

**<sup>166</sup>Os  $\alpha$  decay (208 ms)    [2015Li24](#),[1996Pa01](#),[1981Ho10](#)**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	29-Feb-2016

Parent: <sup>166</sup>Os: E=0; J <sup>$\pi$</sup> =0<sup>+</sup>; T<sub>1/2</sub>=208 ms 6; Q( $\alpha$ )=6139 4; % $\alpha$  decay=72 13

<sup>166</sup>Os-T<sub>1/2</sub>: Weighted average of: 181 ms 38 ([1981Ho10](#),  $\alpha$ -decay); 194 ms 17 ([1991Se01](#),  $\alpha$ -decay); 220 ms 7 ([1996Pa01](#),  $\alpha$ -decay), 210 ms 6 ([2015Li24](#), recoil- $\alpha$ - $\alpha$  correlated decay curve). Other: 300 ms 100 ([1977Ca23](#),  $\alpha$ -decay).

<sup>166</sup>Os-Q( $\alpha$ ): From [2012Wa38](#).

<sup>166</sup>Os-% $\alpha$  decay: % $\alpha$ =72 13 for <sup>166</sup>Os  $\alpha$  decay ([1981Ho10](#)).

[1978Ca11](#): <sup>166</sup>Os produced in the <sup>106</sup>Cd(<sup>63</sup>Cu,p2n) reaction on an enriched (86.22% <sup>106</sup>Cd) target and in the <sup>107</sup>Ag(<sup>63</sup>Cu,4n) reaction on an enriched (97.87% <sup>107</sup>Ag) target. E(<sup>63</sup>Cu)=380 MeV. The <sup>63</sup>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<sub>1/2</sub> and E $\alpha$ . See also [1977Ca23](#).

[1981Ho10](#): <sup>166</sup>Os produced by <sup>58</sup>Ni bombardment.  $\alpha$  spectra measured with Si detector following separation of the reaction products using a velocity selector. Report T<sub>1/2</sub>, E $\alpha$  and % $\alpha$ . See also [1981HoZM](#).

[1991Se01](#): <sup>166</sup>Os produced as a decay product of the <sup>106</sup>Cd+<sup>74</sup>Se reaction, with E(<sup>74</sup>Se)=340 MeV. Enriched (80% <sup>106</sup>Cd) target of thickness 500  $\mu$ g/cm<sup>2</sup>. Reaction products were separated using the Daresbury recoil mass separator and were subsequently implanted into a position-sensitive Si surface-barrier detector. Reported T<sub>1/2</sub>.

[1996Pa01](#): <sup>166</sup>Ir produced as a fusion evaporation product in the <sup>112</sup>Sn+<sup>58</sup>Ni reaction, with E(<sup>58</sup>Ni)=297 and 329 MeV. The <sup>112</sup>Sn target (enrichment not given) was  $\approx$ 0.9 mg/cm<sup>2</sup> 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  $\leq$ 20 keV FWHM). Reported T<sub>1/2</sub>, E $\alpha$ .

[2015Li24](#): <sup>166</sup>Os produced in <sup>92</sup>Mo(<sup>78</sup>Kr,2p2n),E(<sup>78</sup>Kr)=380 MeV. Measured E $\alpha$ , recoil- $\alpha$ - $\alpha$ , and half-life of ground state of <sup>166</sup>Os. Recoiling nuclei were separated using gas-filled RITU separator and implanted in GREAT spectrometer at K-130 cyclotron facility of the University of Jyväskylä.

<sup>162</sup>W Levels

E(level)	J <sup><math>\pi</math></sup>	T <sub>1/2</sub>
0	0 <sup>+</sup>	1.36 s 7

$\alpha$  radiations

E $\alpha$	E(level)	I $\alpha$ <sup>†</sup>	Comments
5993 4	0	100	E $\alpha$ : weighted average of: 6000 20 ( <a href="#">1977Ca23</a> ); 5985 6 ( <a href="#">1981Ho10</a> ); and 6000 6 ( <a href="#">1996Pa01</a> ). In this average, the value of <a href="#">1981Ho10</a> was increased by 4 keV due to an increase of this amount in the energy of the $\alpha$ line used as a calibration line in the measurement. I $\alpha$ : only one $\alpha$ group is reported.

<sup>†</sup> For absolute intensity per 100 decays, multiply by 0.72 13.