

<sup>44</sup>Ca(p,t) 1977SaZF,1973Du02

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen <sup>#</sup> and Balraj Singh		NDS 135, 1 (2016)	31-May-2016

1977SaZF: E=40 MeV. Measured  $\sigma(\theta)$ . Deduced levels,  $J^\pi$ , L from DWBA analysis.

1973Du02: E=40 MeV proton beam was produced at the Grenoble variable-energy cyclotron. Target of 1 mg/cm<sup>2</sup> self-supported calcium. Reaction products were detected in a  $\Delta E$ -E silicon counter telescope and a anti-coincidence counter, FWHM=80-100 keV. Measured  $\sigma(\theta)$ . Deduced levels,  $J^\pi$ , L, spectroscopic factors from DWBA analysis.

1973Se01: E=52 MeV proton beam was produced at the Synchro-cyclotron at the Institute for Nuclear Studies in Japan. Targets of calcium carbonate on Mylar backings. Reaction products were momentum analyzed with a broad-range magnetic spectrograph and detected with 200 proportional counters in the focal plane, FWHM=70 keV. Measured  $\sigma(\theta)$ . Deduced levels,  $J^\pi$ , L from DWBA analysis.

1970He23: E=20 MeV proton beam was produced at the Heidelberg Emperor Tandem. Target of enriched CaCO<sub>3</sub> on a carbon backing. Reaction products were detected in a  $\Delta E$ -E surface barrier counter telescope, FWHM=50-55 keV. Measured  $\sigma(\theta)$ . Deduced levels,  $J^\pi$ , L from DWBA analysis. Levels reported up to 4960 keV.

1969Sm02: E=26.5 MeV proton beam was produced at the University of Colorado cyclotron. Scattered particles were detected in a  $\Delta E$ -E semiconductor detector telescope, FWHM=110 keV. Measured  $\sigma(\theta)$ . Deduced levels,  $J^\pi$ , L from DWBA analysis. Levels reported up to 4700 keV.

Others:

1985Mi06: E=51.9 MeV. Measured ground-state transition strength.

1983Sa01: E=40 MeV. Measured ground-state transition strength.

<sup>42</sup>Ca Levels

Levels up to E=5809 are from 1977SaZF and from 1973Du02 after that, unless otherwise noted.

E(level)	L	d $\sigma$ /d $\Omega$ (max) mb/sr <sup>†</sup>	E(level)	L
0	0 <sup>@</sup>	1.82	5332	0
1520	2 <sup>@</sup>	0.124	5354	
1840	0 <sup>@</sup>	0.027	5379	
2420	2 <sup>@</sup>	0.011	5464	(4)
2750	4 <sup>@</sup>	0.026	5500	(3)
3250	4	0.010 <sup>‡</sup>	5530	2
3300	0		5591	(4)
3390	2	0.046	5664	3
3450	3 <sup>@</sup>	0.102	5713	2
3650	2 <sup>@</sup>	0.001	5775	<i>c</i>
4100 <sup>&amp;</sup>	5 <sup>&amp;</sup>	0.023	5809	<i>c</i>
4420	3 <sup>a</sup>	0.028	6080	0
4685	3 <sup>@</sup>	0.091 <sup>#</sup>	6220	
4757	2		6750	
4863	(2)		8450	0
4896	5 <sup>b</sup>		9850	
4968	3	0.001	10970	3
5014	4		11440	
5213	2		12280	0

<sup>†</sup> From 1970He23. Values are also available from 1969Sm02.

<sup>‡</sup> For a multiplet. 1973Se01 report L=6 for a 3190 group.

<sup>#</sup> From 1969Sm02.

Continued on next page (footnotes at end of table)

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 $^{44}\text{Ca}(\text{p,t})$  **1977SaZF,1973Du02 (continued)**

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 $^{42}\text{Ca}$  Levels (continued)

@ Similar L-transfer deduced by [1969Sm02](#), [1970He23](#) and [1973Se01](#) from  $\sigma(\theta)$ .

& From [1973Se01](#) and [1973Du02](#). [1977SaZF](#) report L=3 for a 4050 group.

<sup>a</sup> L=4 from [1969Sm02](#) and [1973Du02](#) (E=4450).

<sup>b</sup> From [1973Du02](#).

<sup>c</sup> [1973Du02](#) report L=3 for a 5790 group.