^{248}Cm SF decay 1996Jo14

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 110, 507 (2009)	1-Oct-2008

Parent: ^{248}Cm: E=0; $J^\pi=0^+$; $T_{1/2}=3.48\times10^5$ y *6*; %SF decay=?

Additional information 1.

Measured triple γ-ray coincidence with EUROGAM2, an array of 52 Compton-shielded Ge detectors and 4 LEPS detectors. γ rays were assigned to ^{145}Ba by x-ray coincidence and coincidence with γ rays from Zr isotopes (complementary fission fragments) (1996Jo14).

^{145}Ba Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0#	5/2−	507.51 *19*	(11/2)−	899.93# *22*	(15/2)−	1639.8# *3*	(21/2)−
112.49# *16*	(7/2)−	617.13@ *22*	(13/2)+	1097.84# *23*	(17/2)−	1718.6@ *4*	(25/2)+
276.91# *16*	(9/2)−	641.05# *20*	(13/2)−	1240.3@ *4*	(21/2)+	2282.8@ *5*	(29/2)+
462.42# *19*	(11/2)−	865.97@ *25*	(17/2)+	1393.50# *24*	(19/2−)	2922.7@ *5*	(33/2)+

† Deduced by evaluator from least-squares fit to γ-ray energies.
‡ From Adopted Levels.
# Band(A): g.s. rotational band.
@ Band(B): rotational band.

$\gamma(^{145}$Ba)

Eγ	Iγ#	Ei(level)	Jiπ	Ef	Jfπ	Mult.†	δ‡	Comments
109.5 *2*	19	617.13	(13/2)+	507.51	(11/2)−	E1		α(exp)=0.17 *2*; α(K)exp=0.22 *11* DCO=0.79 *12*, from γγγ(θ).
112.5 *2*		112.49	(7/2)−	0	5/2−	M1+E2	+0.13 *+7−6*	α(K)exp=0.66 *29*
154.6 *2*	87	617.13	(13/2)+	462.42	(11/2)−	E1		α(K)exp=0.08 *2*; α(exp)=0.08 *1* DCO=1.08 *7*, from γγγ(θ).
164.5 *2*	90	276.91	(9/2)−	112.49	(7/2)−	M1+E2	−0.31 *+24−27*	α(K)exp=0.23 *8* DCO=0.72 *2*, from γγ(θ).
178.6 *2*	7	641.05	(13/2)−	462.42	(11/2)−	M1+E2		
185.4 *2*	77	462.42	(11/2)−	276.91	(9/2)−	M1+E2	+0.18 *+10−7*	α(K)exp=0.19 *5* DCO=1.10 *5*, from γγ(θ).
198.1 *2*	4	1097.84	(17/2)−	899.93	(15/2)−			
230.6 *2*	6.3	507.51	(11/2)−	276.91	(9/2)−			
246.2 *2*	2	1639.8	(21/2)−	1393.50	(19/2−)			
248.6 *2*	100	865.97	(17/2)+	617.13	(13/2)+	E2		DCO=0.88 *3*, from γγγ(θ).
259.0 *2*	6	899.93	(15/2)−	641.05	(13/2)−	M1+E2	+0.18 *+23−21*	DCO=1.33 *5*, from γγγ(θ).
276.9 *2*	22	276.91	(9/2)−	0	5/2−	E2		
295.8 *2*	3	1393.50	(19/2−)	1097.84	(17/2)−	M1+E2		DCO=0.83 *4*, from γγ(θ).
350.0 *2*	61	462.42	(11/2)−	112.49	(7/2)−	E2		DCO=1.12 *1*, from γγ(θ).
364.3 *2*	12	641.05	(13/2)−	276.91	(9/2)−	E2		DCO=1.27 *6*, from γγγ(θ).
374.3 *2*	66	1240.3	(21/2)+	865.97	(17/2)+	E2		DCO=0.99 *4*, from γγγ(θ).
394.9 *2*	21	507.51	(11/2)−	112.49	(7/2)−	E2		DCO=1.06 *5*, from γγ(θ).
437.6 *2*	12	899.93	(15/2)−	462.42	(11/2)−	E2		DCO=0.97 *15*, from γγγ(θ).
456.8 *2*	10	1097.84	(17/2)−	641.05	(13/2)−	E2		DCO=0.97 *9*, from γγγ(θ).
478.3 *2*	42	1718.6	(25/2)+	1240.3	(21/2)+	E2		DCO=1.03 *3*, from γγγ(θ).
493.6 *2*	3	1393.50	(19/2−)	899.93	(15/2)−			
527.3 *2*	2.1	1393.50	(19/2−)	865.97	(17/2)+			
542.0 *2*	8	1639.8	(21/2)−	1097.84	(17/2)−	E2		DCO=1.03 *9*, from γγγ(θ).

Continued on next page (footnotes at end of table)

^{248}Cm SF decay 1996Jo14 (continued)

$\gamma(^{145}Ba)$ (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
564.2 *2*	34	2282.8	$(29/2)^+$	1718.6	$(25/2)^+$	E2	DCO=0.98 *6*, from $\gamma\gamma\gamma(\theta)$.
639.9 *2*	6	2922.7	$(33/2)^+$	2282.8	$(29/2)^+$	E2	DCO=0.91 *6*, from $\gamma\gamma(\theta)$.

[†] From angular correlation, internal conversion, and γ-ray polarization measurements (1996Jo14). Quadrupole rays were assigned E2 by rotational band character, and dipoles, E1 or M1 by polarization measurements and level scheme considerations.
[‡] From DCO and γ-ray polarization results.
[#] Uncertainty varies from 10% for strong transitions to 30% for weak ones.

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Level Scheme

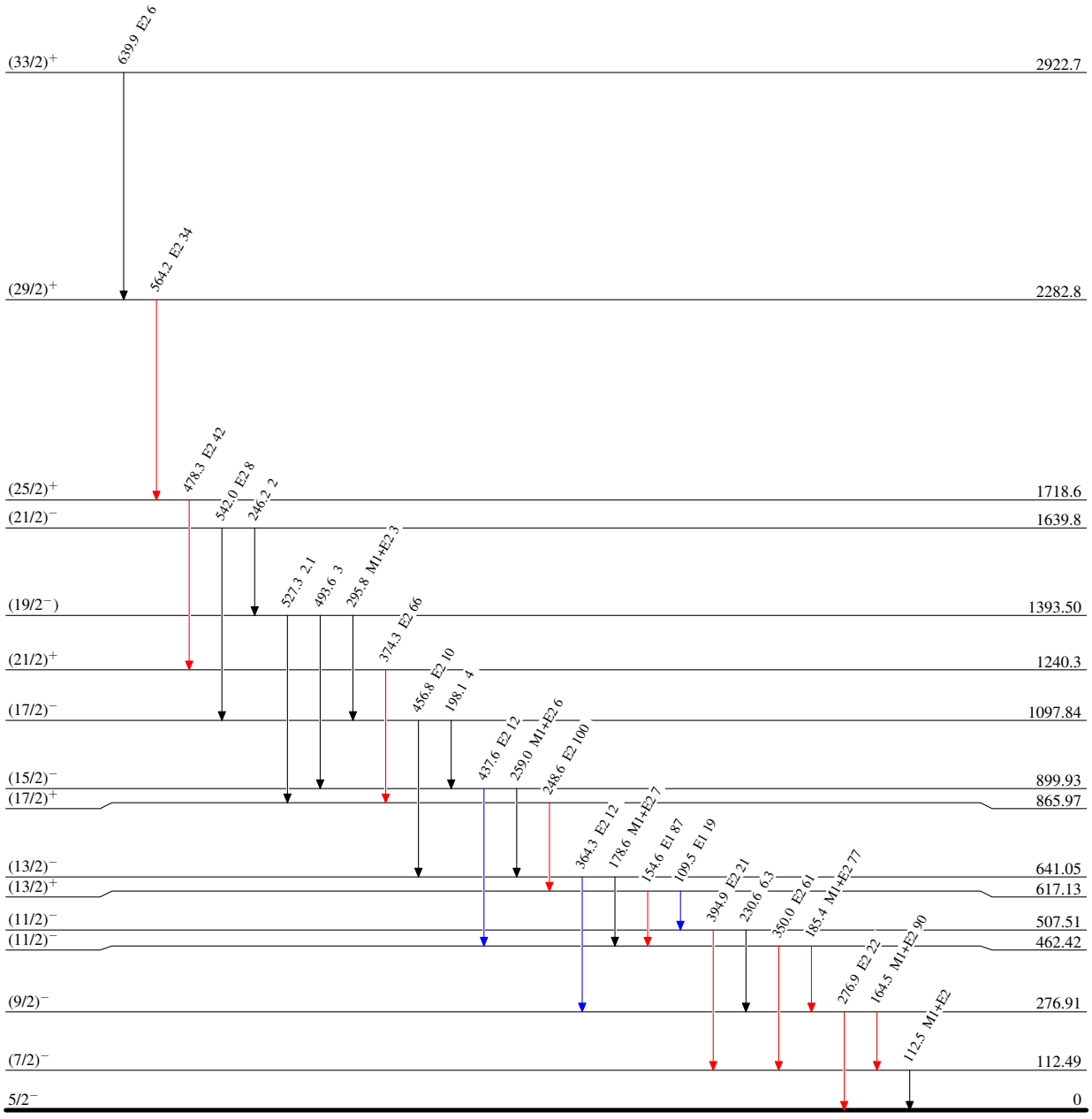
Intensities: Relative I_γ

Legend

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

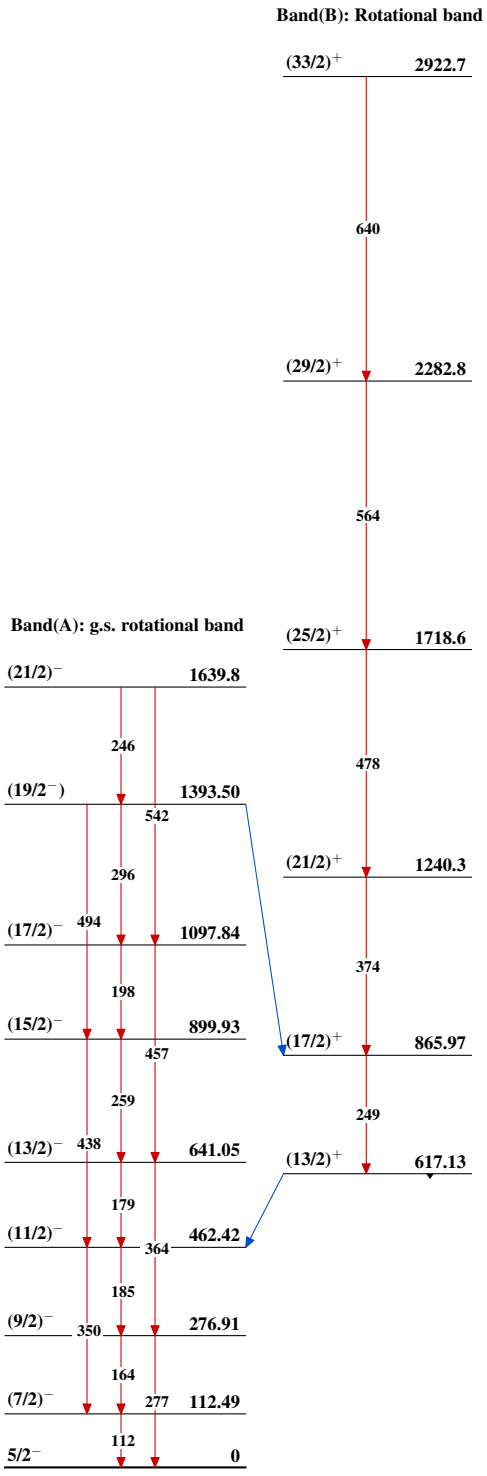
$I_\gamma < 10\% \times I_\gamma^{max}$

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



$^{145}_{56}Ba_{89}$

^{248}Cm SF decay 1996Jo14



$^{145}_{56}Ba_{89}$