^{50}Cr(d,α)   1968Do03,1973Ba33,1964Bj01

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

1968Do03: E=7.0 MeV deuteron beam was produced at MIT. Target was 20.6 μg/cm^2 ^{50}Cr (95.9% enriched) in the form of Cr$_2$O$_3$ on a thin formvar backing. Reaction products were momentum-analyzed with a multiple-gap spectrograph (FWHM=20 keV). Measured $\sigma(\theta)$, θ=15° to 172.5°. Deduced levels. 1968Do03 also report data on ^{48}V from ^{46}Ti(^{3}He,p).

1973Ba33: E=15 MeV deuteron beam was produced from the Koln FN tandem accelerator. Target was ≈100 μg/cm^2 self-supporting ^{50}Cr (≈100% enriched) on a ≈25 μg/cm^2 carbon backing. Reaction products were momentum-analyzed with a magnetic spectrograph (FWHM≈30 keV). Measured $\sigma(\theta)$, θ(c.m.)=20° to 80°. Deduced levels, J, π, spectroscopic factors from DWBA analysis. Report data for 10 levels up to 1264.

1964Bj01: E=3.0-4.3 MeV deuterons beams were produced from an electrostatic generator at the Institute for Theoretical Physics, University of Copenhagen. Targets were ≈5 μg/cm^2 to ≈30 μg/cm^2 ^{50}Cr metals (>96% enriched) on ≈50 μg/cm^2 carbon backings. Reaction products were momentum-analyzed with a heavy-particle spectrograph (FWHM≈0.4%) and detected with photographic plates. Deduced levels. Report 8 levels.

Other: 1973MeZW, 1973KuZD.

^{48}V Levels

dσ/dΩ quoted under comments are from 1968Do03 for θ_{lab}=37.5°, except for 2595 and 2620 levels at θ_{lab}=82.5°.

E(level)[†]	J$^\pi$	L[‡]	Comments
0.0			dσ/dΩ=0.018 mb/sr.
312 10			E(level): others: 310 12 (1964Bj01), 304 (1973Ba33). dσ/dΩ=0.016 mb/sr.
427 10	1^{+}[#]	0+2	E(level): others: 420 12 (1964Bj01), 416 (1973Ba33). dσ/dΩ=0.099 mb/sr.
525 10			E(level): others: 523 12 (1964Bj01), 503 (1973Ba33). dσ/dΩ=0.018 mb/sr.
622 10			E(level): others: 616 12 (1964Bj01), 620 (1973Ba33). dσ/dΩ=0.051 mb/sr.
756 10			E(level): others: 751 12 (1964Bj01), 741 (1973Ba33). dσ/dΩ=0.024 mb/sr.
776 10			E(level): others: 771 12 (1964Bj01), 775 (1973Ba33). dσ/dΩ=0.044 mb/sr.
1071 10			E(level): others: 1049 12 (1964Bj01), 1072 (1973Ba33). dσ/dΩ=0.045 mb/sr.
1114 10			E(level): others: 1113 (1973Ba33). dσ/dΩ=0.030 mb/sr.
1266 10	7^{+}[@]	6	E(level): others: 1264 (1973Ba33). dσ/dΩ=0.086 mb/sr.
1318 10			dσ/dΩ=0.003 mb/sr.
1533 10			dσ/dΩ=0.023 mb/sr.
1568 10			dσ/dΩ=0.040 mb/sr.
1698 10			dσ/dΩ=0.037 mb/sr.
1743 10			dσ/dΩ=0.063 mb/sr.
1760 10			dσ/dΩ=0.032 mb/sr.
1793 10			dσ/dΩ=0.032 mb/sr.
2015 10			dσ/dΩ=0.052 mb/sr.
2077 10			dσ/dΩ=0.012 mb/sr.
2135 10			dσ/dΩ=0.033 mb/sr.
2202 10			dσ/dΩ=0.062 mb/sr.
2270 10			dσ/dΩ=0.021 mb/sr.
2305 10			dσ/dΩ=0.014 mb/sr.
2342 10			dσ/dΩ=0.044 mb/sr.

Continued on next page (footnotes at end of table)

^{50}Cr(d,α)   1968Do03,1973Ba33,1964Bj01 (continued)

^{48}V Levels (continued)

E(level)[†]	Comments
2390 *10*	dσ/dΩ=0.027 mb/sr.
2415 *10*	dσ/dΩ=0.090 mb/sr.
2471 *10*	dσ/dΩ=0.048 mb/sr.
2492 *10*	dσ/dΩ=0.024 mb/sr.
2595 *10*	dσ/dΩ=0.020 mb/sr.
2620 *10*	dσ/dΩ=0.023 mb/sr.
2707 *10*	dσ/dΩ=0.062 mb/sr.
2779 *10*	dσ/dΩ=0.022 mb/sr.
2799 *10*	dσ/dΩ=0.069 mb/sr.
2837 *10*	dσ/dΩ=0.034 mb/sr.
2876 *10*	dσ/dΩ=0.012 mb/sr.
2925 *10*	dσ/dΩ=0.027 mb/sr.
2959 *10*	dσ/dΩ=0.039 mb/sr.
2985 *10*	dσ/dΩ=0.029 mb/sr.
3043 *10*	dσ/dΩ=0.037 mb/sr.
3101 *10*	dσ/dΩ=0.017 mb/sr.

[†] From 1968Do03. Comparison with adopted energies indicates that the excitation energies from (d,α) in 1968Do03 are systematically too high by 5-15 keV. The first nine excited states were also reported by 1973Ba33; energy agreement was excellent except for the 312, 427, 525, and 756 states where the values of 1973Ba33 were 6-22 keV higher than those of 1968Do03.

[‡] From DWBA fit to measured $\sigma(\theta)$ (1973Ba33).

[#] From typical structure of $\sigma(\theta)$ at forward angles (1973Ba33). This level is probably unresolved from a 5$^+$ state; the transition is stronger than corresponding ones in other (d,p) reactions.

[@] From L and strength of transition (1973Ba33).