

Adopted Levels

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Caroline D. Nesaraja, Scott D. Geraedts and Balraj Singh		NDS 111,897 (2010)	12-Jan-2010

$Q(\beta^-)=1.62\times 10^4$  syst;  $S(n)=2.2\times 10^3$  syst;  $S(p)=1.53\times 10^4$  syst;  $Q(\alpha)=-1.23\times 10^4$  syst [2012Wa38](#)

Note: Current evaluation has used the following Q record 15590 syst 2560 syst 15340 syst -12200 syst

[2009AuZZ,2003Au03](#).

$\Delta(Q(\beta^-))=\Delta(S(n))=1060$ ,  $\Delta(S(p))=1280$ ,  $\Delta(Q(\alpha))=1210$  (syst,[2009AuZZ,2003Au03](#)).

$Q(\beta^-n)=10300$  920 (syst,[2009AuZZ,2003Au03](#)).

$S(2n)=6050$  1060 ([2009AuZZ](#),syst).  $S(2p)=38080$  ([1997Mo25](#),calculated).

[1997Be70](#):  $^{58}\text{Sc}$  identified in  $^9\text{Be}(^{238}\text{U},X)$  reaction at 750 MeV/nucleon. The fragments were mass separated using Fragment recoil separator and time-of-flight techniques. A total of 11 counts were assigned to  $^{58}\text{Sc}$  corresponding to cross section of 3 nb.

[2005Ga01](#) (also [2003So21](#)):  $^{58}\text{Sc}$  produced in fragmentation of  $^{76}\text{Ge}^{30+}$  beam on a  $^{58}\text{Ni}$  target at 61.8 MeV/nucleon. LISE3 achromatic spectrometer used to separate fragments; magnetic rigidity was tuned to optimize transmission of  $^{62}\text{V}$  and  $^{64}\text{Cr}$  fragments. Transmitted nuclei were identified by three consecutive Si detectors where two were used for energy loss and time-of-flight measurements while the third was used to determine their residual energies. Measured  $E\gamma$ ,  $I\gamma$ ,  $I\beta$ ,  $\gamma\gamma$ ,  $\beta\gamma$  coin,  $\gamma(t)$ , lifetimes with four Ge detectors placed around a thick Si telescope. Half-lives determined by fitting procedure involving five parameters: half-lives of mother, daughter and grand-daughter nuclei, the  $\beta$ -efficiency and the background rate over the 1 s collecting time.

[Additional information 1](#).

 $^{58}\text{Sc}$  Levels

E(level)	$T_{1/2}$	Comments
0	12 ms 5	$\% \beta^- = 100$ ; $\% \beta^- n = ?$ E(level): the 12-ms activity is assumed to belong to the g.s. of $^{58}\text{Sc}$ . $T_{1/2}$ : from $\beta$ (fragment) timing correlations of seven implanted events ( <a href="#">2005Ga01,2003So21</a> ). $J^\pi$ : ( $3^+$ ) proposed from systematics ( <a href="#">2003Au02</a> ). Calculated delayed-neutron decay modes: $\% \beta^- n = 19$ , $\% \beta^- 2n = 1.2$ ( <a href="#">1997Mo25</a> ).