

Adopted Levels

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	14-May-2009

$Q(\beta^-)=3688$ 20; $S(n)=3952$ 22; $S(p)=9.6\times 10^3$ *syst*; $Q(\alpha)=2.4\times 10^3$ *syst* [2012Wa38](#)

Note: Current evaluation has used the following Q record 3546 39 3958 26 9390 calc 2380 calc [2009AuZZ,1997Mo25](#).

$S(2n)=9655$ 22 ([2009AuZZ](#)), $S(2p)=17540$ (calculated,[1997Mo25](#)).

No Q values listed in [2003Au03](#).

$Q(\beta^-)$ and $S(n)$ from [2009AuZZ](#). $S(p)$ and $Q(\alpha)$ from [1997Mo25](#).

[2009Ne03](#): ^{229}Rn was identified in spallation reaction $U(p,X)$ using UC_x target and 1.4 GeV pulsed proton beam from CERN's proton Synchrotron Booster accelerator. The measurements were performed at the double Penning-trap mass spectrometer ISOLTRAP at ISOLDE-CERN facility. The reaction products from the above mentioned spallation reaction diffused from the target into a high-efficiency arc discharge ion source. The singly charged ions were accelerated to 30 keV and separated by a high-resolution mass separator. The resulting ion beam was injected into a radio frequency quadrupole cooler ISCOOL. Finally the ions were stopped and bunched in the ISOLTRAP cooler to prepare these for capture into two Penning traps for mass measurements. Off-line studies were done at the ISOLDE facility to measure β decay and half-lives.

Measured mass excess= 39362 keV *13* ([2009Ne03](#)).

 ^{229}Rn Levels

E(level)	$T_{1/2}$	Comments
0	12.0 s <i>+12-13</i>	<p>$\% \beta^- = 100$</p> <p>$\% \beta^-$: calculated $T_{1/2}$ $1/2$ for α decay $> 10 \times 10^{20}$ (1997Mo25) suggests absence of α decay mode.</p> <p>E(level): the activity and mass reported by 2009Ne03 assumed to correspond to the ground state of ^{229}Rn.</p> <p>$T_{1/2}$: from β-decay curve where the fit included daughter (^{229}Fr) and grand-daughter ^{229}Ra activities (2009Ne03). Calculated value for β^- decay=35 s (1997Mo25).</p> <p>J^π: $7/2^-$ predicted by 1997Mo25.</p> <p>Measured yield of ^{229}Rn=0.3 ions/μC 2 at ISOLTRAP and 200 ions/μC 20 at ISOLDE (read by the evaluator from figure 3 of 2009Ne03).</p>