^{65}Cr β^- decay 2005Ga01,2011Da08

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 202,59 (2025)	25-Feb-2025

Parent: ^{65}Cr: E=0.0; $T_{1/2}$=27 ms *3*; Q(β^-)=12759 *45*; %β^- decay=100

^{65}Cr-J^π: $1/2^-$ (syst,2021Ko07), $9/2^+$ (predicted,2019Mo01).

^{65}Cr-$T_{1/2}$: From Adopted Levels of ^{65}Cr. Adopted value is weighted average of 27 ms *3* (2005Ga01,2003So21) and 28 ms *3* (2011Da08), both from implant-β time correlation, and 23 ms *12* from a storage-time measurement (2022Si20).

^{65}Cr-Q(β^-): Deduced by the evaluator from mass excesses of −28208 *45* for ^{65}Cr measured by 2022Si20, and −40967 *4* for ^{65}Mn from 2021Wa16. Value from 2021Wa16: 12660 *200* (syst).

2005Ga01,2003So21: ^{65}Cr was produced by fragmentation of a 61.8 MeV/nucleon ^{76}Ge beam on a ^{58}Ni target at GANIL. Fragments were identified and seperated by the LISE3 spectrometer with 3 consecutive silicon detectors, and implanted into the last Si detector surrounded by 4 Ge detectors for γ detection. Measured Eγ, Eβ, $\beta\gamma$-coin, implant-β(t). Deduced parent $T_{1/2}$. See also 1999So20, 1999Le67 of the same group.

2011Da08: ^{65}Cr was produced in the fragmentation of 57.8 MeV/nucleon ^{86}Kr beam impinged on 50 mg/cm^2 thick tantalum target at GANIL. Fragments were identified and selected using the LISE-2000 spectrometer with a three-element Si-detector telescope, and implanted into a double-sided silicon-strip detector (DSSSD) backed by a Si(Li) detector and surrounded by four clover type EXOGAM Ge detectors. Measured implant-β time correlation. Deduced parent $T_{1/2}$. See also 2002MaZN thesis.

Additional information 1.

^{65}Mn Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$(5/2^-)$	91.9 ms *9*	J^π,$T_{1/2}$: From Adopted Levels. Observation of 364 γ ray from β^- decay of ^{65}Mn in ≈50% of the cases, is very similar to feeding of 54% *2* deduced for this line from the direct β-decay of ^{65}Mn. 2005Ga01 concluded that β-delayed neutron emission scarcely occurs for this nuclide.

$\gamma(^{65}Mn)$

E_γ	E_i(level)	Comments
^{x}104$^{‡\#}$ *2*		
^{x}272$^{†\#}$ *2*		2002MaZN assign a γ of 272 *1* to ^{65}Fe from decay of ^{65}Mn, which however is not confirmed by the most recent study in 2013Ol06.
^{x}1368$^{†\#}$ *2*		

† From 2005Ga01, uncertain assignment.
‡ From 2002MaZN, uncertain assignment.
# Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.