$^{1}H(^{70}Ni,2p\gamma)$ 2020Lo06

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

2020Lo06: ^{69}Co was studied via the (p,2p) knockout reaction and in-beam spectroscopy. ^{70}Ni secondary beam was produced as a fragmentation product of ^{235}U primary beam at 345 MeV/nucleon on a ^{9}Be target at RIKEN. Particle separation and identification were done using the BigRIPS separator. The secondary beams were then delivered to MINOS time projection chamber (TPC) surrounding a liquid hydrogen target. The TPC was used to track the protons to reconstruct the reaction vertex used for the doppler corrections. Measured prompt gammas using the DALI2 NaI(Tl)detector array of 186 NaI(Tl) crystals. Measurements were done at angles covering 12° to 96°(lab frame). FWHM of the array was 9% for 662 keV γ-ray and 6% for the 1333 keV γ-ray. Measured Eγ, Iγ, $\gamma\gamma$, recoil-γ.

^{69}Co Levels

E(level)†	J$^{\pi}$‡
0.0	(7/2$^-$)
1102 *25*	(9/2$^-$)
1590 *8*	(7/2$^-$)

† From Eγ data.
‡ As proposed by 2020Lo06 based on comparison to shell model calculations.

$\gamma(^{69}Co)$

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Comments
x240 *11*	48 *6*					measured τ=144 ps *40* for this transition (2020Lo06).
x287 *11*	31 *6*					measured τ=271 ps *100* for this transition (2020Lo06).
x427 *11*	29 *6*					measured τ=78 ps *60* for this transition (2020Lo06).
488 *11*	25 *6*	1590	(7/2$^-$)	1102	(9/2$^-$)	
x662 *20*	15 *6*					
1102 *25*	54 *8*	1102	(9/2$^-$)	0.0	(7/2$^-$)	
x1285 *8*	22 *8*					
1591 *8*	100 *8*	1590	(7/2$^-$)	0.0	(7/2$^-$)	

† Measured for multiplicity less than or equal to 3.
x γ ray not placed in level scheme.

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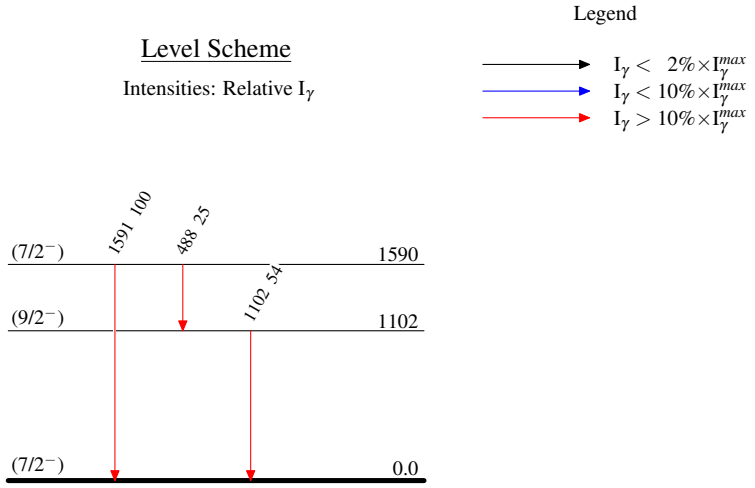
Level Scheme

Intensities: Relative I_γ



$^{69}_{27}Co_{42}$