^{47}Ti(γ,γ') 1976Ra03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Ota and E. A. Mccutchan	NDS 203,1 (2025)	1-Apr-2025

1976Ra03: Resonant scattering with bremsstrahlung. Measured Eγ, Iγ, σ(96°,126°) using two Ge(Li) detectors and linear polarization using Ge(Li) Compton polarimeter. Natural Ti target.

^{47}Ti Levels

E(level)	J$^\pi$[†]	T$_{1/2}$[‡]	Γ_0 (meV)	Comments
0.0	5/2$^-$			
160	7/2$^-$			
2162	3/2$^-$	26 fs *7*	18 *5*	E(level): 2002γ depopulating γ to the 160-keV level was not observed, likely due to the weak branch (1976Ra03).
2297	(5/2$^-$,7/2$^-$)	≈4 fs		Γ_0 (meV): 104 meV *10* for J=5/2$^-$ and 78 meV *8* for J=7/2$^-$ (1976Ra03). J$^\pi$: σ(96°)/σ(126°) (2297γ) excludes 9/2 while RUL for 2137γ excludes 3/2. π=+ excluded since δ^2<0.001 from RUL(M2) not consistent with σ(96°)/σ(126°) (2297γ). T$_{1/2}$: T$_{1/2}$=3.3 fs *4* if J^π=5/2$^-$; T$_{1/2}$=4.4 fs *5* if J^π=7/2$^-$. $\Gamma_{\gamma 0}/\Gamma$=0.75 used in calculations instead of measured 0.77 *3* (1976Ra03).
2548	3/2$^-$	6.2 fs *7*	72 *8*	
3917?	3/2$^-$			

[†] From 1976Ra03, additional arguments from this dataset given in comments.
[‡] From g$\Gamma^2_{\gamma 0}/\Gamma$ with J^π and $\Gamma_{\gamma 0}/\Gamma$ as given.

γ(^{47}Ti)

E$_\gamma$	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	δ[‡]	Comments
2137	0.23 *3*	2297	(5/2$^-$,7/2$^-$)	160	7/2$^-$	(M1+E2)[@]		δ: see table in 1976Ra03.
2162		2162	3/2$^-$	0.0	5/2$^-$			δ: σ(96°)/σ(126°) consistent with isotropy (1976Ra03).
2297	0.77 *3*	2297	(5/2$^-$,7/2$^-$)	0.0	5/2$^-$	(M1,E2)		Mult.: D,Q from σ(96°)/σ(126°). δ^2<0.001 from RUL(M2) not consistent with σ(96°)/σ(126°). δ: see table in 1976Ra03.
2548		2548	3/2$^-$	0.0	5/2$^-$	M1(+E2)[@]	<0.5	δ: from A$_2$ between 0 and 0.4. Second solution of δ>4 excluded by comparison to RUL.
[x]2810[#&]								
3917[#&]		3917?	3/2$^-$	0.0	5/2$^-$			

[†] Reported by 1976Ra03 as Γ_0/Γ, assuming no other decays.
[‡] From analysis of σ(96°)/σ(126°).
[#] Possible assignment to either ^{47}Ti or ^{49}Ti.
[@] D+Q from σ(96°)/σ(126°). $\Delta\pi$=no from J^π.
[&] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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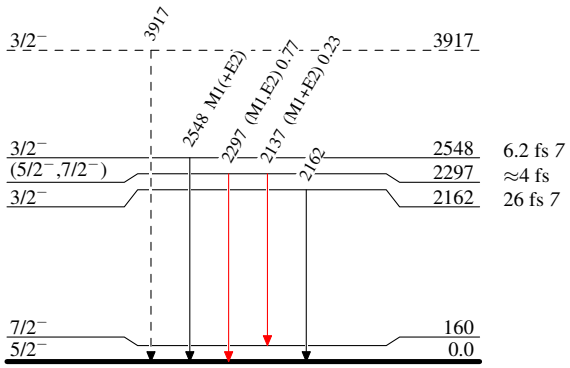
Level Scheme

Intensities: Γ_γ/Γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{47}_{22}Ti_{25}$