

$^{54}\text{Cr}(\alpha, ^2\text{He})$ 1990Fi07

Type	History		Literature Cutoff Date
	Author	Citation	
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1990Fi07: $E(\alpha)=55.7$ MeV from the Bonn isochronous cyclotron. Measured ^2He spectra and $\sigma(\theta)$ by detecting the two breakup protons in coincidence using two identical large solid-angle ΔE -E telescopes of Si(Li) detectors. Self-supporting target was $390 \mu\text{g}/\text{cm}^2$ thick, 93.6% enriched in ^{54}Cr . FWHM=200-300 keV. DWBA analysis of angular distribution data using DWUCK4 code.

 ^{56}Cr Levels

E(level)	J^π [†]	L [‡]	Comments
0	0^+	0	Proposed configuration= $\nu p_{3/2}^2$ (1990Fi07). E(level): from Fig. 25 in 1990Fi07.
2690			
4450	7^-	(7)	L: $L=7$ is assigned as tentative in 1990Fi07, as experimental $\sigma(\theta)$ distribution of this most intense peak in the spectrum is hampered by contribution from impurities: ^{14}C g.s. peak from $^{12}\text{C}(\alpha, ^2\text{He})$ and ^{18}O g.s. peak from $^{16}\text{O}(\alpha, ^2\text{He})$. Proposed configuration= $\nu f_{5/2} \otimes \nu g_{9/2}$ (1990Fi07).
5060@	5^-	(5)@	Proposed configuration= $\nu p_{1/2} \otimes \nu g_{9/2}$ (1990Fi07).
5990#@	5^-	(5)#@	Proposed configuration= $\nu f_{5/2} \otimes \nu d_{5/2}$ (1990Fi07).
6200#@	5^-	(5)#@	Proposed configuration= $\nu f_{5/2} \otimes \nu d_{5/2}$ (1990Fi07).
7330	$6^+, 8^+$	(6+8)	L: tentative assignment (1990Fi07). Proposed configuration= $\nu g_{9/2}^2$ for 8^+ , $\nu g_{9/2} \otimes \nu d_{5/2}$ for 6^+ (1990Fi07).

[†] As given in 1990Fi07, based on L(2n) transfers. 1990Fi07 assumed direct stripping process from the incident α particle, with the neutron pair transferred in a relative S state ($S=0$, isospin $T=1$ state). All assignments should be considered as tentative as the L-transfers are either tentative or for unresolved doublets.

[‡] From angular distribution and comparison with DWBA calculations.

Unresolved doublet at 5990 and 6200. L-transfer is combined for the two peaks.

@ Peak included contributions from states nearby and the DWBA did not permit definite results (1990Fi07).