

Adopted Levels

<u>Type</u>	<u>Author</u>	<u>History Citation</u>	<u>Literature Cutoff Date</u>
Full Evaluation	Balraj Singh	NDS 144, 297 (2017)	25-Aug-2017

$Q(\beta^-) = -3300$ SY; $S(n) = 6840$ SY; $S(p) = 4800$ SY; $Q(\alpha) = 8150$ SY [2017Wa10](#)

Estimated uncertainties ([2017Wa10](#)): 140 for $Q(\beta^-)$, 100 for $S(n)$, $S(p)$ and $Q(\alpha)$,

$S(2n) = 12490$ 100, $S(2p) = 8590$ 100 (syst, [2017Wa10](#)).

²⁵⁸No produced and identified by [1969NuZZ](#) in ²⁴⁸Cm(¹³C,X) reaction, followed by measurement of α decay, $E\alpha$ and half-life.

[1986Hu01](#), [1989Hu09](#): ²⁴⁸Cm(¹³C,X)²⁵⁸No, $E = 81$ MeV; measured fission fragment mass distribution, kinetic energy partitioning from SF decay of ²⁵⁸No.

[1985Tu01](#): ²³⁸U(²⁰Ne,F), $E = 292$ MeV; measured (fragment)(fragment)(θ), (fragment)(fragment)(ϕ); deduced linear momentum transfer for ²⁵⁸No compound nucleus.

[2009Pe09](#): ²³²Th(²⁶Mg,F), $E = 148$ MeV; measured σ , mass and energy distributions of fission fragments, neutrons by time-of-flight method; deduced ratio of widths for neutron emission and fission (Γ_n/Γ_f) for the compound nucleus of ²⁵⁸No.

While the half-life of ²⁶²Rf does not seem confirmed as yet (most recent value being 17 ms 16 from [2013Mu08](#) as opposed to 210 ms +128-58 by A. Gorshkov et al. in 2008 GSI annual Sci. Rep. p140 (2009); 2.5 s +24-16 in [1998Tu01](#); 2.1 s 2 in [1996La11](#); 1.2 s +10-5 in [1994La22](#); 1.3 s +16-8 in [1994Og04](#); 47 ms 5 in [1985So03](#)), it is quite definite that ²⁶²Rf decays primarily by SF mode. No evidence has been found for α decay mode of ²⁶²Rf.

Theoretical studies: consult the NSR database at www.nndc.bnl.gov for about 85 references dealing with theoretical calculations of half-lives for different decay modes, binding energies, fission characteristics, and other nuclear structure aspects.

[Additional information 1.](#)

²⁵⁸No Levels

<u>E(level)</u>	<u>J^{π}</u>	<u>T_{1/2}</u>	<u>Comments</u>
0	0 ⁺	1.2 ms 2	<p>%SF\approx100</p> <p>T_{1/2}: measured by 1989Hu09. Earlier measurement: T_{1/2}\approx1.2 ms (1969NuZZ).</p> <p>Only the SF decay mode has been observed. Symmetric mass distribution was observed in SF, and total kinetic energy of fission fragments were measured by 1986Hu01 and 1989Hu09.</p> <p>Theoretical partial α half-lives, log T_{1/2}(α) = -8.89 y (T_{1/2}(α) = 41 ms) (1976Ra02) and T_{1/2}(α) = 2.1 min (1997Po18), suggest %α = 3 and %α = 0.66, respectively.</p>