^{9}Be(^{72}Ni,^{70}Niγ),(^{73}Cu,^{70}Niγ) 2015Ch25

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal, E. A. Mccutchan	NDS 136, 1 (2016)	1-Jul-2016

Secondary beams of ^{72}Ni and ^{73}Cu with E=75 MeV/nucleon produced in the projectile fragmentation of a 140 MeV/nucleon ^{82}Se beam on a ^{9}Be production target and separated with the A1900 fragment separator. Reaction products were identified with the S800 spectrograph. Measured Eγ, Iγ, $\gamma\gamma$ coincidences using the GRETINA array consisting of 36-fold segmented HPGe detectors and a 4×8 array of CsI(Na) detectors behind the focal plane of the S800 (for delayed γ rays).

^{70}Ni Levels

E(level)†	J$^{\pi}$‡	Comments
0.0	0^+	
1259.0 *9*	2^+	
1868.0 *9*	(2^+)	
2227.0 *13*	4^+	
2508.0 *13*		J$^{\pi}$: (4^+) proposed in 2015Ch25 based on the decay pattern and absence of any observed β-feeding to this level.
2515.8 *13*		E(level): level proposed by 2015Ch25 based on unplaced 1256.8γ from ^{70}Co β^- decay (0.47 s) (2000Mu10). J$^{\pi}$: $(0^+,2^+)$ proposed by 2015Ch25 based on population of only low-spin (J≤4) states in this reaction, unlikely presence of J=1 or 3 states based on shell model considerations and absence of any observed β feeding to J=4^+ levels.
2678?	6^+	
3209.0 *22*		

† From a least-squares fit to Eγ, by evaluators.
‡ From the Adopted Levels. Differences with the J^{π} proposed by 2015Ch25 are indicated in the comments.

γ(^{70}Ni)

E$_{\gamma}$†	I$_{\gamma}$‡	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Comments
x384 *1*	3.8 *4*					
442# *5*		2678?	6^+	2227.0	4^+	E$_{\gamma}$: a weak 442γ is observed only in $\gamma\gamma$-coin data and may correspond to the 448-keV transition from 6^+ yrast level.
609 *1*	12.3 *6*	1868.0	(2^+)	1259.0	2^+	
640 *1*	8.1 *5*	2508.0		1868.0	(2^+)	
x676 *1*	4.7 *5*					
968 *1*	27 *3*	2227.0	4^+	1259.0	2^+	
1256.8 *2*		2515.8		1259.0	2^+	E$_{\gamma}$: from ^{70}Co β^- decay (0.47 s) (2000Mu10). A 1259-keV transition is self-coincident and proposed to correspond to the 1259.6- and 1256.8-keV pair identified in ^{70}Co β^- decay (0.47 s). Mult.: 2015Ch25 suggest either D or Q for the multipolarity of the 1256.8γ based on the prompt character of the decay.
1259 *1*	100 *10*	1259.0	2^+	0.0	0^+	
x1682 *2*	3.5 *6*					
1868 *1*	11.2 *7*	1868.0	(2^+)	0.0	0^+	
1950 *2*	4.2 *6*	3209.0		1259.0	2^+	

† From the singles spectrum in 2015Ch25, unless otherwise noted.
‡ From the singles spectrum in 2015Ch25.
# Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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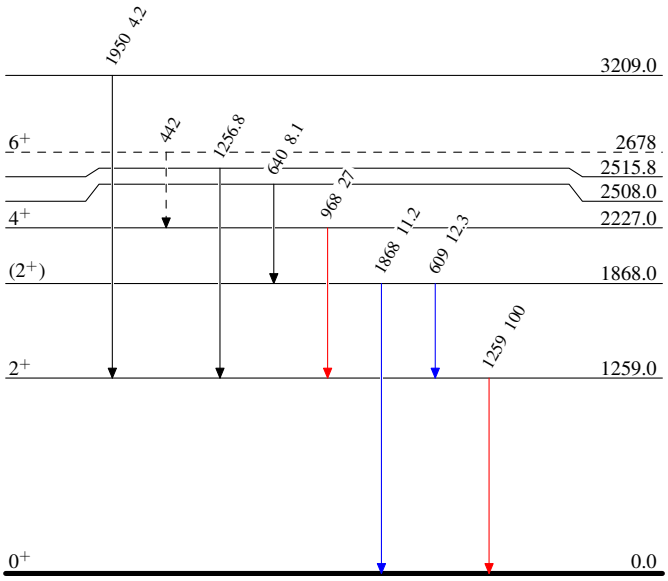
Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{70}_{28}Ni_{42}$