

Adopted Levels, Gammas

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

$Q(\beta^-)=10710$ 70; $S(n)=3400$ 70; $S(p)=1.825 \times 10^4$ 27; $Q(\alpha)=-12720$ *syst* [2021Wa16](#)
 $\Delta Q(\alpha)=310$ (syst,[2021Wa16](#)).
 $S(2n)=9820$ 70, $S(2p)=34390$ 310 (syst), $Q(\beta^-n)=4270$ 70 ([2021Wa16](#)).
 Mass measurements: [2022Si20](#) (mass excess=-36204 18, MR-TOF), [2018Mo14](#) (M.E.=-36178 73, MR-TOF), [2016Me07](#) (M.E.=-35940 430, TOF), [2011Es06](#) (M.E.=-35280 650, TOF).
[2022Si20](#): U(p,X) Cr isotopes were produced with E=480 MeV proton beam impinging on a UC_x target at the ISAC facility, TRIUMF. Measured mass using the electrostatic Multiple-Reflection Time-Of-Flight Mass Spectrometer (MR-TOF-MS) at TRIUMF's Ion Trap for Atomic and Nuclear Science (TITAN) facility.
[2018Mo14](#): U(p,X) Cr isotopes were produced with E=1.4 GeV proton on a thick UC_x target at the ISOLDE facility, CERN. Measured mass using the MR-TOP mass separator and the ISOLTRAP setup.
 Source produced by ⁹Be(⁸⁶Kr,X), [1992We04](#).
[2016Me07](#): ⁹Be(⁸²Se,X) U(p,X) E=140 MeV/nucleon ⁸²Se beam from the Coupled Cyclotron Facility at NSCL on a 517 mg/cm² ⁹Be target. Fragments were separated with the A1900 separator and identified with the S800 spectrograph using time-of-flight. Measured TOF spectra. Deduced mass excesses for Cr isotopes.
[2011Da08](#) (also [2002MaZN](#)): Ta(⁸⁶Kr,X) E=57.8 MeV/nucleon ⁸⁶Kr beam impinging on 50 mg/cm² thick tantalum target at GANIL. Measured T_{1/2}.
[2011Es06](#): ⁹Be(⁸⁶Kr,X) E=100 MeV/nucleon ⁸⁶Kr beam at NSCL. Measured TOF spectra. Deduced mass excesses.
[2005Ga01](#) (also [2003So21](#)): ⁵⁸Ni(⁷⁶Ge,X) E=61.8 MeV/nucleon at GANIL. Fragments were separated by the LISE3 spectrometer. Measured T_{1/2}.
[2004NiZY](#): ⁹Be(⁸⁶Kr,X) E=63 MeV/nucleon at RIKEN. Measured T_{1/2}.
[2001So07,1999Le67,1999So20](#): ⁵⁸Ni(⁸⁶Kr,X) E=60.4 MeV/nucleon ⁸⁶Kr beam at GANIL. Measured T_{1/2}.
[1998Am04](#): Be(⁸⁶Kr,X) E=500 MeV/nucleon at GSI. Fragments were separated with the FRS separator. Measured T_{1/2}.
[1992We04](#): Be(⁸⁶Kr,X) E=500 MeV/nucleon at GSI. Measured σ . Deduced evidence for existence of ⁶³Cr.
[1988Zh19](#): Ti(⁸⁶Kr,X) E=44 MeV/nucleon at GANIL. Fragments were separated and identified using the (SPEG+ α) spectrometer. Deduced evidence for existence of ⁶³Cr.
 Theoretical calculations:
[2016Ku21](#): calculated β -decay T_{1/2}.
[2011Gu03](#): calculated rms radii.
[1995Ri05](#): calculated binding energies.

⁶³Cr Levels

Cross Reference (XREF) Flags

A ⁶³V β^- decay (19.6 ms)

E(level) [†]	J ^{π}	T _{1/2}	XREF	Comments
0.0	(1/2 ⁻)	129 ms 2	A	$\% \beta^- = 100$; $\% \beta^- n = ?$ J ^{π} : from systematic trends in neighboring nuclides. T _{1/2} : 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). Additional information 1 .
120.3 4			A	
203.4 7			A	

[†] From Ey data.

Adopted Levels, Gammas (continued) $\gamma(^{63}\text{Cr})$

<u>$E_i(\text{level})$</u>	<u>E_γ^\dagger</u>	<u>I_γ^\dagger</u>	<u>E_f</u>	<u>J_f^π</u>
120.3	120.3 ‡ 4	100	0.0	(1/2 ⁻)
203.4	83.1 ‡ 6	100	120.3	

† From ^{63}V β^- decay (2014Su07).

‡ Ordering of 83.1-120.3 γ cascade is proposed by 2014Su07 based on intensities. But if the 83.1-keV transition is highly converted, the ordering of the cascade may be reversed.

Adopted Levels, GammasLevel Scheme

Intensities: Relative photon branching from each level

