## <sup>158</sup>Ta α decay (6.1 μs) 2014Ca03

		History	
Туре	Author	Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 200,2 (2025)	22-Aug-2022

Parent: <sup>158</sup>Ta: E=2809; J<sup> $\pi$ </sup>=19<sup>-</sup>; T<sub>1/2</sub>=6.1  $\mu$ s *I*; Q( $\alpha$ )=6124 4; % $\alpha$  decay=1.4 2

<sup>158</sup>Ta-Q( $\alpha$ ): From 2021Wa16.

<sup>158</sup>Ta-E,J<sup>π</sup>: From 2014Ca03.

<sup>158</sup>Ta-T<sub>1/2</sub>: From  $\gamma$ (t) (2014Ca03, 2015Ca04); other: 6.4  $\mu$ s 4 from  $\alpha$ (t) (2015Ca04).

<sup>158</sup>Ta- $\%\alpha$  decay:  $\%\alpha$ =1.4 2 measured by 2014Ca03.

2014Ca03 compiled by B. Singh (McMaster).

2014Ca03, 2015Ca04: <sup>158</sup>Ta produced by <sup>102</sup>Pd( $E(^{58}Ni)$ ,pn) reaction with 255 MeV beam from JYFL accelerator facility. <sup>158</sup>Ta recoils separated by RITU separator and GREAT spectrometer. Measured E $\gamma$ , I $\gamma$ ,  $\gamma\gamma$ -coin, E $\alpha$ , (<sup>158</sup>Ta ions) $\gamma\alpha$  correlations. Determined half-life of high-spin isomer using JUROGAM array for  $\gamma$ 's and DSSDs for particles. Deduced isomer decay modes, levels and  $J^{\pi}$  in <sup>158</sup>Ta.

Additional information 1.

## <sup>154</sup>Lu Levels

E(level)	$\mathbf{J}^{\pi}$	T <sub>1/2</sub>	Comments
0 60 <i>12</i>	(2 <sup>-</sup> ) (9 <sup>+</sup> )	1.12 s 8	E(level): from <sup>154</sup> Lu Adopted Levels. $\%\epsilon + \%\beta^+ \approx 100$ E(level): from 2012Au07. In <sup>154</sup> Lu Adopted Levels, level energy is listed in comments as 59 keV 9. $J^{\pi}, T_{1/2}$ : from <sup>154</sup> Lu Adopted Levels. Decay mode from <sup>154</sup> Lu Adopted Levels.

## $\alpha$ radiations

Eα	E(level)	$I\alpha^{\ddagger}$	$\mathrm{HF}^{\dagger}$	Comments
8644 11	60	100	6.9×10 <sup>5</sup> 13	E $\alpha$ ,HF: from 2014Ca03. I $\alpha$ : the only known transition from the 6.1 $\mu$ s isomer.
				HF: calculated by evaluation code; $2014Ca03$ report $\approx 20$ .

<sup>†</sup> The nuclear radius parameter  $r_0(^{154}Lu)=1.5570\ 56$  is deduced from interpolation of radius parameters of the adjacent even-even nuclides in 2020Si16.

<sup>±</sup> For absolute intensity per 100 decays, multiply by 0.014 2.