^{51}V(e,e′p) 1988De43,1986De23

History

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

$J^{\pi}(^{51}V \text{ g.s.})=7/2^-$.

1988De43, 1986De23: E(e)=265-410 MeV beam from the linear accelerator MEA. Measured σ (missing energy, missing momentum) using magnetic spectrometer, telescope (proportional counters, scintillation and Cerenkov detectors), TOF, FWHM≈130 keV for missing energy and ≈4 MeV/c for missing momentum. Unfactorized complete DWIA.

$\Sigma C^2S(1f_{7/2}; E_x<8 \text{ MeV})=1.33$ *12* compared to 1.11 (1988Kr02; $1f_{7/2}$ radius=4.20 fm), 3.00 (pure $(1f_{7/2})^n$ calculations), 2.88 (1970Li27; shell-model calculations including $(1f_{7/2})^2(2p_{3/2})$ and $(1f_{7/2})^2(1f_{5/2})$), and 2.65 (1988Kr02; shell-model calculations including the full fp-shell with a maximum of two 1p1h excitations). The relative spectroscopic factors from the calculations of 1988Kr02 are in better agreement with the present data than those from the calculations of 1970Li27. See 1988Pe05 for an analysis of the data of 1986De23 using spin-dependent sum rules and 1988De08 for a reply. See 1990De06 and 1990De16 for compilations of (e,e′p) data. Others: 1984La16 and 1976Na20.

$\Sigma C^2S(L=0; E_x<8 \text{ MeV})$ from (e,e′p) is about 20% larger than that obtained from (d,^{3}He). Also the admixture of the different single-particle components found in (e,e′p) are not in complete agreement with the (d,^{3}He) results.

$\Sigma C^2S(L=2; E_x<8 \text{ MeV})$ from (d,^{3}He) is about 50% larger than that obtained from (e,e′p). 1988De43 suggest that this may be due to the difficulty in (d,^{3}He) of detecting small L=0 admixtures in predominantly L=2 transitions.

See 1988Kr02 for analysis of the deep-hole states (8 MeV<E_x<21 MeV).

^{50}Ti Levels

SRMS=4.21 fm *3*, 4.19 fm *4*, 4.20 fm *3*, and 4.22 fm *3* and r_0=1.300 fm *10*, 1.306 fm *15*, 1.320 fm *10*, and 1.337 fm *9* for the ground, 1.6-, 2.7-, and 3.2-MeV states, respectively. Only statistical uncertainties are given. See 1988De43 for $2s_{1/2}$, $1d_{3/2}$, and $1f_{7/2}$ strengths and radii for states above 4 MeV.

E(level)†	L‡	C^2S	Comments
0	3	0.365 *7*	
1554	3	0.155 *5*	C^2S: $C^2S(2p)<0.01$.
2675	3	0.328 *6*	C^2S: $C^2S(2p)<0.01$.
3199	3	0.485 *9*	
4409	0+2		
5333	2+0		
5795	2+0		
6041	0+2		
6386	2+0		
6583	2		
7.0×10^3	0+2	#	
7.6×10^3	0+2	#	

† From 1988De43.

‡ L=3 and L=2 from the shape of the momentum distribution; L=0+2 and 2+0 from the shape of the momentum distribution and DWIA.

Maximum strength at small missing momenta.