Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 141, 327 (2017)	22-Mar-2017

Q(β^-)=−370 *SY*; S(n)=5460 *SY*; S(p)=3630 *SY*; Q(α)=7740 *SY* 2017Wa10
Estimated uncertainties (2017Wa10): 120 for Q(β^-), S(n) and S(p); 110 for Q(α).
S(2n)=12140 *160*, S(2p)=9110 *120* (syst,2017Wa10).
^{256}Md produced and identified by Ghiorso et al., Phys. Rev. 98, 1518 (1955) in ^{253}Es(α,n),E=48 MeV reaction, followed by chemical separation. The half-life was reported to be about 0.5 hour. Later studies: 1958Ph40, 1965Si14, 1970Fi12, 1971Ho16, 1993Mo18.
Theoretical calculations: consult the Nuclear Science References (NSR) database for about 27 theory references.
1986So12: nuclear structure theory reference.

^{256}Md Levels

Cross Reference (XREF) Flags

A ^{260}Lr α decay (180 s)

E(level)	J$^\pi$	$T_{1/2}$	XREF	Comments
0.0	(1$^-$)	77.7 min *18*	A	%α=9.2 *7*; %ε=90.8 *7*; %SF<3 (α)/(α+ε)=9.2% *7* is adopted from 8.5% *8*, determined by 1970Fi12 from K x ray/α intensities, and 9.9% *5*, determined by 1971Ho16 from ^{256}Fm growth. The latest value of 11% *3*, obtained by 1993Mo18, is in agreement with the earlier values. %α=9.2 *7* is an unweighted average of earlier measurements. 2000Ah02 quote %ε=92, but the source reference is not given. %SF<3 (1971Ho16). $T_{1/2}$: weighted average of 78.1 min *18* (1993Mo18), 77 min *5* (1971Ho16) 75 min *4* (1970Fi12), 90 min *12* (1965Si14). Other measurement: 90 min (1958Ph40). J$^\pi$: the ε decay to the 0$^+$ ^{256}Fm g.s. suggests low-spin, J=0,1 for the ^{256}Md g.s. From the available states in the region, analogy to ^{255}Fm suggests ν7/2[613] orbital for the odd-neutron state, and analogy to ^{255}Md suggests π7/2[514] orbital for the odd-proton state. From the Gallagher-Moszkowski rule, the J^π=0$^-$, π7/2[514], ν7/2[613] state is expected to be lower than the J^π=7$^-$, π7/2[514], ν7/2[613] state. The 7773-keV α from ^{256}Md g.s., on the other hand, is assumed to decay to the ^{252}Es g.s. which probably has the J^π of 5$^-$ with π3/2[521], ν7/2[613] configuration. Since an α transition from J^π=0$^-$ to J^π=5$^-$ is forbidden, J^π(^{256}Md g.s.)=1$^-$ of K=0 has been suggested. Inversion of 1$^-$ and 0$^-$ states has also been assigned for other K=0 bands (for example in ^{242}Am g.s.). J^π=1$^-$, K=0 π7/2[514], ν7/2[613] assignment for ^{256}Md is consistent with an α transition (HF=5.0×10^4) to the J^π=5$^-$, π3/2[521], ν7/2[613] state, and with its ε decay to ^{256}Fm. See 1993Mo18 for discussions on other possible orbitals.
≈240			A	E(level): deduced from Q(α)(^{260}Lr) and measured Eα in ^{260}Lr α decay.