U(p,F) 2020Ca08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 207,1 (2026)	1-Apr-2023

2020Ca08 includes erratum: ^{69}Co ions produced by (p,f) reaction on a 15-mg/cm^2 natural U target at IGISOL facility with E(p)=35 MeV. Reaction products were thermalized in He gas, accelerated to 30 keV and then passed through a dipole magnet for mass separation. Ions then were bunched and cooled in RFQ and injected into double Penning trap mass spectrometer JYFLTRAP. Measured masses, deduced isomer excitation energy.

2002Kr13: ^{69}Co ions produced from ^{238}U(p,f) reaction at E= 30 MeV with resonant laser-ionization and mass separation at Louvain-la Neuve cyclotron facility. Production rate was 7 atoms/μC *3*.

1999Mu17 (supersedes 1998FrZY): Produced from ^{238}U(p,f) with two-resonant-step laser ionization and the LISOL mass separator at Louvain-la Neuve cyclotron facility. Identified by β delayed γ spectrometry. Measured isotopic $T_{1/2}$ from timing of β delayed γ decay.

^{69}Co Levels

E(level)[†]	J^π	$T_{1/2}$	Comments
0.0	(7/2$^-$)	180 ms *20*	J^π: From systematics of neighboring odd mass Co isotopes (2020Ca08). $T_{1/2}$: From Adopted Levels. Others: 220 ms *20* from timing of β delayed γ decay (1999Mu17).
170 *90*	(1/2$^-$)	0.75 s *25*	J^π: From systematics of the decreasing trend of the 1/2$^-$ intruder states up to N=42 in agreement with the large-scale shell-model calculations (2020Ca08). E(level),$T_{1/2}$: From Adopted Levels.

[†] Ground state and isomer could not be separated by the tof-ICR technique. The masses were determined by varying the waiting time and taking advantage of the very different $T_{1/2}$'s of the ground state ($T_{1/2}$=180 ms) and the isomer ($T_{1/2}$=0.75 s) (2020Ca08).