

$^{171}\text{Os}$   $\alpha$  decay (790 ms)    [2023Zh03](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 191,1 (2023)	22-Aug-2023

Parent:  $^{171}\text{Os}$ : E=186.32 13;  $J^\pi=(13/2^+)$ ;  $T_{1/2}=790$  ms 16;  $Q(\alpha)=5371$  4;  $\% \alpha$  decay=0.21 5

$^{171}\text{Os}$ -E, $J^\pi$ : From  $^{171}\text{Os}$  Adopted Levels in the ENSDF database (June 2018 update).

$^{171}\text{Os}$ - $T_{1/2}$ : From [2023Zh03](#) (decay of 5306 $\alpha$ ).

$^{171}\text{Os}$ - $Q(\alpha)$ : From [2021Wa16](#).

$^{171}\text{Os}$ - $\% \alpha$  decay:  $\% \alpha=0.21$  5 ([2023Zh03](#)). Authors estimate  $\%IT \approx 36\%$  for the decay of  $^{171}\text{Os}$  isomer from the observed intensities of the  $\alpha$  particles from the decay of the g.s. of  $^{171}\text{Os}$ , leading to  $\%e+\% \beta^+ \approx 64\%$  for the decay of this isomer.

[2023Zh03](#):  $^{171m}\text{Os}$  produced in  $^{92}\text{Mo}(^{83}\text{Kr},2p2n), E(^{83}\text{Kr})=383$  MeV, followed by separation of fragments of interest using RITU in-flight separator at the University of Jyväskylä cyclotron facility. The  $^{171}\text{Os}$  nuclei and decay radiations were detected using GREAT spectrometer and JUROGAM II array of 15 Eurogam Phase I and 24 Euroball clover Compton-suppressed HPGe detectors. Measured  $E\alpha$ ,  $I\alpha$   $\alpha$ -branching ratios, half-life of  $^{171m}\text{Os}$  decay. Deduced level in  $^{167}\text{W}$ , and  $\alpha$ -hindrance factor.

 $^{167}\text{W}$  Levels

E(level)	$J^\pi$	Comments
127.1 17	(13/2 <sup>+</sup> )	E(level), $J^\pi$ : from the Adopted Levels.

 $\alpha$  radiations

$E\alpha$	E(level)	$I\alpha^\ddagger$	HF <sup>†</sup>	Comments
5306 4	127.1	100	2.0 5	$E\alpha, I\alpha$ : from <a href="#">2023Zh03</a> . HF: other: 1.6 4 ( <a href="#">2023Zh03</a> ).

<sup>†</sup> The nuclear radius parameter  $r_0(^{167}\text{W})=1.572$  10 is deduced from interpolation (or unweighted average) of radius parameters of the adjacent even-even nuclides in [2020Si16](#).

<sup>‡</sup> For absolute intensity per 100 decays, multiply by 0.0021 5.