

^{58}Ti β^- decay (59 ms) [2005Ga01,1999So20](#)

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

Parent: ^{58}Ti : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=59$ ms 9; $Q(\beta^-)=9440$ SY; $\% \beta^-$ decay=100.0

$^{58}\text{Ti}-Q(\beta^-)$: 9440 740 (syst,[2009AuZZ,2003Au03](#)).

$^{58}\text{Ti}-T_{1/2}$: From [2005Ga01](#) (also [2003So21](#)). Others: 57 ms 10 ([2002MaZN](#)), 47 ms 10 ([1999So20](#)).

$^{58}\text{Ti}-\% \beta^-$ decay: assumed $\%B=100$.

[2005Ga01](#) (also [2003So21](#)): ^{58}Ti produced in fragmentation of $^{76}\text{Ge}^{30+}$ beam on a ^{58}Ni target at 61.8 MeV/nucleon. LISE3 achromatic spectrometer used to separate fragments; magnetic rigidity was tuned to optimize transmission of ^{62}V and ^{64}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_γ , I_γ , I_β , $\gamma\gamma$, $\beta\gamma$ 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 β -efficiency and the background rate over the 1 s collecting time.

[2002MaZN](#): Fragmentation of ^{86}Kr beam, LISE spectrometer, measured isotopic half-life.

[1999So20](#) (also [1999Le67](#)): ^{58}Ti from $^{58}\text{Ni}(^{86}\text{Kr},X)$ reaction at 60.4 MeV/nucleon. Measured E_β , $I_\beta(t)$, isotopic half-life.

 ^{58}V Levels

E(level)	J^π	Comments
0	(1 ⁺)	J^π : from 'Adopted Levels'.
114? 2		

 $\gamma(^{58}\text{V})$

E_γ	I_γ^\dagger	$E_i(\text{level})$	E_f	J_f^π	Comments
114 ‡ 2	80 10	114?	0	(1 ⁺)	<p>E_γ: this γ is either a member of γ-cascade from high-lying excited state in ^{58}V or corresponds to direct decay of a 114 level to the g.s. Since no other transition was observed, the latter possibility seems more likely. Other: 116 2 (2002MaZN).</p> <p>I_γ: 80% 10 of ^{58}Ti β^- decay occurs through the 114 transition. This value is an upper limit for direct feeding of a possible 114 level in ^{58}V and gives $I_\beta^-(\text{g.s.}) \leq 20\%$ 10 giving $\log ft > 4.5$, consistent with $J^\pi(^{58}\text{V g.s.}) \neq 0$.</p>

† Absolute intensity per 100 decays.

‡ Placement of transition in the level scheme is uncertain.

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Decay Scheme

Legend

Intensities: I_(γ+ce) per 100 parent decays

