Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Y. A. Akovali	NDS 87,309 (1999)	1-Nov-1998

S(n)=8.23×10^3 *syst*; S(p)=2.2×10^3 *syst*; Q(α)=10591 *21* 2012Wa38
Note: Current evaluation has used the following Q record 8352 syst 2387 syst 10591 *20* 1995Au04.

Assignment: ^{208}Pb(^{58}Fe,2n), ^{207}Pb(^{58}Fe,n), p ^{256}Rf (1984Og02,1984Og03); ^{207}Pb(^{58}Fe,n) 5.04 MeV/u; p ^{260}Sg, p ^{256}Rf (1986Mu10,1987Mu15).

^{264}Hs Levels

E(level)	J$^\pi$	T$_{1/2}$	Comments
0.0	0$^+$	≈0.8 ms	%α≈50; %SF≈50 From observation of fission activities of granddaughter ^{256}Rf, the authors of 1984Og03 and 1986Mu10 had concluded that predominant decay mode of ^{264}Hs g.s. is α decay. From recent observation of short-lived spontaneous fission activities, 1998HoZV deduced that α and SF branchings are 50%, if both activities are from the ^{264}Hs g.s., although an isomeric state could not be ruled out (1998HoZV). T$_{1/2}$: the measured half-lives for ^{264}Hs are 76 μs *+364−36* (in ^{207}Pb(5.04-MeV/u ^{58}Fe), α observed; 1987Mu 15), 66 μs *+316−30* (in ^{208}Pb(5.019-MeV/u ^{58}Fe), SF observed; 1998H oZV), 76 μs *+364−36* (in ^{207}Pb(4.889 MeV/u ^{58}Fe), SF observed; 1998H oZV), 825 μs *+3951−377* (in ^{207}Pb(4.889 MeV/u ^{58}Fe), α observed; 1998HoZV). 1998HoZV recommend T$_{1/2}$=261 μs, an average of these measurements. T$_{1/2}$≈0.8 ms from the latest measurement by α detection is adopted here because of the possibility of observation of a SF-decaying isomer. Theoretical calculations of 1997Mo25 predict T$_{1/2}$(α)=0.66 ms, and T$_{1/2}$(β)=6.88 s. From semiempirical formulas, 1997Po18 calculated T$_{1/2}$(α)=0.1 ms. Our calculations by requiring the hindrance factor for the observed 10434-keV α (from ^{264}Hs g.s. to ^{260}Sg g.s.) to be 1.0 and r$_0$(^{260}Sg)=1.46 *2*, extrapolated from r$_0$ systematics given in 1998Ak04, give T$_{1/2}$(10434 α)=1.3 ms *5*. If Iα(10434 α)=80±20 per 100 α decays, then the partial half-life for α decay is expected to be 1.6 ms *7*, or the total half-life to be ≈0.8 ms, if %α≈50. For calculations of partial SF half-lives, see 1978Po09, 1985Lo17 and 1987Mo16. For calculations of partial half-life and decay Γ for pion radioactivity, see 1988Io02 and 1988Io04. For calculations of quadrupole deformation, see 1997Ru04.