^{149}Sm(n,γ) E=resonance 1974Be37

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, A. A. Sonzogni	NDS 114, 435 (2013)	1-Apr-2013

The ^{149}Sm(n,γ) reaction was studied as a function of neutron energy in the range 0.04 eV to 34 eV at the Brookhaven National Laboratory high flux beam reactor using time-of-flight techniques. Data were taken at 9 resonances for which $J^\pi=3^-$ was deduced (on the assumption that only s-wave resonances would appear) with resonance energies (keV) 6.48, 9.0, 12.2, 14.9, 16.0, 25.3, 26.1, 28.1, and 29.8. Data were also taken at 7 additional resonances assigned $J^\pi=4^-$ with resonance energies (keV) 0.0976, 0.873, 4.98, 17.2, 23.2, 30.9, and 34.0. To study partial radiation cross sections in and between the resonances, data were taken in 30 narrow consecutive intervals of time-of-flight in the 1700 rpm run in the neutron energy region 0.04 to 5.5 eV. In order to cover this energy range, three separate runs were made with chopper speeds 1700, 6000 and 13500 rpm providing neutron bursts with FWHM 50, 14 and 6.5 μs, respectively. J^π for levels in ^{150}Sm were deduced from γ strengths observed in the above individual resonances.

^{150}Sm Levels

E(level) deduced by 1974Be37 using S(n)=7986.4.

E(level)	J^π	E(level)	J^π	E(level)	J^π	E(level)	J^π
334.3 *2*	2^+	1927.3 *4*	2^+,(3^+,4^+)	2199.7 *11*	2,3,4	2472.4 *5*	3^+,4^+
773.3 *2*	3^+,4^+	1970.9 *3*	3^+,4^+	2250.4 *6*	3^+,4^+	2480.5 *4*	3^+,4^+
1046.3 *3*	2^+	2005.5 *8*	2^+	2261.7 *7*	3^+,4^+	2495.6 *7*	3^+,4^+
1193.6 *2*	2^+	2020.4 *10*	5^+,(3^+,4^+)	2289.5 *6*	3^+,4^+	2507.5 *6*	3^+,4^+
1417.2 *4*	2^+	2024.7 *10*	3^+,4^+	2292.2 *8*	3^+,4^+	2522.3 *6*	3^+,4^+
1449.5 *3*	3^+,4^+	2044.1 *3*	3^+,4^+	2342.0 *6*	2^+,3^+,4^+	2556.0 *6*	3^+,4^+
1504.7 *3*	3^+,4^+	2063.3 *4*	3^+,4^+	2360.3 *4*	3^+,4^+	2565.3 *7*	3^+,4^+
1643.0 *2*	3^+,4^+	2095.6 *3*	3^+,4^+	2371.2 *5*	3^+,4^+	2575.3 *7*	3^+,4^+
1793.8 *4*	2^+,(3^+,4^+)	2118.0 *4*	3^+,4^+	2395.9 *4*	3^+,4^+	2587.3 *5*	3^+,4^+
1819.9 *3*	3^+,4^+	2153.4 *4*	3^+,4^+	2455.5 *5*	3^+,4^+		
1833.8 *3*	2^+,(3^+,4^+)	2194.7 *6*	3^+,4^+	2465.3 *4*	3^+,4^+		