

$^{157}\text{Hf}$   $\alpha$  decay [1979Ho10](#),[1973Ea01](#),[1965Ma14](#)

| Type            | Author  | History Citation  | Literature Cutoff Date |
|-----------------|---------|-------------------|------------------------|
| Full Evaluation | N. Nica | NDS 170, 1 (2020) | 16-Aug-2020            |

Parent:  $^{157}\text{Hf}$ :  $E=0.0$ ;  $J^\pi=(7/2^-)$ ;  $T_{1/2}=115$  ms  $I$ ;  $Q(\alpha)=5880$  3;  $\% \alpha$  decay=94 4

$^{157}\text{Hf}$ - $\% \alpha$  decay: Weighted average for  $I_\alpha$  of 91% 7 ([1979Ho10](#)) and 95 5 ([1996Pa01](#)) from ratio of  $I_\alpha$ (daughter) to  $I_\alpha$ (parent); other:  $\approx 100\%$  ([1965Ma14](#)).

Experimental methods:

[1965Ma14](#):  $^{144}\text{Sm}(^{20}\text{Ne},7n)$  with enriched (94.6%) target and  $E(^{20}\text{Ne})=130$ -195 MeV. Measured  $\alpha$  spectrum and excitation function.

[1973Ea01](#):  $^{144}\text{Sm}(^{20}\text{Ne},7n)$  with  $E(^{20}\text{Ne})=110$ -204 MeV.

[1979Ho10](#):  $^{107}\text{Ag}(^{58}\text{Ni},xnyp)$  with  $E(^{58}\text{Ni})=263, 275$  MeV. Products separated with velocity selector and implanted in position sensitive detector. Also [1978ReZZ](#), [1981HoZM](#) by same same authors.

[1996Pa01](#): produced by heavy-ion fusion-evaporation reaction with products separated in recoil mass spectrometer. Measured  $\alpha$ 's with Si strip detector.

 $^{153}\text{Yb}$  Levels

| E(level) | $J^\pi$             |
|----------|---------------------|
| 0.0      | (7/2 <sup>-</sup> ) |

 $\alpha$  radiations

| $E_\alpha$ | E(level) | $I_\alpha^\ddagger$ | HF <sup>†</sup> | Comments   |
|------------|----------|---------------------|-----------------|--|
| 5731 3     | 0.0      | 100                 | 1.62 8          | $E_\alpha$ : Weighted average of 5735 5 ( <a href="#">1979Ho10</a> ) and 5729 4 ( <a href="#">1996Pa01</a> ); others: 5680 20 ( <a href="#">1965Ma14</a> ) and 5720 10 ( <a href="#">1973Ea01</a> ).<br>$I_\alpha$ : Value assumes all of the $\alpha$ decay is via this branch. |

<sup>†</sup> The nuclear radius parameter  $r_0(^{153}\text{Yb})=1.5570$  45 is deduced from interpolation (or unweighted average) of radius parameters of the adjacent even-even nuclides.

<sup>‡</sup> For absolute intensity per 100 decays, multiply by 0.94 4.