^{54}Cr(t,p) 1968Ch20

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	25-Mar-2022

First study of levels in ^{56}Cr.

1968Ch20: E=11.99 MeV, measured E(p), $\sigma(\theta)$ for θ=5°−57.5°) in 7.5° steps using Aldermaston tandem accelerator and multi-angle magnetic spectrograph, with particle recording in Ilford photographic emulsion plates. Target was 97.98% enriched and thickness was 100 μg/cm^2, evaporated on 10μg/cm^2 thick carbon film. FWHM is estimated as ≈20 keV from displayed spectral Fig. 6 in 1968Ch20.

1971Ca19: E(t)=13 MeV. Measured absolute cross sections for the g.s. at 12.5° and 20° at Los Alamos tandem accelerator, using Elbek-type magnetic spectrograph and photographic plate detection for detection of protons. Natural Cr target 40-60 μg/cm^2 thick backed by a carbon foil of similar thickness. Comparison with model predictions using pairing-vibrational model with isospin.

^{56}Cr Levels

Measured cross sections are in arbitrary units.

Angular distribution measurement is shown for most states in Table 4 of 1968Ch20, with exceptions noted.

E(level)[†]	L[#]	Comments
0	0	σ(max)=153 at 5.1°. Measured absolute σ=3.13 mb/sr *46* (1971Ca19).
1011 *15*	2	σ(max)=7.7 at 20.6°.
1828 *15*	2	σ(max)=3.7 at 20.6°.
2322 *15*	2	σ(max)=14.7 at 20.6°.
2685 *15*	4	σ(max)=3.9 at 36.1°.
3156 *15*		σ(max)=6.0 at 20.6°.
3402[‡] *20*		σ(max)=0.8 at 12.9°.
3451 *15*	3	σ(max)=5.0 at 28.3°.
3509 *15*	2	σ(max)=7.1 at 20.6°.
3648 *15*		σ(max)=5.0 at 12.9°.
3675[‡] *15*		σ(max)=5.0 at 5.1°.
3794 *15*	3	σ(max)=3.5 at 28.3°.
3819 *20*		σ(max)=1.9 at 5.1°.
3897 *15*	0	σ(max)=6.0 at 5.1°.
3916[‡] *20*		σ(max)=0.4 at 43.6°.
4014 *15*		σ(max)=4.8 at 5.1°.
4112 *15*		σ(max)=3.0 at 20.6°.
4175 *15*		σ(max)=7.6 at 20.6°.
4247[‡] *20*		σ(max)=0.9 at 36.0°.
4284 *15*	@	σ(max)=2.6 at 5.1°.
4349 *15*		σ(max)=4.2 at 20.6°.
4445 *15*		σ(max)=5.8 at 28.3°.
4631 *15*		σ(max)=2.8 at 12.9°.
4678 *15*		σ(max)=3.2 at 12.9°.
4800[‡] *20*		σ(max)=1.4 at 20.6°.
4848 *20*	@	σ(max)=1.8 at 5.1°.
4892 *20*		σ(max)=4.0 for 4892+4924 at 12.9°.
4924 *20*		σ(max)=4.0 for 4924+4892 at 12.9°.
4989 *15*	@	σ(max)=1.8 at 5.1°.
5121 *15*	(3)	σ(max)=6.3 at 28.3°.

[†] Average of values measured at eight angles between 5° and 57.5°. According to 1968Ch20, uncertainties are 15 keV for strongly populated levels, and 20 keV for weaker ones. Evaluator assigns 15 keV for σ>2, and 20 keV for $\sigma\leq$2 or for unresolved levels.

Continued on next page (footnotes at end of table)

^{54}Cr(t,p) 1968Ch20 (continued)

^{56}Cr Levels (continued)

‡ Angular distribution not measured for this peak.
# From comparison of $\sigma(\theta)$ with shapes for levels with known J^{π}.
@ Possible L=1 state (1968Ch20) from σ(q) distribution showing a trend between those assigned as L=0 and L=2. However, authors did did not assign L=1 as no known L=1 states for comparison purpose were available.