

⁵²Cr(d,α) 1971De10

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 157, 1 (2019)	15-Apr-2019

$J^\pi(^{52}\text{Cr g.s.})=0^+$.

1971De10: E(d)=12, 17 MeV beams from the three-stage Van de Graaff accelerator at University of Pittsburgh. Measured $\sigma(\theta=12^\circ, 40^\circ, 50^\circ)$ and $\sigma(\theta(\text{c.m.})\approx 10^\circ-80^\circ)$ with a magnetic spectrometer (FWHM 15 keV) with alpha particles detected by position-sensitive detectors. Deduced levels, L-transfers from DWBA analysis. See also **2018Si23** for comparisons of their calculated cross sections with measured cross sections in **1971De10**.

1964Bj01: E=3-4.3 MeV beam from an electrostatic generator at University of Copenhagen. Measured alpha spectrum with a magnetic spectrograph. Deduced levels.

1973Ba33: E=15 MeV beam from the Cologne FN tandem. Measured $\sigma(\theta)$ at $\theta(\text{c.m.})\approx 20^\circ-80^\circ$ with a magnetic spectrograph (FWHM=30 keV). Deduced levels, L-transfers, spectroscopic factors from DWBA analysis.

All data are from **1971De10**, unless otherwise noted.

⁵⁰V Levels

E(level)	L	$d\sigma/d\Omega$ ($\mu\text{b/sr}$) ^{&}	Comments
0	6	6.7	L: other: (6) from 1973Ba33 .
158?			
227 2	4	63.2	E(level): other: 228 12 (1964Bj01). L: other: 4+6 from 1973Ba33 , with spectroscopic factor S=7.42.
318 3	(0,2,4)	2.8	E(level): other: 327 12 (1964Bj01).
356 2	2	26.6	E(level): other: 357 12 (1964Bj01). L: other: 2+4 from 1973Ba33 , with spectroscopic factor S=4.73.
389 3	(2)	3.3	E(level): other: 394 12 (1964Bj01).
837 2	4	41.9	E(level): other: 836 12 (1964Bj01). L: other: 4+6 from 1973Ba33 , with spectroscopic factor S=4.47.
910 2	6	206.2	E(level): other: 909 12 (1964Bj01). L: other: 6 from 1973Ba33 , with spectroscopic factor S=15.0.
1306 3	(0,2,4)	1.9	E(level): other: 1312 12 (1964Bj01).
1333 2	0+2,(4)	21.9	L: other: 0+2 from 1973Ba33 , with spectroscopic factor S=1.86.
1405 3	0,(2)	5.3	E(level): other: 1405 12 (1964Bj01).
1496 3		≈ 2	E(level): other: 1498 12 (1964Bj01).
1520 4		≈ 2	
1565 4			E(level): other: 1560 12 (1964Bj01).
1680 3	2	26.6	
1703 4	(2,4)	12.0	
1741? 8		≈ 1	
1759 8	4 [#]	5.7 [#]	
1766 8	4 [#]	5.7 [#]	
1804 4	2	18.6	E(level): other: 1806 12 (1964Bj01).
1935 6	(4,0)	2.7	
1956 4	(4,0)	16.0	
2038 4	(4)	3	
2112 4		37.2	
2162 5		≈ 10	
2314 4		≈ 20	
2345 5		≈ 3	
2400 [‡] 10			
2424 4	3	100	
2455 5	4	15.3	
2489 8	(6) [@]	22 [@]	
2499 8	(6) [@]	22 [@]	
2510 5	3	26.6	
2534 5	3,5	15	

Continued on next page (footnotes at end of table)

$^{52}\text{Cr}(\text{d},\alpha)$ **1971De10** (continued) ^{50}V Levels (continued)

<u>E(level)</u>	<u>L</u>	<u>$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)^{&}</u>	<u>E(level)</u>	<u>L</u>	<u>$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)^{&}</u>	<u>E(level)</u>	<u>L</u>	<u>$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)^{&}</u>
2596 5	3	23.3	2850 8	(6)	1.7	3098 6	3,(4)	51.9
2647 8	(4,6)	4.3	2878 8	3	8.0	3136 6	2	22.0
2735 5	4,(6)	23.3	2923 10	(4,6)	2.7	3200 [†] 8	(2)	6.7
2760 10	6,(4)	≈6	2955 10	(4)	2.7	3220 6	(3,4)	57.2
2792 5	2	30.0	2990 [†] 6	2	9.3			
2818 8	2	8.6	3014 10	(4,6)	4.0			

[†] Doublet (**1971De10**).

[‡] Weak group.

Combined for unresolved 1759+1766 doublet (**1971De10**).

@ Combined for unresolved 2489+2499 doublet (**1971De10**).

& At 30°.