

$^{48}\text{Ca}(\alpha,2n\gamma),(^6\text{Li},3np\gamma)$ **1979St13,1978Ha17**

| Type | Author | History | Citation | Literature Cutoff Date |
|-----------------|---------------------------|---------|-------------------|------------------------|
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1979St13,1978Ha17: $E\alpha=24,27$ MeV beams from the MP tandem at Strasbourg. Measured $\gamma\gamma$ -coincidences and DCO, $\theta=35^\circ$ and 90° in the same reaction plane ($\phi=180^\circ$); $\gamma(\theta=35^\circ,45^\circ,55^\circ,70^\circ,90^\circ, \text{back angles to } 142.8^\circ)$; and γ -excitation functions, $\theta=55^\circ$. Measured γ linear polarization, three Ge(Li) Compton polarimeter at 90° ; negative values for M1 transitions and positive values for E2 and E1 are expected from this analysis.

Others:

1974Po10: $E(^6\text{Li})=26$ MeV. Measured $\gamma(t)$. RDM.

1976Bo25: $E\alpha=26$ MeV. Measured $\gamma(\theta,H,t)$.

All data from **1979St13** and **1978Ha17**, except as noted.

 ^{50}Ti Levels

| E(level) | J^π^\dagger | $T_{1/2}$ | Comments |
|-------------|-----------------|-----------|--|
| 0.0 | 0^+ | | |
| 1553.73 20 | 2^+ | | |
| 2674.7 3 | | 5.3 ps 11 | $T_{1/2}$: from RDM (1974Po10). |
| 3198.2 4 | 6^+ | | $g=+1.57$ 17 (1976Bo25) |
| | | | $g: \omega\tau=0.061$ 6 (1976Bo25), Sign added by 1989Ra17 . |
| 3974.7?‡ 11 | | | |
| 4147.9?‡ 11 | | | |
| 6134.7 17 | 7^+ | | |
| 6539.2 18 | 8^+ | | |
| 6768.8 20 | 9^+ | | |
| 7539.0?‡ 23 | | | |
| 7570.1 20 | 10^+ | | |
| 8257.2?‡ 24 | | | |
| 8790.0 23 | $(11^+)^\#$ | | $J^\pi: 9^+$ or 11^+ from analysis in 1979St13 , the latter favored by two-point excitation function in 1979St13 . |

† From least-squares analysis of $\gamma(\theta)$, γ linear polarization, and DCO, except as noted.

‡ Level suggested by $\gamma\gamma$ coincidence data.

$^\#$ $9^+,11^+$ from least-squares analysis of $\gamma(\theta)$, γ linear polarization, and DCO; $J=11$ from two-point excitation function.

 $\gamma(^{50}\text{Ti})$

| E_γ | I_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. † | δ^\ddagger | Comments |
|----------------|------------|---------------------|-------------|---------|-----------|------------------|-------------------|--|
| 229.6 7 | 23 2 | 6768.8 | 9^+ | 6539.2 | 8^+ | M1+E2 | -0.035 15 | $A_2=-0.33$ 2; $A_4=-0.04$ 4; DCO=1.01 4 (1978Ha17) |
| 404.5 7 | 26 2 | 6539.2 | 8^+ | 6134.7 | 7^+ | M1+E2 | -0.017 9 | POL=-0.31 3 (1978Ha17). $A_2=-0.31$ 2; $A_4=-0.02$ 2; DCO=1.20 8 (1978Ha17) POL=-0.34 3 (1978Ha17). |
| 523.5‡ 2 | 64 5 | 3198.2 | 6^+ | 2674.7 | | Q | | $A_2=+0.306$ 4; $A_4=-0.046$ 7 (1976Bo25) |
| 770.2 $^\#$ 10 | 1 1 | 7539.0? | | 6768.8 | 9^+ | | | |
| 801.3 6 | 12 1 | 7570.1 | 10^+ | 6768.8 | 9^+ | M1+E2 | -0.044 18 | $A_2=-0.37$ 2; $A_4=0.00$ 2; DCO=0.95 6 (1978Ha17) POL=-0.35 4 (1978Ha17). |
| 1121.0‡ 2 | 91 8 | 2674.7 | | 1553.73 | 2^+ | | | |
| 1219.8 10 | 3 1 | 8790.0 | $(11^+)^\#$ | 7570.1 | 10^+ | (M1+E2) | -0.17 10 | $A_2=-0.61$ 21; $A_4=-0.37$ 30; DCO=0.84 21 |

Continued on next page (footnotes at end of table)

$^{48}\text{Ca}(\alpha,2n\gamma),(^6\text{Li},3np\gamma)$ 1979St13,1978Ha17 (continued) $\gamma(^{50}\text{Ti})$ (continued)

| E_γ | I_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. [†] | δ^\ddagger | Comments |
|------------------------|------------|---------------------|----------------|--------|----------------|--------------------|-------------------|---|
| | | | | | | | | (1979St13) Interference from 1228 γ in ^{42}Ca . POL=-0.27 29 (1979St13). δ : from 1978Ha17, but no $\gamma(\theta)$ coefficients are listed. |
| 1300.0 [#] 10 | 3 1 | 3974.7? | | 2674.7 | | | | |
| 1473.2 [#] 10 | 5 1 | 4147.9? | | 2674.7 | | | | |
| 1553.7 [‡] 2 | 100 | 1553.73 | 2 ⁺ | 0.0 | 0 ⁺ | | | |
| 1718.0 [#] 15 | 2 1 | 8257.2? | | 6539.2 | 8 ⁺ | | | |
| 2936.4 16 | 32 3 | 6134.7 | 7 ⁺ | 3198.2 | 6 ⁺ | M1+E2 | -0.141 25 | $A_2=-0.55$ 2; $A_4=+0.01$ 2; DCO=0.33 2 (1978Ha17) POL=-0.28 6 (1978Ha17). |

[†] From $\gamma(\theta)$, DCO, and γ linear polarization data of 1978Ha17. J_i^π from J_f-2 to J_f+2 were considered in the least-squares analysis, except as noted.

[‡] From 1976Au07; used for calibration purposes.

[#] Placement of transition in the level scheme is uncertain.

