^{199}Tl IT decay (28.4 ms) 1963Di10

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 108, 79 (2007)	15-Oct-2006

Parent: ^{199}Tl: E=749.8 *4*; $J^\pi=9/2^-$; $T_{1/2}$=28.4 ms *2*; %IT decay=100.0

1963Di10: Produced by ^{197}Au(α,2n), E(α)=22 MeV, in-beam measurements, magnetic spectrometer.

Others: 1963De28, 1965Gr04, 1967Co20, 1977KoZH, 1977Go15.

^{199}Tl Levels

E(level)†	J^π†	$T_{1/2}$	Comments
0.0	$1/2^+$		
367.0 *3*	$3/2^+$	<1.5 ns	$T_{1/2}$: from 1959Jo21.
720 *1*	$(5/2)^+$		
749.8 *4*	$9/2^-$	28.4 ms *2*	$T_{1/2}$: weighted av: 28.9 ms *6* (1963De38), 27 ms *4* (1963Di10), 26.6 ms *14* (1965Gr04), 29.2 ms *10* (1967Co20), 28.4 ms *2* (1977KoZH).

† From 'Adopted Levels'.

$\gamma(^{199}Tl)$

Iγ normalization: From average of Σ I(γ+ce) to g.s. and Σ I(γ+ce) from 749 level=100.

E_γ†	I_γ#@	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α&	Comments
(29)		749.8	$9/2^-$	720	$(5/2)^+$	[M2]		6.7×10^3 *3*	α(L)=4.94×10^3 *22*; α(M)=1.35×10^3 *6* α: for Eγ=29.3 *3* from E(level) difference (adopted E(level)). I(γ+ce)=Ti(353γ)+Ti(720γ)=10 from decay scheme.
353	6.1	720	$(5/2)^+$	367.0	$3/2^+$	M1+E2	0.6 *2*	0.211 *25*	α(K)= 0.169 *22*; α(L)= 0.032 *2*; α(M)=0.0075 *5*; α(N+..)=0.00240 *14* Mult.,δ: from 'adopted gammas'.
367.0‡ *3*	116	367.0	$3/2^+$	0.0	$1/2^+$	E2+M1	+1.6 *2*	0.112 *10*	α(K)= 0.083 *9*; α(L)=0.0214 *9*; α(M)=0.00522 *19*; α(N+..)=0.00168 *6* δ: from K/L=3.5 *3* (1963Di10) and (L1+L2)/L3=7.4 (^{199}Pb ε decay); sign is positive from $\gamma\gamma(\theta)$ (1963Di10).
382.8‡ *3*	103	749.8	$9/2^-$	367.0	$3/2^+$	E3		0.229	α(K)= 0.0966; α(L)= 0.101; α(M)= 0.0266; α(N+..)=0.00872 Mult.: from $\gamma\gamma(\theta)$,A_2=0.20 *+4−3* for 9/2(E3)3/2(M1+E2)1/2; also K/L=0.88 *5* (1963Di10); also α(K)exp=0.10 from (α,2nγ) reaction; theory: α(K)(E3)=0.097.
720	2.6	720	$(5/2)^+$	0.0	$1/2^+$	[E2]		0.0125	α(K)=0.00958; α(L)=0.00218 I_γ: Iγ(720)=4.2 from Iγ(720)/Iγ(353)=0.69 in ^{199}Pb ε decay.

Continued on next page (footnotes at end of table)

^{199}Tl IT decay (28.4 ms) 1963Di10 (continued)

$\gamma(^{199}Tl)$ (continued)

† From 1963Di10, unless otherwise noted.
‡ From 1967Co20.
# Calculated from ce intensities (1963Di10) and adopted α(K).
@ For absolute intensity per 100 decays, multiply by ≈0.75.
& Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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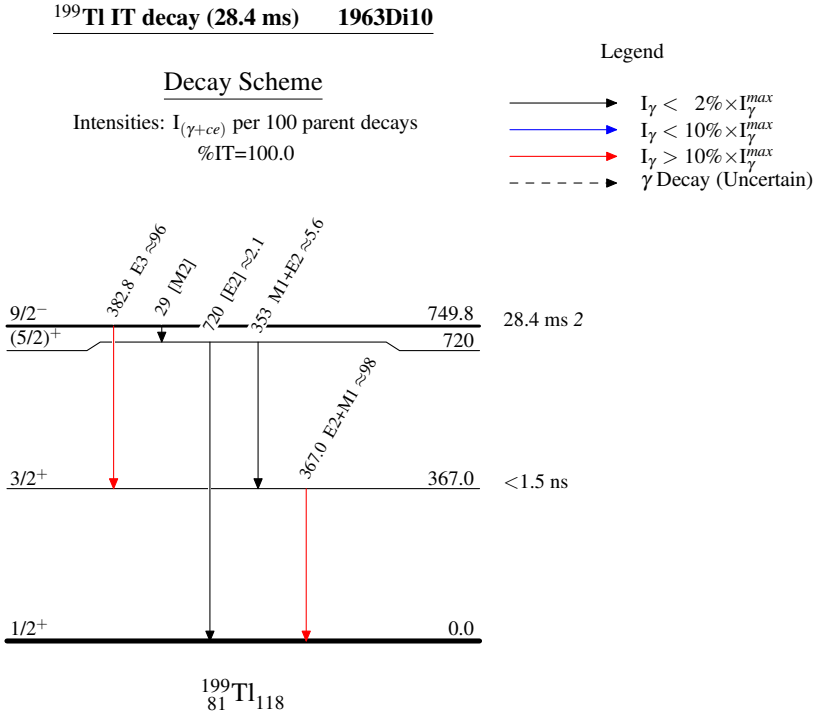
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT=100.0



$^{199}_{81}Tl_{118}$