

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	15-Jun-2013

$Q(\beta^-)=2991$  24;  $S(n)=3561$  26;  $S(p)=8330$  SY;  $Q(\alpha)=5110$  SY [2012Wa38](#)

Estimated uncertainty of 300 for  $S(p)$  and  $Q(\alpha)$ .

$S(2n)=9050$  25,  $S(2p)=15080$  400 (syst) ([2012Wa38](#)).

[2010Ch19](#), [2012Ch19](#):  $^{221}\text{Po}$  isotope produced and identified in  $^9\text{Be}(^{238}\text{U},X), E=670$  MeV/nucleon fragmentation reaction, separated by Fragment Recoil Separator (FRS) at GSI facility. The fragments were then injected into the electron cooler experimental storage ring (ESR) for mass and half-life measurement of  $^{221}\text{Po}$  g.s. by time-resolved Schottky Mass spectrometry technique.

[2010AI24](#):  $^{221}\text{Po}$  produced in  $^9\text{Be}(^{238}\text{U},X), E=1$  GeV/nucleon, reaction products analyzed by FRS at GSI facility, measured production  $\sigma$  and compared with COFRA and EPAX calculations.

Mass measurement: [2012Ch19](#), [2010Ch19](#).

[2012Zh46](#), [1983Sa22](#): theoretical calculations of binding energies and and other properties.

[2012Sa31](#): theoretical calculation of half-life for cluster decay.

 $^{221}\text{Po}$  Levels

E(level)	$T_{1/2}$	Comments
0	112 s +58-28	<p><math>\% \beta^- = 100</math></p> <p>Main decay mode possible is only <math>\beta^-</math>. From theoretical <math>T_{1/2}(\alpha)=10^{+8.4}</math> s and <math>T_{1/2}=3.2</math> s (<a href="#">1997Mo25</a>), <math>\alpha</math> decay mode is expected to be negligible. <math>Q(\beta^-n)</math> is negative thus this decay mode is not possible.</p> <p><math>T_{1/2}</math>: measured by <a href="#">2010Ch19</a> for highly-charged (probable mixture of bare, H-like and He-like) ions.</p> <p><math>J^\pi</math>: <math>9/2^+</math> (syst, <a href="#">2012Au07</a>), <math>3/2^+</math> (theoretical prediction, <a href="#">1997Mo25</a>).</p> <p>Production <math>\sigma=0.000116</math> mb in <math>^9\text{Be}(^{238}\text{U},X), E=1</math> GeV/nucleon (e-mail reply of Oct 29, 2010 from H. Alvarez Pol, <a href="#">2010AI24</a>).</p>