

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 189,1 (2023)	14-Feb-2023

S(n)=8340 *syst*; S(p)=930 *syst*; Q(α)=9010 *syst* [2021Wa16](#)
 ΔS(n)=460, ΔS(p)=330, ΔQ(α)=120 (*syst*,[2021Wa16](#)).
 S(2p)=4000 330, Q(εp)=2010 320 (*syst*,[2021Wa16](#)).

[2020Kh08](#): Decay properties were identified in the ¹⁹⁷Au(⁵⁰Ti,2n) fusion-evaporation experiment. E(⁵⁰Ti)=231.5, 239.8 MeV, that corresponds to compound nucleus excitation energies of 26.2 MeV and 32.7 MeV, respectively from the universal linear accelerator UNILAC at GSI bombarded a rotating ¹⁹⁷Au target. The evaporation residues (ERs) were separated using the the gas-filled transactinide separator and chemistry apparatus (TASCA). A double-sided silicon strip detector (DSSD) was used to detect implanting ERs and their subsequent decays. Energy calibrations were performed using α decays produced in the ⁴⁸Ca+¹⁷⁶Yb reaction with FWHM≈ 40 keV for 5.8 MeV-α particles. Measured ER-α-α and ER-fission events. See supplemental material from [2020Kh08](#) of the experimentally observed 7 α decay chains and 6 short -lived fissions. Refer to XUNDL compilation by B. Singh for ²⁴⁵Md on 31 December, 2022 for tabulated information of the correlated (ER-α-α) events and (ER-FI) events taken from the supplemental information provided by [2020Kh08](#).

[1996Ni09](#): A spontaneous fission activity observed from ²⁰⁹Bi(⁴⁰Ar,x) at E=5.12 MeV/nucleon assigned to ²⁴⁵Md via αα correlations at the UNILAC accelerator, GSI, Darmstadt. Evaporation residue were separated and stopped at the focal plane and detected with PIPS detectors. Measured Eα, T_{1/2} and T_{SF}. Obtained decay properties for ^{245m}Md: Eα=8640 keV 20 and Eα=8680 keV 20.

Other reactions and nuclear structure calculations: [2010Ad19](#), [2010Do08](#), [2004Pa40](#).

²⁴⁵Md Levels

E(level)	J ^π	T _{1/2}	Comments
0.0	(7/2 ⁻)	0.33 s +15-8	%α≈100 E(level): Assumed that the 0.33-s activity is associated with the ground state, in contrast with1996. J ^π : 7/2 ⁻ [514] from systematics of odd mass (^{247,249,251,253,255} Md) isotopes deduced from the decay studies of mendelevium isotopes using αγ coincidence measurements in 2005He27 . 7/2 ⁻ [514] was also calculated for low-lying one-quasiproton states by 2010Ad19 . In contrast 1996Ni09 assumed 1/2 ⁻ [521]. Configuration=7/2 ⁻ [514]. Only the α decay has been observed in 1996Ni09 and 2020Kh08 . Branching ratio deduced from theoretical calculations in 2019Mo01 with T _{1/2} (β decay)=11.8 s, and T _{1/2} (α)=0.56 s :%α=95, %ε+β ⁺ =5. T _{1/2} : From the correlation time distribution of α events in 2020Kh08 . Note that this half-life is similar to the 0.35 s +23-16 which was considered as an isomer in 1996Ni09 .
x	(1/2 ⁻)	0.9 ms +6-3	%α=?; %ε+%β ⁺ =? T _{1/2} : From ER-fission correlated decay chains (2020Kh08) J\$From 1/2 ⁻ [521] (2017He08). Configuration=1/2 ⁻ [521].