^{40}Ca(^{7}Li,t)   **2009Fu17**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 190,1 (2023)	20-Jun-2023

2009Fu17: E=26.0 MeV ^{7}Li beam produced from the Pelletron Accelerator at Kyoto University. 150 μg/cm^2 96.9% enriched target on Carbon foil. Tritons were detected by ΔE-E telescope of Si detectors with FWHM=70 keV. The α particles emitted from the excited states of ^{44}Ti were detected by eight silicon photodiode detectors. Measured σ(E$_t$,θ), αt coincidences and αt(θ). Deduced levels, J^π, α-cluster states.

1980Cu06: E=34 MeV ^{7}Li beam of 100-500 nA produced from the Florida State University Super FN tandem Van de Graaff Accelerator. A 350 μg/cm^2 ^{40}Ca target. Tritons detected by ΔE-E telescopes of silicon detectors. Measured σ(E$_t$,θ). Deduced levels, J^π, spectroscopic factors from DWBA analysis.

1969Go17: E=30.3 MeV. Measured σ(E$_t$,θ).

1988Ra28: E=34 MeV. Measured σ(E$_t$,θ).

S(α)(^{44}Ti)=5127.1 7 (2021Wa16).

^{44}Ti Levels

E(level)[†]	J$^{\pi}$[‡]	L[‡]	S[#]	E(level)[†]	J$^{\pi}$[‡]	L[‡]	E(level)[†]	J$^{\pi}$[‡]	L[‡]
0[&]	0$^+$[&]		1.0	10.70×10^3	4$^+$	4	13.24×10^3	(3$^-$,4$^+$)	3,4
1080[&]	2$^+$[&]		0.54	11.04×10^3	4$^+$	4	13.44×10^3	5$^-$	5
7.01×10^3[@]				11.11×10^3	(5$^-$,6$^+$)	5,6	13.97×10^3	3$^-$	3
7.56×10^3[@]				11.66×10^3	3$^-$	3	14.27×10^3	(4$^+$,5$^-$)	4,5
8.20×10^3	(1$^-$,2$^+$)	1,2		11.81×10^3	(4$^+$,5$^-$)	4,5	14.71×10^3	(5$^-$,6$^+$)	5,6
8.45×10^3[a]	3$^-$	3		11.95×10^3	7$^-$	7[c]	14.83×10^3	(3$^-$,4$^+$)	3,4
8.95×10^3	4$^+$	4		12.11×10^3	4$^+$	4	15.35×10^3[@]		
9.40×10^3[b]	5$^-$	5		12.58×10^3	4$^+$	4	16.02×10^3[@]		
9.58×10^3	5$^-$	5		12.86×10^3	(3$^-$,4$^+$)	3,4			

[†] From 2009Fu17, unless otherwise noted. Interpreted as α cluster states, decaying by α to ^{40}Ca g.s.

[‡] From tα(θ) distributions fitted with Legendre polynomials (2009Fu17), unless otherwise noted.

[#] Relative spectroscopic strength. From 1980Cu06.

[@] No tα(θ) data was obtained due to threshold level issues for 7.01 and 7.56 MeV peaks and due to very weakly populated states at 15.35 and 16.02 MeV.

[&] From 1980Cu06.

[a] A weak peak detected on its shoulder.

[b] May consist of two levels.

[c] tα(θ) fit is improved for L=4 for θ>150°.