2	0.37 7	0.001206 21	$\alpha=0.001206$ 21; $\alpha(\text{K})=0.000973$ 17; $\alpha(\text{L})=0.0001233$ 21; $\alpha(\text{M})=2.56\times 10^{-5}$ 5; $\alpha(\text{N}+..)=8.40\times 10^{-5}$ $\alpha(\text{N})=5.69\times 10^{-6}$ 10; $\alpha(\text{O})=9.27\times 10^{-7}$ 16; $\alpha(\text{P})=7.25\times 10^{-8}$ 13; $\alpha(\text{IPF})=7.73\times 10^{-5}$ 11
		2073.7 2	30	641.19	2 ⁺	M1(+E2)	-0.03 6	0.000916 13	$\alpha=0.000916$ 13; $\alpha(\text{K})=0.000491$ 7; $\alpha(\text{L})=6.16\times 10^{-5}$ 9; $\alpha(\text{M})=1.278\times 10^{-5}$ 18; $\alpha(\text{N}+..)=0.000350$ 5 $\alpha(\text{N})=2.84\times 10^{-6}$ 4; $\alpha(\text{O})=4.63\times 10^{-7}$ 7; $\alpha(\text{P})=3.65\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000347$ 5
2725.68	5 ⁺	982.7 1	32	1742.97	6 ⁺	M1(+E2)	-0.13 +19-14	0.00302 7	$\alpha=0.00302$ 7; $\alpha(\text{K})=0.00260$ 6; $\alpha(\text{L})=0.000333$ 7; $\alpha(\text{M})=6.92\times 10^{-5}$ 14; $\alpha(\text{N}+..)=1.81\times 10^{-5}$ 4 $\alpha(\text{N})=1.54\times 10^{-5}$ 3; $\alpha(\text{O})=2.50\times 10^{-6}$ 6; $\alpha(\text{P})=1.95\times 10^{-7}$ 5
		1506.4 2	68	1219.30	4 ⁺	M1+E2	0.09 +4-3	0.001223 18	$\alpha=0.001223$ 18; $\alpha(\text{K})=0.000984$

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11 (continued)** $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2727.81	2 ⁽⁻⁾	1074.9 1	11	1652.85	3 ⁻	M1+E2	-2.0 +7-9	0.00188 13	14; $\alpha(\text{L})=0.0001245$ 18; $\alpha(\text{M})=2.59\times 10^{-5}$ 4; $\alpha(\text{N}+..)=8.81\times 10^{-5}$ $\alpha(\text{N})=5.74\times 10^{-6}$ 9; $\alpha(\text{O})=9.36\times 10^{-7}$ 14; $\alpha(\text{P})=7.34\times 10^{-8}$ 11; $\alpha(\text{IPF})=8.13\times 10^{-5}$ 12 $\alpha=0.00188$ 13; $\alpha(\text{K})=0.00161$ 12; $\alpha(\text{L})=0.000212$ 13; $\alpha(\text{M})=4.4\times 10^{-5}$ 3; $\alpha(\text{N}+..)=1.15\times 10^{-5}$ 8 $\alpha(\text{N})=9.8\times 10^{-6}$ 6; $\alpha(\text{O})=1.58\times 10^{-6}$ 10; $\alpha(\text{P})=1.18\times 10^{-7}$ 9
2734.70	(3,2) ⁺	1191.6 1 2086.6 1 622.7& 1	47 42 24	1536.27 2 ⁺ 641.19 2 ⁺ 2111.80 4 ⁺		(M1+E2)	0.19 25	0.0089 4	$\alpha=0.0089$ 4; $\alpha(\text{K})=0.0077$ 4; $\alpha(\text{L})=0.00100$ 4; $\alpha(\text{M})=0.000208$ 8; $\alpha(\text{N}+..)=5.43\times 10^{-5}$ 20 $\alpha(\text{N})=4.62\times 10^{-5}$ 17; $\alpha(\text{O})=7.5\times 10^{-6}$ 3; $\alpha(\text{P})=5.8\times 10^{-7}$ 3 $\alpha=0.00242$ 6; $\alpha(\text{K})=0.00208$ 6; $\alpha(\text{L})=0.000266$ 7; $\alpha(\text{M})=5.53\times 10^{-5}$ 13; $\alpha(\text{N}+..)=1.44\times 10^{-5}$ 4 $\alpha(\text{N})=1.23\times 10^{-5}$ 3; $\alpha(\text{O})=2.00\times 10^{-6}$ 5; $\alpha(\text{P})=1.56\times 10^{-7}$ 5 $\alpha=0.00119$ 4; $\alpha(\text{K})=0.00096$ 3; $\alpha(\text{L})=0.000121$ 4; $\alpha(\text{M})=2.51\times 10^{-5}$ 7; $\alpha(\text{N}+..)=9.10\times 10^{-5}$ 14 $\alpha(\text{N})=5.58\times 10^{-6}$ 16; $\alpha(\text{O})=9.1\times 10^{-7}$ 3; $\alpha(\text{P})=7.12\times 10^{-8}$ 22; $\alpha(\text{IPF})=8.45\times 10^{-5}$ 12
		1081.9 1	14	1652.85	3 ⁻	M1(+E2)	-0.09 +12-20	0.00242 6	$\alpha=0.000815$ 14; $\alpha(\text{K})=0.000412$ 8; $\alpha(\text{L})=5.16\times 10^{-5}$ 10; $\alpha(\text{M})=1.070\times 10^{-5}$ 20; $\alpha(\text{N}+..)=0.000341$ $\alpha(\text{N})=2.37\times 10^{-6}$ 5; $\alpha(\text{O})=3.86\times 10^{-7}$ 7; $\alpha(\text{P})=3.00\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000338$ 5
		1515.4 2	39	1219.30	4 ⁺	M1+E2	-0.29 +23-18	0.00119 4	$\alpha=0.000905$ 16; $\alpha(\text{K})=0.000471$ 9; $\alpha(\text{L})=5.91\times 10^{-5}$ 11; $\alpha(\text{M})=1.225\times 10^{-5}$ 23; $\alpha(\text{N}+..)=0.000362$
		2093.3 2	24	641.19	2 ⁺	M1+E2	5.2 +5-22	0.000815 14	
2741.90	(2,3)	1089.0 1 2100.9 2	22 78	1652.85 3 ⁻ 641.19 2 ⁺		M1+E2	-0.32 14	0.000905 16	

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2767.80	(1,2,3)	1115.0 1	17	1652.85 3 ⁻					$\alpha(\text{N})=2.72\times 10^{-6}$ 6; $\alpha(\text{O})=4.44\times 10^{-7}$ 9; $\alpha(\text{P})=3.49\times 10^{-8}$ 7; $\alpha(\text{IPF})=0.000359$ 6
		1231.5 1	22	1536.27 2 ⁺	M1+E2		0.47 +3-19	0.00172 6	$\alpha=0.00172$ 6; $\alpha(\text{K})=0.00147$ 5; $\alpha(\text{L})=0.000188$ 6; $\alpha(\text{M})=3.91\times 10^{-5}$ 13; $\alpha(\text{N}+..)=2.03\times 10^{-5}$ 4 $\alpha(\text{N})=8.7\times 10^{-6}$ 3; $\alpha(\text{O})=1.41\times 10^{-6}$ 5; $\alpha(\text{P})=1.10\times 10^{-7}$ 4; $\alpha(\text{IPF})=1.008\times 10^{-5}$ 15
		2126.5 2	61	641.19 2 ⁺	M1+E2		-0.19 8	0.000910 14	$\alpha=0.000910$ 14; $\alpha(\text{K})=0.000463$ 7; $\alpha(\text{L})=5.80\times 10^{-5}$ 9; $\alpha(\text{M})=1.204\times 10^{-5}$ 18; $\alpha(\text{N}+..)=0.000377$ 6 $\alpha(\text{N})=2.67\times 10^{-6}$ 4; $\alpha(\text{O})=4.36\times 10^{-7}$ 7; $\alpha(\text{P})=3.43\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000374$ 6
2773.85	(3)	661.5& 1	16	2111.80 4 ⁺	(M1+E2)		0.19 25	0.0077 4	$\alpha=0.0077$ 4; $\alpha(\text{K})=0.0066$ 3; $\alpha(\text{L})=0.00086$ 4; $\alpha(\text{M})=0.000179$ 7; $\alpha(\text{N}+..)=4.68\times 10^{-5}$ 18 $\alpha(\text{N})=3.98\times 10^{-5}$ 15; $\alpha(\text{O})=6.47\times 10^{-6}$ 25; $\alpha(\text{P})=5.0\times 10^{-7}$ 3
		1237.6 1	15	1536.27 2 ⁺	M1+E2		0.40 +23-18	0.00172 8	$\alpha=0.00172$ 8; $\alpha(\text{K})=0.00148$ 7; $\alpha(\text{L})=0.000188$ 8; $\alpha(\text{M})=3.91\times 10^{-5}$ 16; $\alpha(\text{N}+..)=2.12\times 10^{-5}$ 5 $\alpha(\text{N})=8.7\times 10^{-6}$ 4; $\alpha(\text{O})=1.41\times 10^{-6}$ 6; $\alpha(\text{P})=1.10\times 10^{-7}$ 6; $\alpha(\text{IPF})=1.094\times 10^{-5}$ 16
		1553.8 2	17	1219.30 4 ⁺	M1+E2		-0.9 +5-10	0.00106 9	$\alpha=0.00106$ 9; $\alpha(\text{K})=0.00083$ 7; $\alpha(\text{L})=0.000105$ 9; $\alpha(\text{M})=2.18\times 10^{-5}$ 18; $\alpha(\text{N}+..)=0.0001038$ 20 $\alpha(\text{N})=4.8\times 10^{-6}$ 4; $\alpha(\text{O})=7.9\times 10^{-7}$ 7; $\alpha(\text{P})=6.1\times 10^{-8}$ 6; $\alpha(\text{IPF})=9.81\times 10^{-5}$ 17
		2133.3 2	52	641.19 2 ⁺	M1+E2		0.19 +3-7	0.000910 13	$\alpha=0.000910$ 13; $\alpha(\text{K})=0.000460$ 7; $\alpha(\text{L})=5.77\times 10^{-5}$ 9; $\alpha(\text{M})=1.196\times 10^{-5}$ 18; $\alpha(\text{N}+..)=0.000380$ 6 $\alpha(\text{N})=2.66\times 10^{-6}$ 4; $\alpha(\text{O})=4.33\times 10^{-7}$ 7; $\alpha(\text{P})=3.41\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.000377$ 6

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^{\textcircled{a}}$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2784.71	(3,4,5)	1565.4 2	100	1219.30	4 ⁺				
2800.72	1 ⁽⁺⁾	1264.4 1	33	1536.27	2 ⁺	M1		0.001710 24	$\alpha=0.001710$ 24; $\alpha(\text{K})=0.001461$ 21; $\alpha(\text{L})=0.000186$ 3; $\alpha(\text{M})=3.86\times 10^{-5}$ 6; $\alpha(\text{N}+..)=2.51\times 10^{-5}$ 4 $\alpha(\text{N})=8.57\times 10^{-6}$ 12; $\alpha(\text{O})=1.397\times 10^{-6}$ 20; $\alpha(\text{P})=1.093\times 10^{-7}$ 16; $\alpha(\text{IPF})=1.504\times 10^{-5}$ 22
		2160.0 2	11	641.19	2 ⁺	M1		0.000913 13	$\alpha=0.000913$ 13; $\alpha(\text{K})=0.000450$ 7; $\alpha(\text{L})=5.64\times 10^{-5}$ 8; $\alpha(\text{M})=1.170\times 10^{-5}$ 17; $\alpha(\text{N}+..)=0.000395$ 6 $\alpha(\text{N})=2.60\times 10^{-6}$ 4; $\alpha(\text{O})=4.24\times 10^{-7}$ 6; $\alpha(\text{P})=3.34\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.000392$ 6 I _γ : In the Table 1 in 1995Va25 authors give branching ratio 2160-γ as 56 and 2800-γ as 11, but it seems to be a misprint as data from (γ,γ') and La β- decay show that 2800-γ is more intensive.
2806.35	3 ⁺	2800.4 2	56	0	0 ⁺	D [#]			
		1270.2 1	41	1536.27	2 ⁺	M1+E2	-0.16 +8-11	0.00168 3	$\alpha=0.00168$ 3; $\alpha(\text{K})=0.00144$ 3; $\alpha(\text{L})=0.000183$ 4; $\alpha(\text{M})=3.80\times 10^{-5}$ 7; $\alpha(\text{N}+..)=2.59\times 10^{-5}$ 4 $\alpha(\text{N})=8.43\times 10^{-6}$ 15; $\alpha(\text{O})=1.374\times 10^{-6}$ 25; $\alpha(\text{P})=1.074\times 10^{-7}$ 21; $\alpha(\text{IPF})=1.599\times 10^{-5}$ 23
		1586.9 2	17	1219.30	4 ⁺	M1(+E2)	0.3 +5-3	0.00111 8	$\alpha=0.00111$ 8; $\alpha(\text{K})=0.00086$ 7; $\alpha(\text{L})=0.000109$ 8; $\alpha(\text{M})=2.27\times 10^{-5}$ 16; $\alpha(\text{N}+..)=0.0001181$ 22 $\alpha(\text{N})=5.0\times 10^{-6}$ 4; $\alpha(\text{O})=8.2\times 10^{-7}$ 6; $\alpha(\text{P})=6.4\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.0001122$ 19
		2164.8 2	42	641.19	2 ⁺	M1+E2	0.43 +8-4	0.000899 14	$\alpha=0.000899$ 14; $\alpha(\text{K})=0.000438$ 7; $\alpha(\text{L})=5.49\times 10^{-5}$ 9; $\alpha(\text{M})=1.139\times 10^{-5}$ 18; $\alpha(\text{N}+..)=0.000394$ 6 $\alpha(\text{N})=2.53\times 10^{-6}$ 4; $\alpha(\text{O})=4.12\times 10^{-7}$ 7; $\alpha(\text{P})=3.24\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000391$ 6
2842.48	(2,3)	838.0 2	<1	2004.84	2 ⁺				
		1623.0 2	12	1219.30	4 ⁺				
		2201.1 2	87	641.19	2 ⁺	M1+E2	-0.26 +4-15	0.000909 15	$\alpha=0.000909$ 15; $\alpha(\text{K})=0.000429$ 8; $\alpha(\text{L})=5.37\times 10^{-5}$ 10;

Continued on next page (footnotes at end of table)

$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
									$\alpha(\text{M})=1.114\times 10^{-5}$ 20; $\alpha(\text{N}+..)=0.000415$ $\alpha(\text{N})=2.47\times 10^{-6}$ 5; $\alpha(\text{O})=4.04\times 10^{-7}$ 8; $\alpha(\text{P})=3.18\times 10^{-8}$ 6; $\alpha(\text{IPF})=0.000412$ 6
2853.28	2 ⁺	1634.2 2 2212.3 2	<0.3 64	1219.30 4 ⁺ 641.19 2 ⁺		M1+E2	-0.5 +15-3	0.00090 3	$\alpha=0.00090$ 3; $\alpha(\text{K})=0.000416$ 19; $\alpha(\text{L})=5.21\times 10^{-5}$ 23; $\alpha(\text{M})=1.08\times 10^{-5}$ 5; $\alpha(\text{N}+..)=0.000417$ 10 $\alpha(\text{N})=2.40\times 10^{-6}$ 11; $\alpha(\text{O})=3.91\times 10^{-7}$ 18; $\alpha(\text{P})=3.08\times 10^{-8}$ 15; $\alpha(\text{IPF})=0.000414$ 10
		2852.8 2	36	0 0 ⁺		E2 [#]		0.000966 14	$\alpha=0.000966$ 14; $\alpha(\text{K})=0.000236$ 4; $\alpha(\text{L})=2.92\times 10^{-5}$ 4; $\alpha(\text{M})=6.05\times 10^{-6}$ 9; $\alpha(\text{N}+..)=0.000695$ 10 $\alpha(\text{N})=1.344\times 10^{-6}$ 19; $\alpha(\text{O})=2.19\times 10^{-7}$ 3; $\alpha(\text{P})=1.717\times 10^{-8}$ 24; $\alpha(\text{IPF})=0.000693$ 10
2859.68	4	1206.7 1 1640.9 2	78 22	1652.85 3 ⁻ 1219.30 4 ⁺					
2868.90	(4)	1216.1 1 1649.4 2	39 35	1652.85 3 ⁻ 1219.30 4 ⁺		M1+E2	-0.4 +3-4	0.00105 6	$\alpha=0.00105$ 6; $\alpha(\text{K})=0.00078$ 5; $\alpha(\text{L})=9.9\times 10^{-5}$ 6; $\alpha(\text{M})=2.06\times 10^{-5}$ 12; $\alpha(\text{N}+..)=0.000144$ 3 $\alpha(\text{N})=4.6\times 10^{-6}$ 3; $\alpha(\text{O})=7.4\times 10^{-7}$ 5; $\alpha(\text{P})=5.8\times 10^{-8}$ 4; $\alpha(\text{IPF})=0.0001384$ 23
2887.66	3	2228.3 ^{&} 2 1668.4 2	26 22	641.19 2 ⁺ 1219.30 4 ⁺		M1+E2	1.1 +17-6	0.00095 7	$\alpha=0.00095$ 7; $\alpha(\text{K})=0.00070$ 6; $\alpha(\text{L})=8.8\times 10^{-5}$ 8; $\alpha(\text{M})=1.83\times 10^{-5}$ 15; $\alpha(\text{N}+..)=0.000149$ 3 $\alpha(\text{N})=4.1\times 10^{-6}$ 4; $\alpha(\text{O})=6.6\times 10^{-7}$ 6; $\alpha(\text{P})=5.1\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.000145$ 3
		2246.4 2	78	641.19 2 ⁺		M1+E2	0.9 +12-3	0.00088 4	$\alpha=0.00088$ 4; $\alpha(\text{K})=0.000390$ 21; $\alpha(\text{L})=4.9\times 10^{-5}$ 3; $\alpha(\text{M})=1.01\times 10^{-5}$ 6; $\alpha(\text{N}+..)=0.000428$ 12 $\alpha(\text{N})=2.25\times 10^{-6}$ 13; $\alpha(\text{O})=3.66\times 10^{-7}$ 21; $\alpha(\text{P})=2.87\times 10^{-8}$ 18; $\alpha(\text{IPF})=0.000426$ 12
2933.91	(2,3,4)	1398.8 ^{&} 2 2292.7 2	100	1536.27 2 ⁺ 641.19 2 ⁺					

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^@$	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
2956.31	3	1737.1 2	34	1219.30	4 ⁺	M1(+E2)	0.06 +7-9	0.001013 15	$\alpha=0.001013$ 15; $\alpha(\text{K})=0.000720$ 11; $\alpha(\text{L})=9.07\times 10^{-5}$ 13; $\alpha(\text{M})=1.88\times 10^{-5}$ 3; $\alpha(\text{N}+..)=0.000184$ 3 $\alpha(\text{N})=4.18\times 10^{-6}$ 6; $\alpha(\text{O})=6.82\times 10^{-7}$ 10; $\alpha(\text{P})=5.36\times 10^{-8}$ 8; $\alpha(\text{IPF})=0.000179$ 3
		2315.0 2	66	641.19	2 ⁺	M1+E2	-0.6 +23-9	0.00090 5	$\alpha=0.00090$ 5; $\alpha(\text{K})=0.000376$ 24; $\alpha(\text{L})=4.7\times 10^{-5}$ 3; $\alpha(\text{M})=9.8\times 10^{-6}$ 7; $\alpha(\text{N}+..)=0.000468$ 16 $\alpha(\text{N})=2.17\times 10^{-6}$ 14; $\alpha(\text{O})=3.53\times 10^{-7}$ 23; $\alpha(\text{P})=2.78\times 10^{-8}$ 20; $\alpha(\text{IPF})=0.000465$ 16
2998.97	1	2358.3 2	66	641.19	2 ⁺				
		2998.4 2	34	0	0 ⁺				
3009.81		2368.6 2	100	641.19	2 ⁺				
3011.93	1	3011.9 2	100	0	0 ⁺				
3042.21		1822.9 2	54	1219.30	4 ⁺	M1+E2	-0.37 10	0.000953 17	$\alpha=0.000953$ 17; $\alpha(\text{K})=0.000634$ 12; $\alpha(\text{L})=7.98\times 10^{-5}$ 15; $\alpha(\text{M})=1.66\times 10^{-5}$ 3; $\alpha(\text{N}+..)=0.000223$ 4 $\alpha(\text{N})=3.68\times 10^{-6}$ 7; $\alpha(\text{O})=6.00\times 10^{-7}$ 11; $\alpha(\text{P})=4.70\times 10^{-8}$ 9; $\alpha(\text{IPF})=0.000219$ 4
3051.71	(3)	2401.0 2	46	641.19	2 ⁺				
		864.6 & 2		2187.46	1 ⁻				
		1398.8 & 1	69	1652.85	3 ⁻				
		1832.6 2	23	1219.30	4 ⁺	M1+E2	<-0.6	0.000948 24	$\alpha=0.000948$ 24; $\alpha(\text{K})=0.000625$ 18; $\alpha(\text{L})=7.87\times 10^{-5}$ 23; $\alpha(\text{M})=1.63\times 10^{-5}$ 5; $\alpha(\text{N}+..)=0.000228$ 4 $\alpha(\text{N})=3.63\times 10^{-6}$ 11; $\alpha(\text{O})=5.91\times 10^{-7}$ 18; $\alpha(\text{P})=4.64\times 10^{-8}$ 15; $\alpha(\text{IPF})=0.000223$ 4
		2410.3 2	12	641.19	2 ⁺	M1(+E2)	0.09 14	0.000935 14	$\alpha=0.000935$ 14; $\alpha(\text{K})=0.000357$ 6; $\alpha(\text{L})=4.46\times 10^{-5}$ 7; $\alpha(\text{M})=9.25\times 10^{-6}$ 14; $\alpha(\text{N}+..)=0.000524$ 8 $\alpha(\text{N})=2.05\times 10^{-6}$ 3; $\alpha(\text{O})=3.35\times 10^{-7}$ 5; $\alpha(\text{P})=2.64\times 10^{-8}$ 4; $\alpha(\text{IPF})=0.000522$ 8
3061.39		1525.5 2	37	1536.27	2 ⁺	M1(+E2)	-0.09 +15-14	0.001198 20	$\alpha=0.001198$ 20; $\alpha(\text{K})=0.000957$ 17; $\alpha(\text{L})=0.0001211$ 21; $\alpha(\text{M})=2.51\times 10^{-5}$ 5; $\alpha(\text{N}+..)=9.49\times 10^{-5}$ $\alpha(\text{N})=5.58\times 10^{-6}$ 10; $\alpha(\text{O})=9.10\times 10^{-7}$ 16;

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992Al11** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ°	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
3061.39		2419.8 2	63	641.19 2 ⁺	M1+E2	-0.26 17	0.000932 15		$\alpha(\text{P})=7.14\times 10^{-8}$ 13; $\alpha(\text{IPF})=8.84\times 10^{-5}$ 13 $\alpha=0.000932$ 15; $\alpha(\text{K})=0.000352$ 7; $\alpha(\text{L})=4.40\times 10^{-5}$ 8; $\alpha(\text{M})=9.12\times 10^{-6}$ 16; $\alpha(\text{N}+..)=0.000527$ 8 $\alpha(\text{N})=2.02\times 10^{-6}$ 4; $\alpha(\text{O})=3.30\times 10^{-7}$ 6; $\alpha(\text{P})=2.60\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.000525$ 8
3089.61	(2,3)	978.1 & 2 2448.4 2	28 72	2111.80 4 ⁺ 641.19 2 ⁺	M1+E2	-0.8 +3-4	0.000912 20		$\alpha=0.000912$ 20; $\alpha(\text{K})=0.000331$ 9; $\alpha(\text{L})=4.13\times 10^{-5}$ 12; $\alpha(\text{M})=8.57\times 10^{-6}$ 24; $\alpha(\text{N}+..)=0.000531$ 1 $\alpha(\text{N})=1.90\times 10^{-6}$ 6; $\alpha(\text{O})=3.10\times 10^{-7}$ 9; $\alpha(\text{P})=2.44\times 10^{-8}$ 8; $\alpha(\text{IPF})=0.000528$ 11
3105.96	3	1887.5 2	19	1219.30 4 ⁺	M1+E2	2.5 +6-23	0.00083 12		$\alpha=0.00083$ 12; $\alpha(\text{K})=0.00051$ 9; $\alpha(\text{L})=6.4\times 10^{-5}$ 11; $\alpha(\text{M})=1.33\times 10^{-5}$ 23; $\alpha(\text{N}+..)=0.000245$ 11 $\alpha(\text{N})=3.0\times 10^{-6}$ 5; $\alpha(\text{O})=4.8\times 10^{-7}$ 9; $\alpha(\text{P})=3.7\times 10^{-8}$ 8; $\alpha(\text{IPF})=0.000242$ 11
		2463.9 2	81	641.19 2 ⁺	M1+E2	-2.0 +5-4	0.000884 15		$\alpha=0.000884$ 15; $\alpha(\text{K})=0.000313$ 6; $\alpha(\text{L})=3.89\times 10^{-5}$ 8; $\alpha(\text{M})=8.07\times 10^{-6}$ 16; $\alpha(\text{N}+..)=0.000524$ 9 $\alpha(\text{N})=1.79\times 10^{-6}$ 4; $\alpha(\text{O})=2.92\times 10^{-7}$ 6; $\alpha(\text{P})=2.28\times 10^{-8}$ 5; $\alpha(\text{IPF})=0.000522$ 9
3109.71		1890.3 2 2468.6 2	70 30	1219.30 4 ⁺ 641.19 2 ⁺					
3125.61	(1,2,3)	2484.4 2	100	641.19 2 ⁺					
3144.50	3 ⁺	1608.4 2	51	1536.27 2 ⁺	M1+E2	-2.0 +20-6	0.00094 18		$\alpha=0.00094$ 18; $\alpha(\text{K})=0.00070$ 15; $\alpha(\text{L})=9.0\times 10^{-5}$ 19; $\alpha(\text{M})=1.9\times 10^{-5}$ 4; $\alpha(\text{N}+..)=0.000123$ 5 $\alpha(\text{N})=4.1\times 10^{-6}$ 9; $\alpha(\text{O})=6.7\times 10^{-7}$ 14; $\alpha(\text{P})=5.2\times 10^{-8}$ 12; $\alpha(\text{IPF})=0.000118$ 4
		2503.1 2	49	641.19 2 ⁺	M1+E2	-0.8 +3-4	0.000923 20		$\alpha=0.000923$ 20; $\alpha(\text{K})=0.000317$ 8; $\alpha(\text{L})=3.96\times 10^{-5}$ 11; $\alpha(\text{M})=8.20\times 10^{-6}$ 22; $\alpha(\text{N}+..)=0.000558$ 1 $\alpha(\text{N})=1.82\times 10^{-6}$ 5; $\alpha(\text{O})=2.97\times 10^{-7}$ 8; $\alpha(\text{P})=2.33\times 10^{-8}$ 7; $\alpha(\text{IPF})=0.000556$ 11
3153.62	2 ⁺	2512.4 2	65	641.19 2 ⁺	M1+E2	0.7 +9-5	0.00093 4		$\alpha=0.00093$ 4; $\alpha(\text{K})=0.000317$ 14;

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$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ **1995Va25,1992A111** (continued) $\gamma(^{142}\text{Ce})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ^π @	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
									$\alpha(\text{L})=3.95\times 10^{-5}$ 18; $\alpha(\text{M})=8.2\times 10^{-6}$ 4; $\alpha(\text{N}+..)=0.000565$ 17 $\alpha(\text{N})=1.82\times 10^{-6}$ 8; $\alpha(\text{O})=2.97\times 10^{-7}$ 14; $\alpha(\text{P})=2.33\times 10^{-8}$ 12; $\alpha(\text{IPF})=0.000563$ 17
3153.62	2 ⁺	3153.6 2	35	0	0 ⁺	E2 [#]		0.001053 15	$\alpha=0.001053$ 15; $\alpha(\text{K})=0.000199$ 3; $\alpha(\text{L})=2.45\times 10^{-5}$ 4; $\alpha(\text{M})=5.08\times 10^{-6}$ 8; $\alpha(\text{N}+..)=0.000824$ 12 $\alpha(\text{N})=1.127\times 10^{-6}$ 16; $\alpha(\text{O})=1.84\times 10^{-7}$ 3; $\alpha(\text{P})=1.444\times 10^{-8}$ 21; $\alpha(\text{IPF})=0.000823$ 12
3155.29		1619.1 2	50	1536.27	2 ⁺				
		1935.9 2	50	1219.30	4 ⁺				
3180.35	1	2539.4 3		641.19	2 ⁺				
		3180.2 2	100	0	0 ⁺				
3208.86	3	1990.2 2	16	1219.30	4 ⁺				
		2567.0 2	84	641.19	2 ⁺	M1+E2	-0.32 +4-8	0.000959 14	$\alpha=0.000959$ 14; $\alpha(\text{K})=0.000311$ 5; $\alpha(\text{L})=3.87\times 10^{-5}$ 6; $\alpha(\text{M})=8.03\times 10^{-6}$ 12; $\alpha(\text{N}+..)=0.000602$ 9 $\alpha(\text{N})=1.78\times 10^{-6}$ 3; $\alpha(\text{O})=2.91\times 10^{-7}$ 5; $\alpha(\text{P})=2.30\times 10^{-8}$ 4; $\alpha(\text{IPF})=0.000599$ 9
3218.11		2576.9 2	100	641.19	2 ⁺				
3228.58	(3 ⁻)	1575.72 8		1652.85	3 ⁻				
3300.68		1764.4 2	100	1536.27	2 ⁺				

† Additional information 1.

‡ From $\gamma(\theta)$, supported by $\gamma(\text{linear pol})$ results (1992A111).# From $\gamma(\theta)$ (1992A111).

@ %branching from each level as given by 1995Va25.

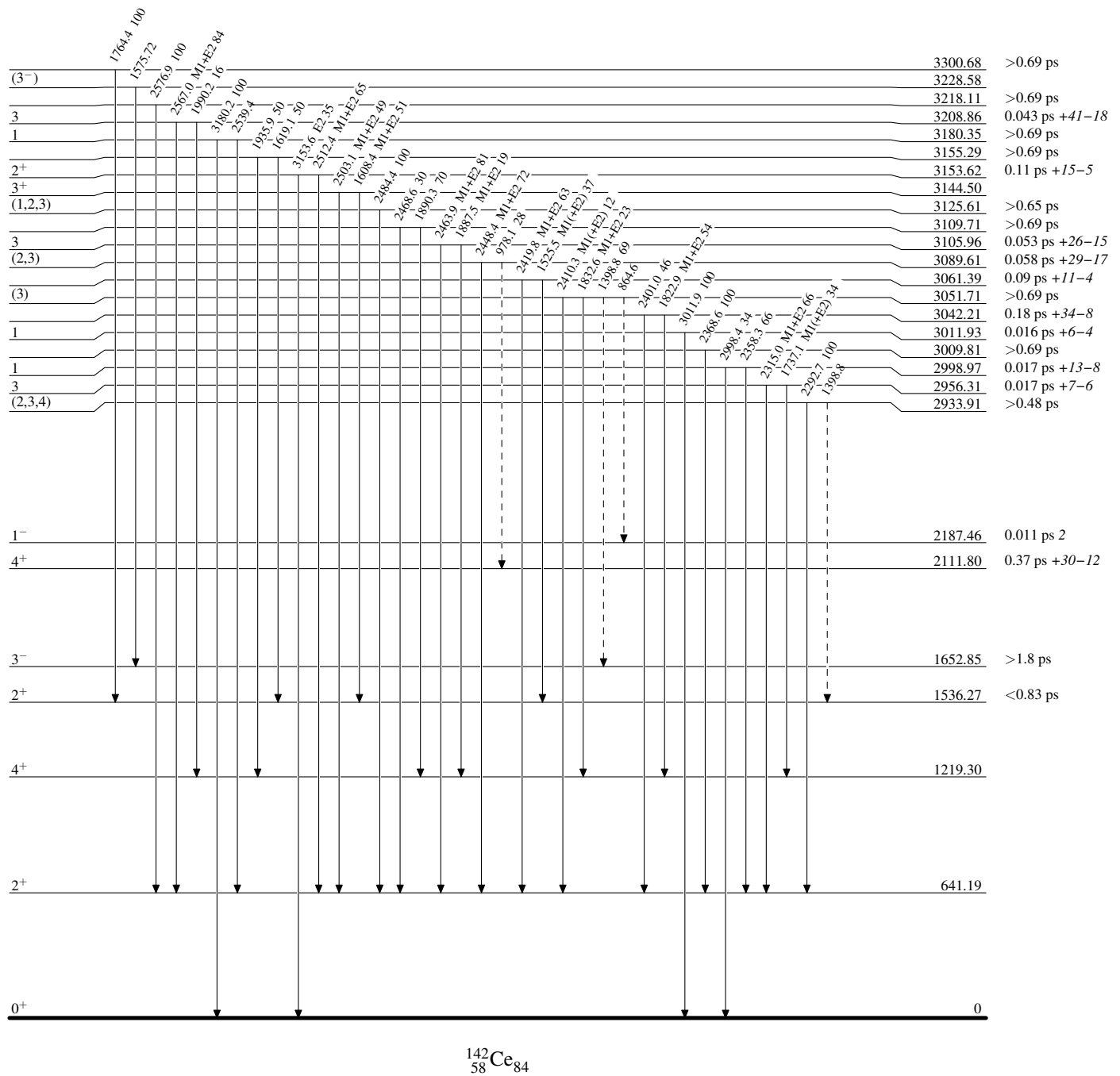
& Placement of transition in the level scheme is uncertain.

$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ 1995Va25,1992Al11

Legend

Level Scheme

Intensities: Relative photon branching from each level

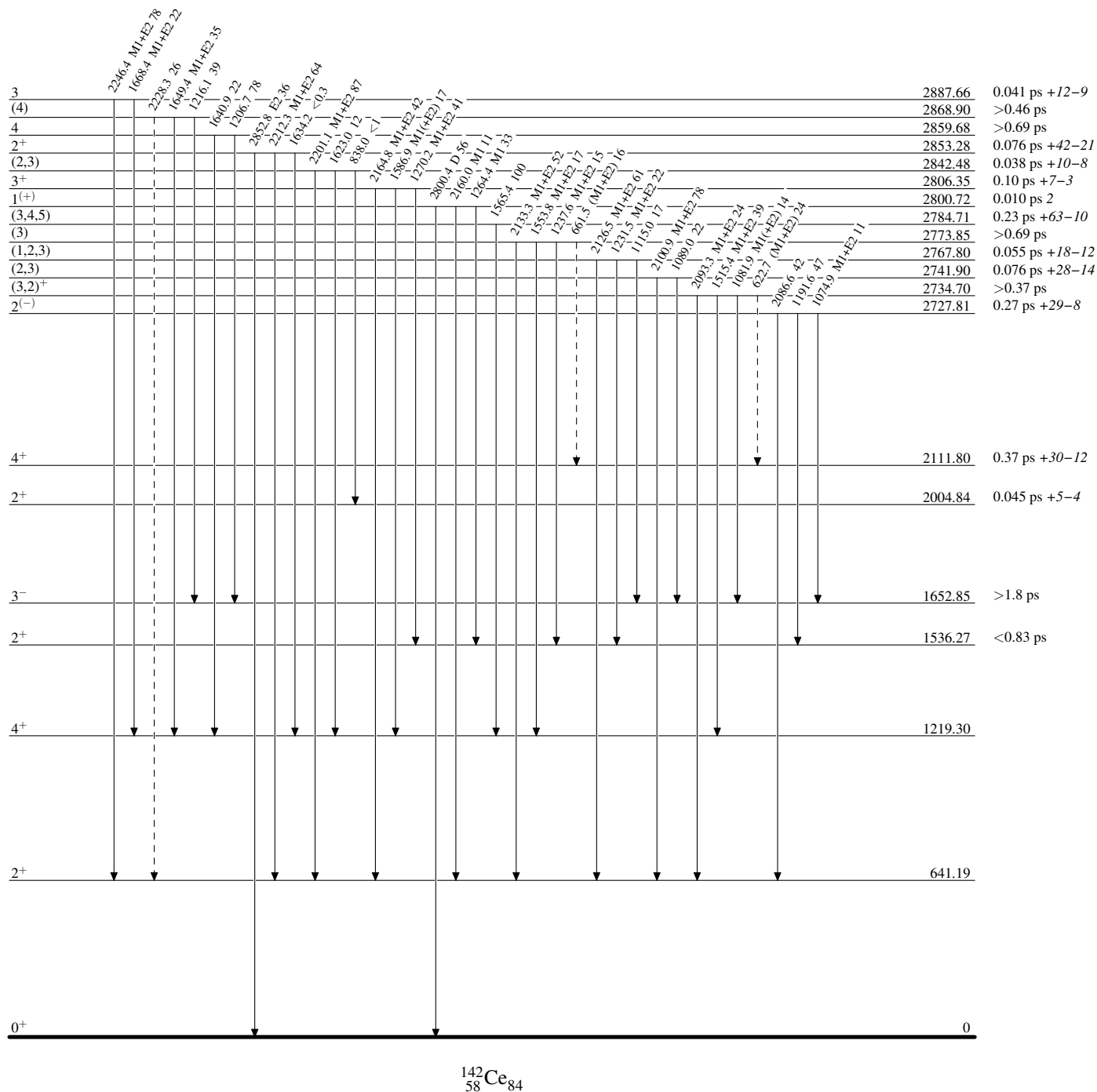
-----► γ Decay (Uncertain)

$^{142}\text{Ce}(\text{n},\text{n}'\gamma)$ 1995Va25,1992Al11

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

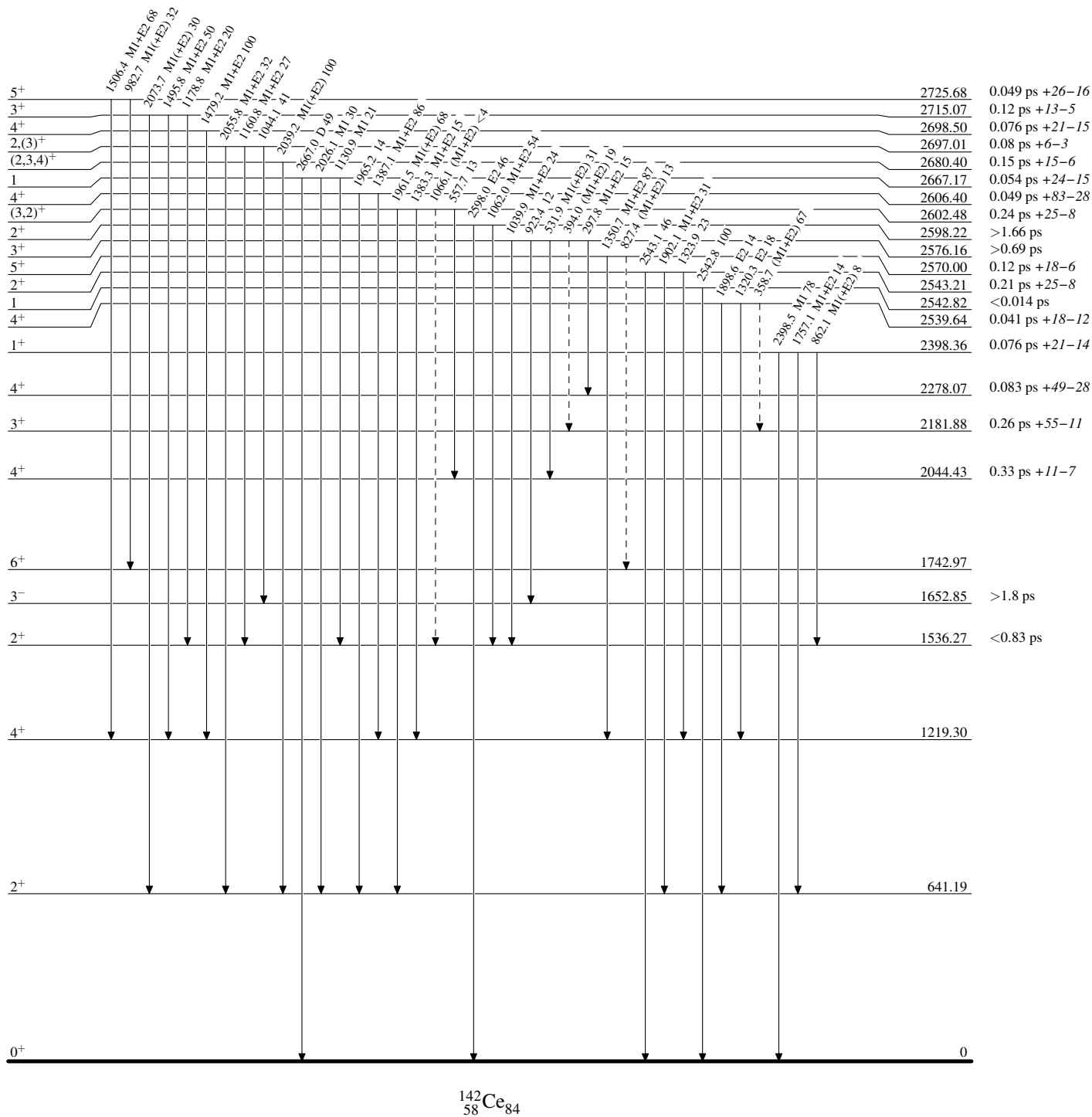
-----► γ Decay (Uncertain)

$^{142}\text{Ce}(n,n'\gamma)$ 1995Va25,1992Al11

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)


$^{142}\text{Ce}(n,n'\gamma)$ 1995Va25,1992Al11

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)