

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 125, 395 (2015)	31-Mar-2014

S(n)=8250 SY; S(p)=1540 SY; Q(α)=8764 IO 2012Wa38
 ΔS(n)=330, ΔS(p)=210 (syst, 2012Wa38).

Identification and Experimental Studies:

- 2010An08: ²⁴⁷Md activity produced in the ²⁰⁹Bi(⁴⁰Ar,2n) reaction with E(⁴⁰Ar)=187 MeV at UNILAC, GSI. Evaporation residues (ER) separated with the SHIP velocity filter and implanted into a position sensitive Si strip detector. Measured Eα, Iα, ER-α(t), ER-SF(t), Eγ, Iγ using tof detectors, an array of position sensitive Si detectors, and a Ge clover detector. See also 2006An13, 2004He23.
- 2005He27: ²⁴⁷Md produced via ²⁰⁹Bi(⁴⁰Ar,2n)reaction at UNILAC, GSI with E(⁴⁰Ar)=4.95 MeV/u. The residues were separated by the SHIP velocity filter and implanted on position sensitive PIPS detectors for α decay. α-γ coin were measured with a clover detector. α activity observed at 8422 IO keV.
- 1994HoZW: ²⁴⁷Md produced via ²⁰⁹Bi(⁴⁰Ar,2n)reaction at UNILAC, GSI with E(⁴⁰Ar)=4.78 MeV/u. Two fission events assigned preliminary to the g.s ²⁴⁷Md were observed with T_{1/2}=0.23 s +19-12. α activity observed at 8424 keV with T_{1/2}=1.12 s 22.
- 1981Mu12: Discovery of ²⁴⁷Md from heavy ion fusion reaction ²⁰⁹Bi(⁴⁰Ar,2n) with E(⁴⁰Ar)=4.8 MeV/u from UNILAC at GSI. The residues were separated by the SHIP velocity filter and implanted on position sensitive surface barrier detectors for α decay and spontaneous fission measurement. α activity observed at 8428 keV 25.

Theoretical studies:

- 2010Ad19: One-quasiparticle levels for Md isotopes using the microscopic-macroscopic modified TCSM.
- 2005Re16: Calculated spontaneous fission half lives using Swiatecki's formula, by its generalized form, and by a new formula where the blocking effect of unpaired nucleon on the half-lives has been taken into account with different mechanisms.
- 2004Pa40: Calculated deformation parameters and the proton one-quasiparticle states of heaviest nuclei using the macroscopic-microscopic approach.
- 2002Du16: Calculated partial half-lives for α and cluster decays.
- 1997Mo25: Calculated ground-state binding energy, proton and neutron pairing gaps, neutron and proton separation energies, Q values.
- 1995Mo29, 1980Ho32: Calculated ground-state masses and nuclear ground state deformations.
- 1993Bu09: Calculated partial α decay half-life, α branching, nuclear radius using the cluster model predictions.
- 1985Cw01: Calculated fission barrier.
- 1981Mo24: Calculated ground-state electric multipole moments Q₂, Q₄ and masses.

²⁴⁷Md Levels

E(level)	J ^π	T _{1/2}	Comments
0.0	(7/2 ⁻)	1.2 s 1	%α>99.9; %SF<0.1 (2010An08) %SF: <1% in Fig. 4 in 2010An08. T _{1/2} : From evaporation residue 8416 α(t) correlations in 2010An08. Note that there is some inconsistency in 2010An08, with T _{1/2} =1.2 s 1 quoted in the text and Table 1, however, T _{1/2} =1.3 s 1 is given in Fig. 2 and Fig. 4. Others: 2.9 s +17-12 (1981Mu12), 1.12 s 22 (1994HoZW). J ^π : From hindrance factor≈1 from ²⁴⁷ Md α decay to 209.6-keV level in ²⁴³ Es and proposed configuration=7/2[514] (2010An08).
0+x	(1/2 ⁻)	0.25 s 4	%IT=79 5; %SF=21 5 E(level): X<264 keV (2010An08). T _{1/2} : From a total of 24 counts of spontaneous fission events obtained in 2010An08. Note that there is some inconsistency in 2010An08, with T _{1/2} =0.25 s 4 quoted in Table 1 and Fig. 4. however, T _{1/2} =0.24 s 7 is given in the text. J ^π : Proposed configuration=1/2[521] (2010An08) and from hindrance factor=2.5 from ²⁴⁷ Md α decay to (1/2 ⁻) level in ²⁴³ Es.