

$^{215}\text{Pa}$   $\alpha$  decay    [2000He17](#),[1979Sc09](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola, P. Demetriou, M. Hassanvand, M. Hussain		NDS 114, 661 (2013)	28-Feb-2013

Parent:  $^{215}\text{Pa}$ :  $E=0.0$ ;  $J^\pi=(9/2^-)$ ;  $T_{1/2}=14$  ms 2;  $Q(\alpha)=8240$  50;  $\% \alpha$  decay=100.0

$^{215}\text{Pa}$ - $Q(\alpha)$ : From [2012Wa38](#). Other: 8280 keV 15 from measurement of [2000He17](#).

[2000He17](#):  $^{215}\text{Pa}$  activity was produced by  $^{170}\text{Er}(^{51}\text{V},6n)$ ,  $E=214$ -286 MeV, separated from the beam using a velocity filter, and implanted into a 16-strip semiconductor detector. The activity was identified by  $\alpha$ -spectroscopy and  $\alpha$ - $\gamma$  spectroscopy. Measured  $E\alpha$ ,  $T_{1/2}=14$  ms 2.

[1996An21](#):  $^{215}\text{Pa}$  activity was produced by  $^{170}\text{Er}(^{51}\text{V},6n)$ ,  $E=28$ -87 MeV, separated from the beam using a velocity filter SHIP, and implanted into a 16-strip position-sensitive semiconductor detector. The activity was identified by  $\alpha$ -correlations and  $\alpha$ - $\gamma$  coincidences. Measured  $E\alpha$ ,  $T_{1/2}=15$  ms 4.

[1979Sc09](#):  $^{215}\text{Pa}$  activity was produced by  $^{181}\text{Ta}(^{40}\text{Ar},6n)$ ,  $E=165$ -202 MeV, separated from the beam using the velocity filter SHIP, and detected by a  $\Delta E$ -E counter telescope consisting of a secondary electron detector and a silicon surface barrier detector. The activity was identified by 10  $\alpha$ -correlated events. Measured  $E\alpha$ ;  $T_{1/2}=14$  ms +20-3 was indirectly estimated from experimental data. This result was not included in weighted average due to low statistics.  $E\alpha$  following semiempirical procedure of [1961Ta22](#).

[1997Mi03](#):  $^{215}\text{Pa}$  activity was produced by  $^{185}\text{W}(^{35}\text{Cl},2n)$ ,  $E=182.5$  MeV, separated with the JAERI recoil mass separator and implanted on a double-sided position-sensitive silicon detector.  $\alpha$ -correlations measurement but poor statistics did not allow for a unique assignment of decay chain for  $^{214,215}\text{Pa}$  nuclides.

The HF value is not given since  $r_0$  parameter for  $^{211}\text{Ac}$  cannot be deduced from interpolation of  $r_0$  for neighboring nuclides.

 $^{211}\text{Ac}$  Levels

E(level)	$J^\pi$	$T_{1/2}$	Comments
0.0	$9/2^-$	0.21 s 3	$T_{1/2}$ : weighted average of 0.25 s 5 ( <a href="#">1968Va04</a> ) and 0.20 s 3 ( <a href="#">2000He17</a> ). $J^\pi$ : from Adopted Levels.

 $\alpha$  radiations

$E\alpha$	E(level)	$I\alpha^\dagger$	Comments
8088 7	0.0	100	$E\alpha$ : from weighted average of 8091 keV 15 ( <a href="#">2000He17</a> ), 8085 keV 15 ( <a href="#">1979Sc09</a> ), 8088 keV 10 ( <a href="#">1996An21</a> ). Other value: <a href="#">1997Mi03</a> not included in average due to poor statistics.

$^\dagger$  Absolute intensity per 100 decays.