^{208}Pb(t,d) 1969Ig02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Chen [#] and F. G. Kondev	NDS 126, 373 (2015)	30-Sep-2013

Target ^{208}Pb J^{π}(g.s.)=0^+.

1969Ig02: E=20 MeV triton beam was produced from the Los Alamos three-stage Van de Graaff accelerator. A 200 μg/cm^2 enriched ^{208}Pb target on a 40 μg/cm^2 carbon backing was used. Reaction products were detected with a counter telescope of a silicon surface barrier ΔE detector and a lithium-drifted E detector, FWHM=37 keV (for cross sections) and with a Elbek type magnetic spectrograph, FWHM=14 keV. Measured $\sigma(\theta)$. Deduced level, L, spectroscopic factors from DWBA analysis.

Other: 1976Fr22.

^{209}Pb Levels

E(level)	L[‡]	S[†]	Comments
0.0	4	0.93	S: for configuration=$\nu(2g_{9/2})^{+1}$.
781 *5*	6	1.05	S: for configuration=$\nu(1i_{11/2})^{+1}$.
1428 *5*	7	0.60	S: for configuration=$\nu(1j_{15/2})^{+1}$.
1573 *5*	2	1.02	S: for configuration=$\nu(3d_{5/2})^{+1}$.
2039 *5*	0	1.00	S: for configuration=$\nu(4s_{1/2})^{+1}$.
2153 *5*			
2496 *5*	4	1.05	S: for configuration=$\nu(2g_{7/2})^{+1}$.
2542 *5*	2	0.96	S: for configuration=$\nu(3d_{3/2})^{+1}$.
2592 *5*			$\sigma(\theta)$ is isotropic. Both the magnitude and the shape of $\sigma(\theta)$ are well reproduced for configuration=$\pi(2h_{11/2})^{+1}$ (1969Ha13).
2996 *5*			
3049 *5*			
3305 *10*			
3373 *10*			
3800 *10*			
3998 *10*			
4075 *10*			
4094 *10*			
4146 *10*			
4283 *10*			
4322 *10*			
5136 *10*			
5160 *10*			

[†] Calculated using local zero-range DWBA with normalization factor N=4.15 and neutron parameters radius=1.25 fm, diffuseness=0.65 fm, and spin-orbit coupling strength=25. Neutron well depth chosen based on separation-energy approximation. The above normalization factor was chosen so that the average spectroscopic value for the single-particle states, excluding the $1j_{15/2}$ state, is unity. $\sigma(\theta)$ is well fit by a distorted-wave calculation for the indicated single-particle state. $d\sigma/d\Omega(exp)=N\times(2J+1)\times S\times d\sigma/d\Omega(DWBA)$ (1969Ig02).

[‡] From DWBA fits to measured $\sigma(\theta)$ (1969Ig02).