Adopted Levels

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Oct-2015

Q(β^-)=−1800 *SY*; S(n)=5460 *SY*; S(p)=4980 *SY*; Q(α)=7810 *SY* 2012Wa38

Estimated uncertainties (2012Wa38): 420 for Q(β^-), 510 for S(n), 570 for S(p), 300 for Q(α).

S(2n)=12240 *400*, S(2p)=9020 *610* (syst,2012Wa38).

^{265}Rf produced in the α-decay chain of ^{285}Fl nuclide (2010El06,2015Ut02): ^{285}Fl –> ^{281}Cn –> ^{277}Ds –> ^{273}Hs –> ^{269}Sg –> ^{265}Rf.

2010El06: identification of ^{265}Rf nuclide in the α-decay chain of ^{285}Fl nuclide produced in ^{242}Pu(^{48}Ca,5n) at E=256 MeV from LBNL cyclotron facility. Evaporation residues were separated by BGS based on magnetic rigidities. Signals from multiwire proportional counters (MWPC) and focal plane detector (FPD) were used to distinguish implantation events from radioactive decay events in the FPD. Z=114 events were identified by detecting time and position correlated events corresponding to their implantation and subsequent radioactive decay chain terminating in SF decay of ^{265}Rf.

2015Ut02: ^{285}Fl produced in ^{240}Pu(^{48}Ca,3n),E=245,250 MeV at U400 cyclotron of FLNR-JINR facility. Targets=^{240}Pu enriched to 98.97% at ORNL facility, and 92% enriched at JINR facility, with average thickness of 0.39 mg/cm^2 *4* for mixed ORNL/JINR ^{240}Pu material. Evaporation residues (ERs) were separated from the incident beam ions, scattered particles, and transfer reaction products by the DGFRS based on magnetic rigidities. Recoils passed through a tof system of two multiwire proportional counters (MWPCs), and were implanted in the DSSD detector system (0.3-mm thick double-sided silicon strip detectors) placed at the final focus of the DGFRS. Events related to Z=114 were identified by detecting time and position correlated events corresponding to their implantation and subsequent α-decay chain terminating in SF decay.

The data of 1999Ni03 reporting α-decay chain of ^{293}118 leading to the nuclide ^{265}Rf, and cited in earlier Nuclear Data Sheets evaluation of 2000Fi12 have since been retracted (2002Ni10), and have not been confirmed in an independent experiment at LBNL (2003Gr26).

^{265}Rf Levels

Cross Reference (XREF) Flags

A ^{269}Sg α decay (3.1 min)

E(level)	$T_{1/2}$	XREF	Comments
0	1.0 min *+12−3*	A	%SF≈100 (2010El06,2015Ut02) E(level): it is assumed that the observed activity corresponds to the ground state of ^{265}Rf. $T_{1/2}$: measured by 2015Ut02 from α(SF)-correlation timing Theoretical SF decay half-life ≈ 1 s (1997Sm03). Theoretical α decay half-lives: 6.58 h (generalized liquid drop model, 2008Ro06), 29.6 h (Viola-Seaborg-Sobiczewski formulas, 2008Ro06); ≈2.8 h (1997Sm03), 5.6 y (1997Mo25). Theoretical β-decay half-life >100 s (1997Mo25). J^π: $3/2^+$ proposed in calculations by 1997Mo25.