^{62}Ni(p,α), (pol p,α) 1980Ta06,1976Ma24,2009GuZY

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 151, 1 (2018)	1-Apr-2018

Others: 1979Sm03, 1978Jo08, 1969Co05.

1980Ta06: E(pol p)=22 MeV; measured A(θ), σ(E(p),Eα,θ); θ=10° to 140° for g.s. and θ=10° to 80° for excited states (steps of 5°); 98.7% ^{62}Ni target, split-pole spectrograph, Si position sensitive detectors; energy FWHM=50-60 keV; ΔE=10 keV (1980Ta06).

1976Ma24: E=13-16 MeV; measured Eα; magnetic spectrograph, emulsion plates, θ=16°−140°, enriched targets, FWHM=10-14 keV.

2009GuZY: (pol p,α) − the angular distributions of cross sections $\sigma(\theta)$ and analyzing powers Ay(θ) of the ^{62}Ni(pol P,α) reaction have been measured from 10° to 62.5° in two different magnetic settings of the Q3D magnetic spectrograph. A DWBA analysis of $\sigma(\theta)$ and Ay(θ) has been performed in finite range approximation, assuming a triton pickup mechanism, with the computer code TWOFNR.

^{59}Co Levels

E(level)‡	J$^{\pi}$†	Comments
0.0	7/2$^-$	
1099.0 *11*	3/2$^-$#*a*	
1191.4 *9*	9/2$^-$@	
1291.1 *11*	3/2$^-$	
1434.9 *18*		
1459.3 *9*	11/2$^-$	
1481.8 *11*		
1745.0 *10*	7/2$^-$	
2061.6 *10*	7/2$^-$*a*	
2087.0 *11*		
2153.6 *10*	9/2$^+$*a*	
2183.5 *10*	11/2$^-$*a*	
2205.1 *10*		
2394.5 *9*		
2478.4 *10*		
2542.7 *10*		
2584.9 *10*	7/2$^-$	
2713.4 *11*	1/2$^+$	
2769.9 *14*		
2780.1 *12*	7/2$^-$*a*	J$^{\pi}$: Poor fit for $\sigma(\theta)$ and Ay(θ). 5/2$^{(-)}$ in Adopted Levels.
2820.2 *12*		
2829.1 *13*		
2914.0 *12*		
2956.3 *11*		
2965.1 *12*		
2977.0 *13*		
3015.9 *12*		
3061.4 *12*		
3082.3 *12*	&	
3090.6 *12*	(9/2$^-$)&	
3123.1 *12*		
3142.3 *12*		
3162.1 *12*	3/2$^+$	
3193.6 *12*		
3222.6 *11*		
3236.4 *11*		
3275.4 *11*		
3322.1 *11*		
3330.7 *14*		

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^{62}Ni(p,α), (pol p,α) 1980Ta06,1976Ma24,2009GuZY (continued)

^{59}Co Levels (continued)

E(level)‡	E(level)‡	E(level)‡	E(level)‡
3350.9 *13*	3854.8 *13*	4320.9 *14*	4699.5 *18*
3366.0 *12*	3888.6 *16*	4347.6 *14*	4715.0 *15*
3382.3 *11*	3915.2 *14*	4356.9? *20*	4730.6 *17*
3416.0 *12*	3926.3 *17*	4377.5 *16*	4743.2? *19*
3423.7 *16*	3949.4 *13*	4390.7 *15*	4760.2 *16*
3491.6 *11*	3981.7 *14*	4406.8 *14*	4767.9 *15*
3498.1 *13*	4000.0 *25*	4438.5 *14*	4806.4 *15*
3565.0 *13*	4014.1 *13*	4457.7? *19*	4818.0 *17*
3580.1 *12*	4026.2 *17*	4466.7 *14*	4836.3 *17*
3599.5 *11*	4060.6 *13*	4480.0 *14*	4855.7 *15*
3621.9 *13*	4088.0? *27*	4491.0 *17*	4877.0 *15*
3652.8 *13*	4099.6 *15*	4506.8 *15*	4890.5 *16*
3665.5 *16*	4128.8 *23*	4516.9 *16*	4906.2 *15*
3737.1 *11*	4151.8 *15*	4552.2 *15*	4917.2 *17*
3757.4 *12*	4169.7 *14*	4566.3 *15*	4927.9 *18*
3769.0 *14*	4177.9 *28*	4581.3 *15*	4959.2 *16*
3791.9 *16*	4195.5 *14*	4606.3 *15*	4969.1 *17*
3807.5 *13*	4235.7 *15*	4616.8 *17*	4983.1 *17*
3820.9 *12*	4267.2 *16*	4632.7 *15*	4990.9 *17*
3832.1 *12*	4291.0 *14*	4642.9 *17*	5001.8 *26*
3842.8 *15*	4307.4 *14*	4688.2 *16*	

† From 1980Ta06, except otherwise noted. $\sigma(\theta)$ data are fairly well reproduced by DWBA calculations assuming triton cluster form factor; however, not all the analyzing powers can be reproduced in this way. J^π are based on the similarity of analyzing power to that for states having known J^π.

‡ From 1976Ma24.

$\sigma(\theta)$ and A(θ) differ from those for known $3/2^-$ states; can be fitted by 3/2 DWBA only if model parameters differ from those which generated fits to all other levels (1980Ta06).

@ Analyzing power reproduced poorly (1980Ta06, 2009GuZY).

& 1980Ta06 assign $J^\pi=9/2^-$ for 3090 level; however, that state probably was not resolved from the 3082 level.

a From 2009GuZY, based on DWBA analysis of $\sigma(\theta)$ and Ay(θ).