^{48}Ca(^{3}He,^{6}He) 1976Na21

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 109, 171 (2008)	30-Oct-2007

E=70 MeV. Measured $\sigma(\theta=6°-35°)$; mag spect, position-sensitive detector system. FWHM≈30 keV.

1976Na21 consider the strong excitation of states In ^{45}Ca by this reaction, together with weak excitation In (d,p), to Be evidence of a wavefunction dominated by seniority ν=3, $(\nu\ f_{7/2})^{-3}$. The ν=1, J=7/2 state of $(\nu\ f_{7/2})^{-3}$ can Be excited strongly In both reactions. The shape of the angular distributions was considered qualitatively As an argument In the assignment.

Assumptions: 1) the reaction goes predominately by direct transfer of a three-neutron cluster. 2) ^{48}Ca g.s. is predominantly $(\nu\ f_{7/2})^{8}$. Note that the strong excitation of states above 3 MeV was not explained.

^{45}Ca Levels

J(F),L(γ) L=0 is consistent with the adopted $J^{\pi}=1/2^{+}$. Identified As a $((\nu\ f_{7/2})^{-2}_{0}\ (\nu\ s_{1/2})^{-1})1/2^{+}$ hole state by 1976Na21.

E(level)	L†	E(level)	J^{π}	L†	E(level)	E(level)
0.0‡	#	1895& *8*			3041 *12*	3846 *12*
174‡@ *8*		2389‡ *8*	1/2+	0	3348 *12*	3993 *12*
1435‡@ *8*		2786 *12*			3485 *12*	4288[a] *12*
1562@ *8*	#	2877@ *12*		#	3675 *12*	

† From the shape of angular distribution.

‡ Calibration points.

Large L transfer.

@ Band(A): probable member of a $(\nu\ f_{7/2})^{-3}$ multiplet.

& Multiplet from width of peak. One state May Be the 1.88-MeV state observed In single-nucleon transfer reactions. A contribution from the 1.90-MeV state May Be ruled out since it is predominantly $((\nu\ f_{7/2})^{4}\ (\nu\ p_{3/2}))$ As established In (d,p). The centroid of the peak shifts to higher energies As the angle increases, indicating the existence of another state. 1976Na21 suggest $(\nu\ f_{7/2})^{-3}$ for this additional state.

[a] 1976Na21 noted that this is the strongest transition observed.

^{48}Ca(^{3}He,^{6}He) 1976Na21

Band(A): Probable member of a $(\nu\ f_{7/2})^{-3}$ multiplet

2877

1562

1435

174

$^{45}_{20}Ca_{25}$