^{58}Fe(α,^{2}He) 1990Fi07

History

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

E= 55.7 MeV. FWHM=200− 300 keV. $\sigma(\theta)$ from 17.5° to 40° (lab). DWBA calculations for two-neutron configurations.

^{60}Fe Levels

E(level)	L[†]	N[‡]	Comments
0.0	0	2.6×10^2 *10*	Configuration $(p3/2)^2 0^+$.
3080 *50*	4	60 *20*	Configuration $((p3/2)(f5/2))4^+$.
3520 *50*	4,5		N: N= 60 *30* for L=4; N= 40 *20* for L=5. J^π: $\sigma(\theta)$ shows a large deviation at large angles in comparison to DWBA computations for both L=4 and L=5. The 4^+ configuration results in a more reasonable normalization constant. Configuration $((p3/2)(f5/2))4^+$, $((p1/2)(g9/2))5^-$.
4350 *50*	7	70 *10*	Configuration $((f5/2)(g9/2))7^-$.
5310 *50*	5,7		N: N= 60 *20* for L=5; N= 30 *15* for L=7. J^π: $\sigma(\theta)$ shows a large deviation at large angles in comparison to DWBA computations for both L=5 and L=7. The 5^- configuration results in a reasonable normalization constant. Also from comparison to the spectrum of the ^{60}Ni(α,^{2}He) reaction. Configuration $((f5/2)(d5/2))5^-$, $((f5/2)(g9/2))7^-$.
5620 *50*	7,5		N: N= 20 *5* for L=7; N= 40 *10* for L=5. Configuration $((f5/2)(g9/2))7^-$, $((f5/2)(d5/2))5^-$.
6620 *50*	8+6	70 *20*	Unresolved doublet, can be fitted with a pure L=6 configuration. N= 70 *20* for configuration $(g9/2)^2 8^+$ + $((g9/2)(d5/2))6^+$. N= 120 *30* for configuration $((g9/2)(d5/2))6^+$. N= 200 *120* for configuration $(g9/2)^2 8^+$.

[†] From comparison of $\sigma(\theta)$ with DWBA calculations.

[‡] The normalization factor N=(dσ/dΩ)(expt)/(dσ/dΩ)(DWBA).