^{139}La(d,t) 1975IsZY

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 146, 1 (2017)	30-Sep-2017

$J^{\pi}(^{139}\text{L g.s.})=7/2^{+}$.

1975IsZY: E=16 MeV deuteron beam was produced from the McMaster University FN Tandem Van de Graaff accelerator. Targets were barium oxide with thickness about 40 μg/cm^2 evaporated onto 30 μg/cm^2 carbon backings. Reaction products were momentum analyzed with a split-pole Engel spectrograph (FWHM=12 keV) and detected by nuclear emulsions. Measured σ(E,θ). Deduced levels, J, π, spectroscopic factors from DWBA analysis. Comparisons with shell-model calculations.

Other: 1972La20.

^{138}La Levels

Spectroscopic factor S is defined by σ(exp)=N×σ(DWBA)*S/(j+1), where j is the momentum of transferred particle, N=3.33 (1975IsZY).

E(level)[†]	L[‡]	S[‡]	Comments
0.0	2	1.18 *5*	
72.0 *5*	0+2	0.26+0.45	S: ΔS=0.09+0.22.
115.3 *5*	2	0.33 *2*	
160.4 *5*	0+2	0.03+0.035	S: ΔS=0.01+0.021.
192.0 *7*	2	0.16 *2*	
229.6 *5*	2	0.85 *8*	
412.5 *5*	0+2	0.26+0.16	S: ΔS=0.12+0.08.
478.4 *5*	0	0.49 *7*	S: <0.03 for possible L=2 component.
510 *2*	0	≈0.2[#]	
518.1 *10*	0	≈0.4[#]	
737 *1*	5	1.12 *11*	
823 *1*	5	0.81 *8*	
836 *1*	5	1.65 *12*	
888 *2*			
900 *1*	5	0.79 *9*	
929 *3*			
937 *1*	5	1.43 *15*	
962 *1*	5	1.42 *15*	
1033 *2*			
1067 *2*	5	1.61 *11*	
1095 *3*			
1102 *3*			
1150 *3*			
1155 *5*			
1200 *2*			
1228 *3*			
1255 *1*	5	2.66 *22*	
1302 *2*			
1344 *3*			
1375 *2*			
1386 *3*			
1425 *2*			
1466 *2*			
1490 *2*			
1520 *3*			
1545 *3*			
1571 *2*			
1583 *2*			

Continued on next page (footnotes at end of table)

^{139}La(d,t) 1975IsZY (continued)

^{138}La Levels (continued)

E(level)[†]	E(level)[†]	E(level)[†]
1599 *2*	1676 *3*	1726 *2*
1646 *2*	1690 *2*	1739 *2*
1656 *3*	1707 *2*	1783 *2*

† From 1975IsZY.
‡ From comparisons of measured differential cross sections with theoretical predictions (1975IsZY). L=5 assignments are also from 1972La20.
# For 510+518.1 levels, S(L=0)=0.60 *11*, S(L=2)<0.01.