

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 122, 293 (2014)		30-Jun-2013

$Q(\beta^-) = -1756.54$; $S(n) = 7102.51$; $S(p) = 4061.717$; $Q(\alpha) = 5922.414$ [2012Wa38](#)

 ^{239}Am LevelsCross Reference (XREF) Flags

A ^{239}Cm ε decay
B ^{243}Bk α decay

E(level)	J^π [†]	$T_{1/2}$	XREF	Comments
0 [‡]	(5/2) ⁻	11.9 h <i>I</i>	AB	$\% \varepsilon = 99.990$ <i>I</i> ; $\% \alpha = 0.010$ <i>I</i> J^π : favored (HF=1.4) α -particle transition to $^{235}\text{Np}(49 \text{ keV}, (5/2)^-, 5/2[523])$. $T_{1/2}$: from 1972Po04 . Others: 12.1 h <i>4</i> (1960Gl01), 11.9 h <i>5</i> (1972PoZS). $\% \varepsilon$, $\% \alpha$ (1972Po04). Other measurements: 1960Gl01 , 1952Hi63 . calculated $T_{1/2}(^{32}\text{Si}) = 1.3 \times 10^{23} \text{ s}$ (2012Ba35), $1.12 \times 10^{23} \text{ s}$, $8.1 \times 10^{24} \text{ s}$ (using two-different proximity potentials 2012Ku29). Calculated $T_{1/2}(^{34}\text{Si}) = 7.8 \times 10^{26} \text{ s}$ (2012Sa31). Other similar calculations: 2011Sa40 , 2011Sh13 , 2010Ni13 .
40.7 [‡] <i>7</i>	(7/2) ⁻		AB	
94 [‡] <i>6</i>	(9/2) ⁻		B	
156 [‡] <i>7</i>	(11/2) ⁻		B	
187.1 [#] <i>5</i>	(5/2) ⁺		AB	J^π : 146.4 γ (E1) to (7/2) ⁻ , 187.1 γ (E1) to (5/2) ⁻ . Low Hf(≈ 111) from ^{243}Bk α Decay is consistent with no spin flip (1972El21).
220 [#] <i>6</i>	(7/2) ⁺		B	
260 [#] <i>6</i>	(9/2) ⁺		B	
317 [#] <i>7</i>	(11/2) ⁺		B	
≈ 370 [#]	(13/2) ⁺		B	
557 [@] <i>6</i>	(3/2) ⁻		B	J^π : favored α Decay (HF ≈ 4.1) from ^{243}Bk ((3/2) ⁻ , 3/2[521]).
586 [@] <i>6</i>	(5/2) ⁻		B	J^π : HF ≈ 10 from ^{243}Bk α Decay suggests $J^\pi = (5/2)^-$.
$25. \times 10^2$ <i>2</i>	(7/2) ⁺	163 ns <i>I2</i>		$\% \text{SF} \leq 100$ $\mu = (+)2.62$ (2011StZZ) SF isomer. $T_{1/2}$ from 1971Br38 , 1972Br35 . Others: 1969La14 , 1973Fl03 , 1970Vi05 , 1985Ra28 . $T_{1/2}(\text{SF})$ calc=161 ns (2005Re16). E(level): from $^{240}\text{Pu}(p,2n)$ (1972Br35 , 1969La14), $^{237}\text{Np}(\alpha,2n)$ and $^{239}\text{Pu}(d,2n)$ (1971Br38). E=2.4 MeV (1980Bj02). μ : $g = 0.745$ (1985Ra28). g -factor measured by perturbed angular correlation of fission fragments in a magnetic field (1985Ra28). J^π : 7/2[404] orbital was assigned from g -factor by 1985Ra28 (g -factor was assumed to be positive).

[†] From rotational band structure and systematics of Nilsson orbitals. Additional arguments for spin and parity assignments are given mostly for bandheads.

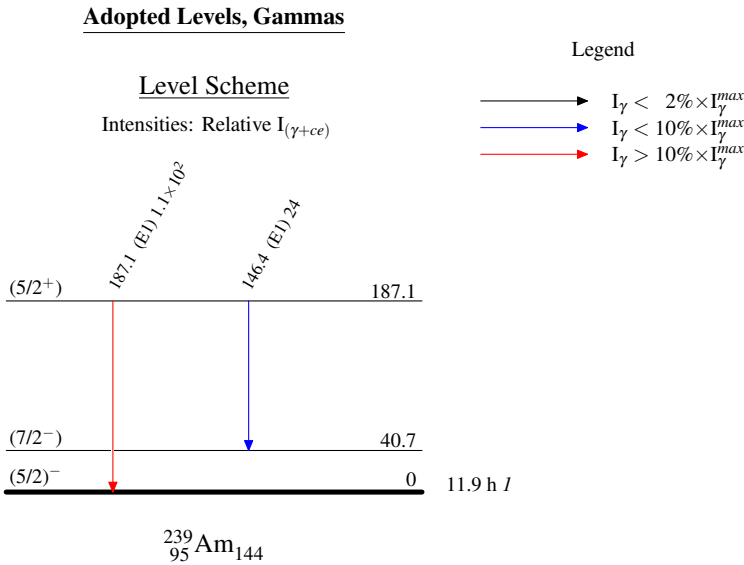
[‡] Band(A): g.s. rotational band ([2013Ni13](#)).

[#] Band(B): rotational band built on 187 level ([2013Ni13](#)).

[@] Band(C): favored rotational band built on 557 level ([2013Ni13](#)).

Adopted Levels, Gammas (continued)								
$\gamma(^{239}\text{Am})$								
$E_i(\text{level})$	J_i^π	$E_\gamma^\ddagger$	$I_\gamma^\ddagger$	E_f	J_f^π	Mult. ‡	$\alpha^\dagger$	Comments
187.1	(5/2 ⁺)	146.4 5	20 8	40.7	(7/2 ⁻)	(E1)	0.215 4	$\alpha(\text{K})=0.164\ 3$; $\alpha(\text{L})=0.0384\ 7$; $\alpha(\text{M})=0.00943\ 16$; $\alpha(\text{N}+..)=0.00329\ 6$
		187.1 5	100 25	0	(5/2 ⁻)	(E1)	0.1220 19	$\alpha(\text{N})=0.00255\ 5$; $\alpha(\text{O})=0.000622\ 11$; $\alpha(\text{P})=0.0001077\ 18$; $\alpha(\text{Q})=4.53\times 10^{-6}\ 8$
								$\alpha(\text{K})=0.0943\ 15$; $\alpha(\text{L})=0.0208\ 4$; $\alpha(\text{M})=0.00509\ 8$; $\alpha(\text{N}+..)=0.00178\ 3$
								$\alpha(\text{N})=0.001380\ 22$; $\alpha(\text{O})=0.000338\ 6$; $\alpha(\text{P})=5.96\times 10^{-5}\ 10$; $\alpha(\text{Q})=2.68\times 10^{-6}\ 4$

[†] Additional information 1.
[‡] From ²⁴³Bk α decay.



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