^{64}Ni(d,α),(pol d,α) 1972Ba31,1988Na01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alan L. Nichols, Balraj Singh, Jagdish K. Tuli	NDS 113, 973 (2012)	15-Apr-2012

1972Ba31: E=15 MeV, 97.92% enriched target of 100 μg/cm^2 thickness, ten Si detectors, FWHM=25 keV, $\sigma(\theta)$, DWBA.

1988Na01: (pol d,α) E=79 MeV, enriched target of 0.31 mg/cm^2 thickness, quadrupole-dipole-dipole-multipole magnetic spectrometer, with a position-sensitive helical proportional counter followed by two plastic scintillators, FWHM=55-60 keV. Measured Eα, Iα, absolute cross sections, $\sigma(\theta)$, and analyzing powers $A_y(\theta)$.

^{62}Co Levels

E(level)[†]	J$^\pi$	L[@]	Comments
0.0		(0+2,2)	E(level): direct population of the g.s. does not appear to occur from the α spectrum shown in 1988Na01.
20 *10*	5$^+$[b]	4[b]	Additional information 1.
246[#] *10*		2[#]	Additional information 2.
504 *10*		0+2	Additional information 3.
535 *10*		0+2	
611 *10*	5$^+$[b]	4[b]	Additional information 4.
696[c] *10*			
706[c] *10*		4	Additional information 5.
863 *10*			
901[c] *10*			
920[c] *10*			Additional information 6.
1172 *10*			
1216 *10*			Additional information 7.
1248 *10*			Additional information 8.
1355 *10*		2	Additional information 9.
1468 *10*			
1500 *10*			Additional information 10.
1537 *10*			
1670 *10*			Additional information 11.
1689 *10*			
1808 *10*		(2)	
1979 *10*			
2079 *10*			
2149 *10*			
2281 *10*			
2344[&] *10*	7$^+$[a]	6[a]	Additional information 12.
2420 *10*			
2521 *10*		(2)	Additional information 13.
2647 *10*			
2754 *10*			
2.88×10^3[&] *2*	7$^+$[a]	6[a]	
2.92×10^3[‡]			
3.46×10^3[‡]			
3.79×10^3[‡]			
4.10×10^3[‡]			
4.18×10^3[&] *3*	7$^+$[a]	6[a]	
4.38×10^3[&] *3*	7$^+$[a]	6[a]	
4.45×10^3[&] *3*	7$^+$[a]	6[a]	
4.60×10^3[&] *3*	7$^+$[a]	6[a]	

Continued on next page (footnotes at end of table)

^{64}Ni(d,α),(pol d,α) 1972Ba31,1988Na01 (continued)

^{62}Co Levels (continued)

† Values below 2.8 MeV excitation energy are from 1972Ba31 (uncertainties of between 5 and 10 keV were all set at 10 keV); those for higher energies are from 1988Na01 (see their Fig. 1 and Table 1).
‡ From spectral Fig. 1 of 1988Na01.
# Doublet.
@ From DWBA analysis of $\sigma(\theta)$ (1972Ba31), except as noted.
& Interpreted as stretched $1f^{-2}_{7/2}\otimes(^{64}$Ni g.s.) configuration.
a From comparison of experimental $\sigma(\theta)$ and $A_y(\theta)$ distributions with empirical patterns for L=6 and J=7 (1988Na01).
b From comparison of experimental $\sigma(\theta)$ and $A_y(\theta)$ distributions with empirical patterns for L=4 and J=5 (1988Na01).
c 696+706 groups, and 901+920 groups form unresolved structures in 1972Ba31, only one group in each case at 701 and 912, respectively, is reported in (t,^{3}He).