Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 121, 695 (2014)	30-Sep-2013

Q(β^-)=−4616 *SY*; S(n)=8124 *SY*; S(p)=1928 *SY*; Q(α)=8072 *10* 2012Wa38
ΔQ(β^-)=299; ΔS(n)=329; ΔS(p)=207 (2012Wa38).
S(2n)=15258 syst *306*; S(2p)=5863 syst *288* (2012Wa38).

First identification: 1973Es02 using ^{233}U(^{15}N,5n) with excitation function.

Theoretical calculations:
2013Zd01: $T_{1/2}$ for α decay calculated with phenomenological model based on Gamow theory with WKB approximation for Coulomb barrier penetration.
2012Po01: partial α decay $T_{1/2}$ calculated with a universal decay law using α-like R matrix theory.
2011Sa40: $T_{1/2}$ and Q(α) calculated in the framework of the Coulomb and proximity potential model for deformed nuclei.
2010Ad19: low-lying one-quasi particle spectra and rotational bands calculated with a two-center shell model.
2008Th05: K x-ray energies calculated using a Dirac-Hartree Fock model.
2004Pa40: deformation parameters, pairing gap, single-particle energy levels, configurations calculated with a macroscopic-microscopic approach.
α: Additional information 1.

^{243}Es Levels

Cross Reference (XREF) Flags

A ^{247}Md α decay (1.2 s)
B ^{247}Md α decay (0.25 s)

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0+x	(7/2$^+$)	21 s *2*	A	%α=61 *6*; %ε+%β^+=39 *6*; %SF<1 (2010An08) %α: from the ratio of correlated ^{247}Md-^{243}Es parent-daughter α decays and uncorrelated ^{247}Md α decays (2010An08). Other: estimation of %α>30 and %ε<70 by 1973Es02 from intensities of α's from ^{243}Es and ^{243}Cf decays (only strongest α's from each nucleus were observed). $T_{1/2}$: weighted average of 21 s *2* (1973Es02), 21 s *4* (1976GhZU), 21 s *5* (1989Ha27), 19 s *4* (1994HoZW), 23 s *3* (2010An08). J^π: Nilsson orbit systematics (see, for example, 1972El21) suggest either 3/2[521] or 7/2[633] Nilsson state for the ^{243}Es ground state.
0.0+y	(3/2$^-$)		B	J^π: see comment on 0.0+x level.
x+52.1	(9/2$^+$)		A	J^π: proposed configuration 7/2[633] (2010An08).
0.0+z	(1/2$^-$)		B	J^π: unhindered α decay from the 0.25 s isomer in ^{247}Md with configuration 1/2[521]. E(level): z-y<150 keV as non-observation of coincidences between K x-rays and the 8783α suggests that energy difference between (1/2$^-$) and (3/2$^-$) states is lower than K shell binding energy.
x+209.6	(7/2$^-$)		A	J^π: unhindered α decay from (7/2$^-$) ^{247}Md ground state with configuration 7/2[514] (2010An08).

Adopted Levels, Gammas (continued)

$\gamma(^{243}Es)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α	Comments
x+209.6	(7/2$^-$)	157.5 *5*	11 *3*	x+52.1	(9/2$^+$)			
		209.6 *3*	100	0.0+x	(7/2$^+$)	(E1)	0.1017	α(K)=0.0776 *12*; α(L)=0.0180 *3*; α(M)=0.00445 *7*; α(N)=0.001229 *18*; α(O)=0.000314 *5* α(P)=5.57×10^{-5} *8*; α(Q)=2.26×10^{-6} *4*

[†] From ^{247}Md α decay (1.2 s).
[‡] From estimated conversion electrons in ^{247}Md α decay (1.2 s).

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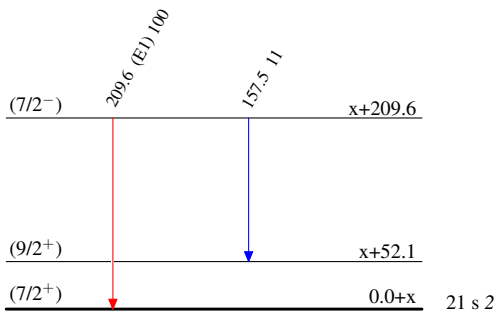
Level Scheme

Intensities: Type not specified



$^{243}_{99}Es_{144}$