^{166}Os α decay (213 ms) 2015Li24,1996Pa01,1981Ho10

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 195,1 (2024)	19-Sep-2023

Parent: ^{166}Os: E=0.0; $J^\pi=0^+$; $T_{1/2}$=213 ms *5*; Q(α)=6143 *3*; %α decay=72 *13*

^{166}Os-$T_{1/2}$: weighted average of 210 ms *6* (2015Li24), 220 ms *7* (1996Pa01; 6000α(t)), 194 ms *17* (1991Se01) and 181 ms *38* (1981Ho10). Other: 0.3 s *1* (1978Ca11).

^{166}Os-Q(α): From 2021Wa16.

^{166}Os-%α decay: %α=72 *13* for ^{166}Os α decay (1981Ho10).

1978Ca11: ^{166}Os produced in the ^{106}Cd(^{63}Cu,p2n) reaction on an enriched (86.22% ^{106}Cd) target and in the ^{107}Ag(^{63}Cu,4n) reaction on an enriched (97.87% ^{107}Ag) target. E(^{63}Cu)=380 MeV. The ^{63}Cu energy was degraded using thin nickel foils to obtain excitation functions and mass assignments. The reaction products were transported for study using He-jet techniques. Measured $T_{1/2}$ and Eα. See also 1977Ca23.

1981Ho10: ^{166}Os produced by ^{58}Ni bombardment. α spectra measured with Si detector following separation of the reaction products using a velocity selector. Report $T_{1/2}$, Eα and %α. See also 1981HoZM.

1991Se01: ^{166}Os produced as a decay product of the ^{106}Cd+^{74}Se reaction, with E(^{74}Se)=340 MeV. Enriched (80% ^{106}Cd) target of thickness 500 μg/cm^2. Reaction products were separated using the Daresbury recoil mass separator and were subsequently implanted into a position-sensitive Si surface-barrier detector. Reported $T_{1/2}$.

1996Pa01: ^{166}Ir produced as a fusion evaporation product in the ^{112}Sn+^{58}Ni reaction, with E(^{58}Ni)=297 and 329 MeV. The ^{112}Sn target (enrichment not given) was ≈0.9 mg/cm^2 thick. The recoil products were separated in flight in the Daresbury recoil mass spectrometer and implanted in a double-sided silicon-strip detector (energy resolution ≤20 keV FWHM). Reported $T_{1/2}$, Eα.

2015Li24: ^{166}Os produced in ^{92}Mo(^{78}Kr,2p2n),E(^{78}Kr)=380 MeV. Measured Eα, recoil-α-α-α, and half-life of ground state of ^{166}Os. Recoiling nuclei were separated using gas-filled RITU separator and implanted in GREAT spectrometer at K-130 cyclotron facility of the University of Jyvaskyla.

^{162}W Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	0^+	1.19 s *12*	$T_{1/2}$: adopted value.

α radiations

Eα	E(level)	Iα[‡]	HF[†]	Comments
5993 *4*	0.0	100	1.000	Eα: weighted average of: 6000 *20* (1977Ca23); 5985 *6* (1981Ho10); and 6000 *6* (1996Pa01). In this average, the value of 1981Ho10 was increased by 4 keV due to an increase of this amount in the energy of the α line used as a calibration line in the measurement. Iα: only one α group is reported.

[†] The nuclear radius parameter $r_0(^{162}W)$=1.559 *10* is deduced by assuming HF=1.0 for the ground-state to ground-state alpha decay branch.

[‡] For absolute intensity per 100 decays, multiply by 0.72 *13*.