^{48}Ti(d,d′),(pol d,d′) 1968Ha31,1974Ba74,1970Hi01

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

(d,d′):

1968Ha31: E(d)=7.5 MeV beam from the MIT ONR electrostatic generator. Enriched target. Measured $\sigma(\theta$=22.5°−157.5°, 7.5° steps) with a multi-angle magnetic spectrograph (FWHM=7-9 keV). Deduced levels, L-transfer from DWBA analysis.

1970Ve06: E=13.6 MeV deuteron from the cyclotron of the Scientific Research Institute of Nuclear Physics at Tomsk Polytechnical Institute. Measured $\sigma(\theta$=30°−60°). Deduced deformation parameter for the first 2^+ level.

1970Hi01: E=11.8 MeV deuteron from Heidelberg cyclotron. Investigated spin flip probability with d-$\gamma(\theta)$ with two detector telescopes for d (FWHM=110-180 keV), NaI for γ at 90° to reaction plane.

1968Hi09: E=51.7 MeV deuteron from the Karlstuhe cyclotron. Measured $\sigma(\theta_{c.m.}$=10° to 100°) with ΔE-E telescopes of silicon surface-barrier counters and NaI(Tl) scintillation counters. Deduced deformation parameter for the 2^+ level from DWBA analysis. See also 1967Hi09.

(pol d,d′):

1974Ba74,1975Ba64: E=15 MeV polarized deuteron beam was produced from the Rutgers atomic-beam polarized ion source. Target was natural ^{48}Ti. Scattered deuterons were detected with two counter telescopes of ΔE-E detectors. Measured $\sigma(\theta)$ and analyzing powers ($\theta_{c.m.}$=30° to 160°). Deduced deformation parameter for the first 2^+ level from DWBA analysis. See 1975Ba64 for coupled channels analysis with anharmonic vibrator, symmetric and asymmetric rotator models.

Others: 1968Wi02, 1967Is05, 1967Br13.

All data are from 1968Ha31, unless otherwise noted.

^{48}Ti Levels

E(level)	J^π	L†	β_L†	Comments
0.0	0^+			
976 *6*		2	0.20	β_L: from 1974Ba74. Others: 1975Ba64 report β_L(vib)=0.16, β_L(rot)=0.19 from Coupled-Channel analysis; 0.185 (1970Ve06); 0.24 (1968Ha31); 1968Hi09 report 0.21, 0.26 and 0.22 for different couplings.
				dσ/dΩ(max)=1.80 mb/sr.
2286 *6*				dσ/dΩ(max)=0.15 mb/sr.
2414 *6*				dσ/dΩ(max)=0.11 mb/sr.
2995 *8*				dσ/dΩ(max)=0.04 mb/sr.
3240 *10*				dσ/dΩ(max)=0.05 mb/sr.
3358 *10*		3	0.08	dσ/dΩ(max)=0.07 mb/sr.
3372 *10*				dσ/dΩ(max)=0.04 mb/sr.

† From DWBA analysis of measured $\sigma(\theta)$ in 1968Ha31, unless otherwise noted.

$\gamma(^{48}$Ti)

E_γ	E_i(level)	E_f	J^π_f	Comments
983	976	0.0	0^+	Observation of 983γ at θ=90° to reaction plane selected half-spin-flip deuterons (1970Hi01).

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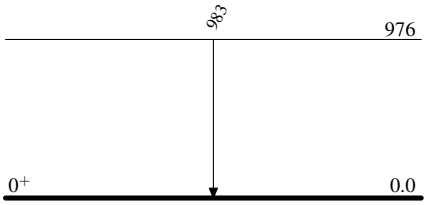
Level Scheme



$^{48}_{22}Ti_{26}$