^{63}Cr β^- decay (129 ms) 2005Ga01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 196,17 (2024)	30-Sep-2023

Parent: ^{63}Cr: E=0.0; J^π=(1/2$^-$); $T_{1/2}$=129 ms *2*; Q(β^-)=10710 *70*; %β^- decay=100

^{63}Cr-J^π,$T_{1/2}$: From Adopted Levels of ^{63}Cr. Adopted $T_{1/2}$ is taken from 2005Ga01 (also 2003So21). Others: 128 ms *8* (2011Da08,2002MaZN), 113 ms *16* (1999So20,1999Le67), 110 ms *70* (1998Am04); 161 ms *+104−91* (2004NiZY, preliminary).

^{63}Cr-Q(β^-): From 2021Wa16.

2005Ga01, 2003So21, 2001So07, 1999So20, and 1999Le67 are from the same group at GANIL.

2005Ga01 (also 2003So21): ^{58}Ni(^{76}Ge,X) ^{63}Cr source was produced in fragmentation of E=61.8 MeV/nucleon ^{76}Ge beam on a ^{58}Ni target at GANIL. Fragments were separated by the LISE3 achromatic spectrometer. Transmitted nuclei were identified with three consecutive Si detectors according to energy loss and time-of-flight and implanted into the last thick Si detector for β detection. γ rays were detected with four Ge detectors. Measured Eγ, Iγ, Iβ, $\gamma\gamma$-coin, $\beta\gamma$-coin, γ(t). Deduced parent $T_{1/2}$.

2001So07 (also 1999So20,1999Le67): ^{58}Ni(^{86}Kr,X) ^{63}Cr source was produced by fragmentation of E=60.4 MeV/nucleon ^{86}Kr beam on a ^{58}Ni target at GANIL. The detector setup is similar to that in 2005Ga01. Measured γ(t). Deduced parent $T_{1/2}$.

2011Da08 (also 2002MaZN): Ta(^{86}Kr,X) E=57.8 MeV/nucleon ^{86}Kr beam impinged on 50 mg/cm^2 thick tantalum target at GANIL. Measured $T_{1/2}$.

2004NiZY: ^{63}Cr source from 63 MeV/nucleon ^{86}Kr beam on ^{9}Be target at RIKEN. Measured $T_{1/2}$.

1998Am04: Be(^{86}Kr,X) E=500 MeV/nucleon at GSI. Fragments were separated with the FRS separator. Measured implant-β(t). Deduced parent $T_{1/2}$.

^{63}Mn Levels

E(level)[†]	J^π	$T_{1/2}$	Comments
0.0	5/2$^{(-)}$	0.276 s *6*	J^π,$T_{1/2}$: From Adopted Levels.

[†] No decay scheme could be established by 2005Ga01 as only half of the intensity of the entire β-decay of ^{63}Cr was observed through γ rays. The authors attribute this to either a lack of statistics or to a high direct β-feeding to the ground state of ^{63}Mn.

γ(^{63}Mn)

Eγ[†]	E$_i$(level)	Eγ[†]	E$_i$(level)	Eγ[†]	E$_i$(level)	Eγ[†]	E$_i$(level)
[x]250 *2*		[x]1323 *2*		[x]1752 *2*		[x]2876 *2*	
[x]879 *2*		[x]1670 *2*		[x]1890 *2*		[x]3175 *2*	
[x]1248 *2*		[x]1748 *2*		[x]2426 *2*		[x]3454 *2*	

[†] From 2005Ga01. No uncertainties are given for those Eγ values in and quoted uncertainties here are assigned by the evaluator based on a standard ΔE_γ=2 keV assigned to other transitions observed in 2005Ga01. Due to weak statistics, no $\gamma\gamma$ coincidences established amongst any of the observed γ rays (2005Ga01).

[x] γ ray not placed in level scheme.