^{14}N(t,γ) 1980Li05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. G. Sheu, J. H. Kelley, J. Purcell	ENSDF	5-Aug-2021

1980Li05: Triton beams with E=0.8-3.3 MeV, produced by the Strasbourg-Cronenbourg Van de Graaff bombarded a 99.99% purified nitrogen gas cell opperated with 60 cm Hg pressure. Uncertainty in the center-of-target energies are ±25 keV. The γ-ray spectra were recorded with a 25×30 cm NaI(Tl) detector surrounded by a plastic anticoincidence shield. The ^{1}H(t,γ)^{4}He reaction was used to calibrate the energy scale and to normalize the yeilds. The resolution FWHM for 20.5-MeV γ rays was ≈4%.
Cross sections measured at θ_{lab}=90° resolved the transitions to the 5/2$^+$ ^{17}O ground state (γ_0) and the 1/2$^+$ first excited state (γ_1), separated by 0.87 MeV, but not completely. Excitation energies of ^{17}O*(19.76,20.39,20.58,21.05 MeV) and their J$^\pi$ values were determined. An additional level at E$_x$≈19.3 MeV was also indicated. The lower limit for the Γ_γ widths range from ≈1-6 eV.
See also (1973LiYQ,1973LiZH) and ^{14}N+t cluster model analysis in (1985Me06).

^{17}O Levels

Γ: From (1980Li05).

E(level)[†]	J$^\pi$[‡]	Γ	Comments
0	5/2$^+$		
871	1/2$^+$		
≈19.30×10^3			
19.76×10^3 *6*	3/2$^-$	0.55 MeV *5*	$\Gamma_{\gamma0}$≥1.0 eV; $\Gamma_{\gamma1}$≥2.3 eV
20.39×10^3 *5*	5/2$^-$	0.66 MeV *7*	$\Gamma_{\gamma0}$≥4.3 eV
20.58×10^3 *5*	1/2$^+$	0.57 MeV *8*	$\Gamma_{\gamma1}$≥5.1 eV
21.05×10^3 *5*	3/2$^-$	0.47 MeV *6*	$\Gamma_{\gamma0}$≥5.8 eV; $\Gamma_{\gamma1}$≥6.5 eV

[†] From (1980Li05).
[‡] Best fit (1980Li05).

γ(^{17}O)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.
18418	≈19.30×10^3		871	1/2$^+$	
18889	19.76×10^3	3/2$^-$	871	1/2$^+$	E1
19288	≈19.30×10^3		0	5/2$^+$	
19709	20.58×10^3	1/2$^+$	871	1/2$^+$	M1
19760	19.76×10^3	3/2$^-$	0	5/2$^+$	E1
20179	21.05×10^3	3/2$^-$	871	1/2$^+$	E1
20390	20.39×10^3	5/2$^-$	0	5/2$^+$	E1
21050	21.05×10^3	3/2$^-$	0	5/2$^+$	E1

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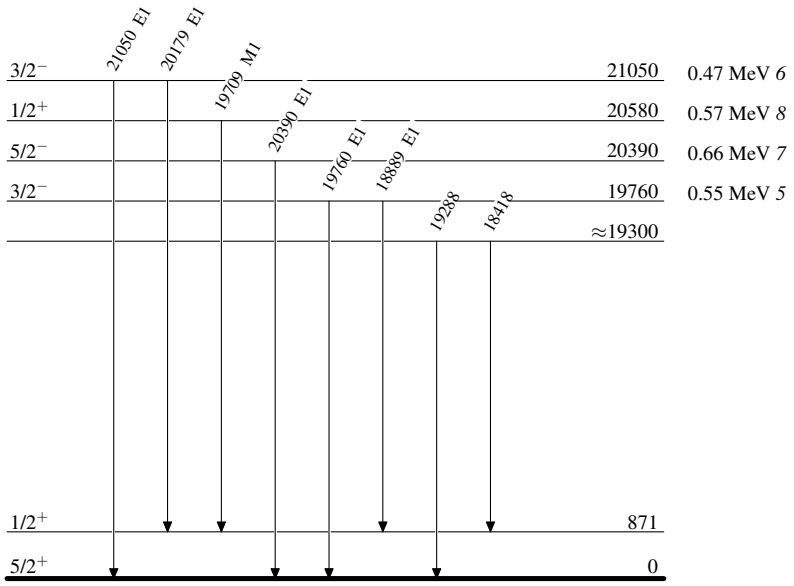
Level Scheme



$^{17}_{8}O_9$