^{58}Ni(α,^{2}He), (α,2p) 1990Fi07,1980Va17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 114, 1849 (2013)	31-Dec-2012

1990Fi07: (α,^{2}He) E= 55.6 MeV. FWHM=200− 300 keV. $\sigma(\theta)$ from 17.5° to 40° (lab). DWBA calculation for two-neutron configuration. See also 1985Ja02 from the same group.

1980Va17: (α,2p) E=65 MeV. Measured σ(E(2p),θ), θ(c.m.)≈10° to 45°. ΔE-E telescopes. Data compared with DWBA calculations.

All data are from 1990Fi07, except as noted.

^{60}Ni Levels

E(A),L(A) From 1980Va17.

E(level)	L†	N‡	Comments
0.0	0	5.9×10^{2} *25*	Configuration= (ν p$_{3/2}$)^{2}.
1330 *50*			
2510 *50*	4	130 *25*	Configuration ((p3/2)(f5/2))4^{+}.
4030 *50*			
5270 *50*	7+5	130 *25*	Unresolved doublet at 5.00 MeV (5^{-}) and 5.31 MeV (7^{-}). Configuration ((f5/2)(g9/2))7^{-} + ((p1/2)(g9/2))5. N= 190 *40* for pure L=7; N= 440 *80* for pure L=5.
5.52×10^{3} *10*			
6560 *50*	5	110 *20*	Configuration((f5/2)(d5/2))5^{-}.
7770 *50*			
8150 *50*			
8760 *50*	8,6		N: N= 125 *40* for L=8; N= 60 *15* for L=6. Configuration (g9/2)^{2}8^{+}, or ((g9/2),(d5/2))6^{+}. J$^{\pi}$: J=8 preferred from magnitude of normalization constant and resemblance to the ^{56}Fe(α,^{2}He)^{58}Fe spectrum.
9310 *50*	6,8		N: N= 90 *20* for L=6; N= 190 *50* for L=8. Configuration ((g9/2)(d5/2))6^{+}, or (g9/2)^{2}8^{+}. J$^{\pi}$: J=6 from reasonable normalization constant.
9800 *50*	8		
10850 *90*	8		

† From comparison of $\sigma(\theta)$ with DWBA calculations (1990Fi07), except as noted.

‡ The normalization constant N=(dσ/dΩ)(expt)/(dσ/dΩ)(DWBA).