^{144}Sm(^{42}Ca,p2nγ):E=209 MeV 2001Mu26

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 134, 149 (2016)	15-Apr-2015

E=209 MeV; 92.4% ^{144}Sm metallic target; JUROSPHERE II array (7 TESSA-type, 5 NORDBALL, and 15 EUROGAM I Compton-suppressed Ge detectors) for prompt γ's; 3 NORDBALL and 2 TESSA suppressed Ge detectors around Si strip detector at focal plane of RITU gas-filled recoil separator to detect delayed γ rays; measured Eγ, Iγ, prompt and delayed $\gamma\gamma$ coin, recoil-(α-tagged γ) coin, recoil-$\gamma\gamma$ coin; Iγ(134° and 158°)/Iγ(79° and 101°).

^{183}Tl Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
628.7	(9/2$^-$)		E(level),J$^\pi$: from Adopted Levels.
906.1 *4*	(11/2$^-$)		J$^\pi$: from Adopted Levels. Possible (π h$_{11/2}$)$^{-1}$ bandhead.
975.5[#] *3*	(13/2$^+$)	1.48 μs *10*	$T_{1/2}$: from spectrum of time difference between detection of recoil and 347γ. Other: 1.3 μs *4* from recoil-69γ time spectrum.
1096.2? *5*	(11/2$^-$)		J$^\pi$: from Adopted Levels.
1135.6[#] *4*	(17/2$^+$)		
1395.7[#] *5*	(21/2$^+$)		
1750.7[#] *6*	(25/2$^+$)		
2190.1[#] *8*	(29/2$^+$)		
2704.7[#] *10*	(33/2$^+$)		

[†] From Eγ; values are given relative to adopted E(level)=628.7, uncertainty unknown.
[‡] Authors' values based on deduced band structure, except as noted.
[#] Band(A): (π i$_{13/2}$) prolate band. Assignment based on similarity to i$_{13/2}$ bands in heavier odd-A Tl nuclides.

γ(^{183}Tl)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	α[†]	Comments
69.3[‡] *5*	23[‡] *9*	975.5	(13/2$^+$)	906.1	(11/2$^-$)	[E1]	0.238 *6*	Mult.: see comment on 277γ.
160.1 *3*	83 *9*	1135.6	(17/2$^+$)	975.5	(13/2$^+$)	(E2)[#]	0.908 *15*	
[x]254.1 *5*	27 *7*							
260.1 *3*	100 *10*	1395.7	(21/2$^+$)	1135.6	(17/2$^+$)			
277.4[‡] *5*	10[‡] *4*	906.1	(11/2$^-$)	628.7	(9/2$^-$)	[M1]	0.486	Mult.: intensity balance at the 906 level is achieved if the 69γ and 277γ are assumed to have E1 and M1 multipolarity, respectively.
346.8[‡] *3*	89[‡] *10*	975.5	(13/2$^+$)	628.7	(9/2$^-$)	[M2]	0.921	Mult.: hindrance comparable to that for known 13/2$^+$ to 9/2$^-$ transitions in ^{195}Bi and ^{197}At (2001Mu26).
355.0 *3*	91 *10*	1750.7	(25/2$^+$)	1395.7	(21/2$^+$)			
439.4 *5*	51 *9*	2190.1	(29/2$^+$)	1750.7	(25/2$^+$)	(E2)[#]	0.0387	
467.5[@] *5*	49 *9*	1096.2?	(11/2$^-$)	628.7	(9/2$^-$)			
514.6 *5*	47 *9*	2704.7	(33/2$^+$)	2190.1	(29/2$^+$)			

[†] Additional information 1.
[‡] Delayed γ rays observed in RITU focal plane.
[#] Iγ(134° and 158°)/Iγ(79° and 101°) consistent with that measured for known stretched Q transitions in ^{182}Hg.

Continued on next page (footnotes at end of table)

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$\gamma(^{183}Tl)$ (continued)

@ Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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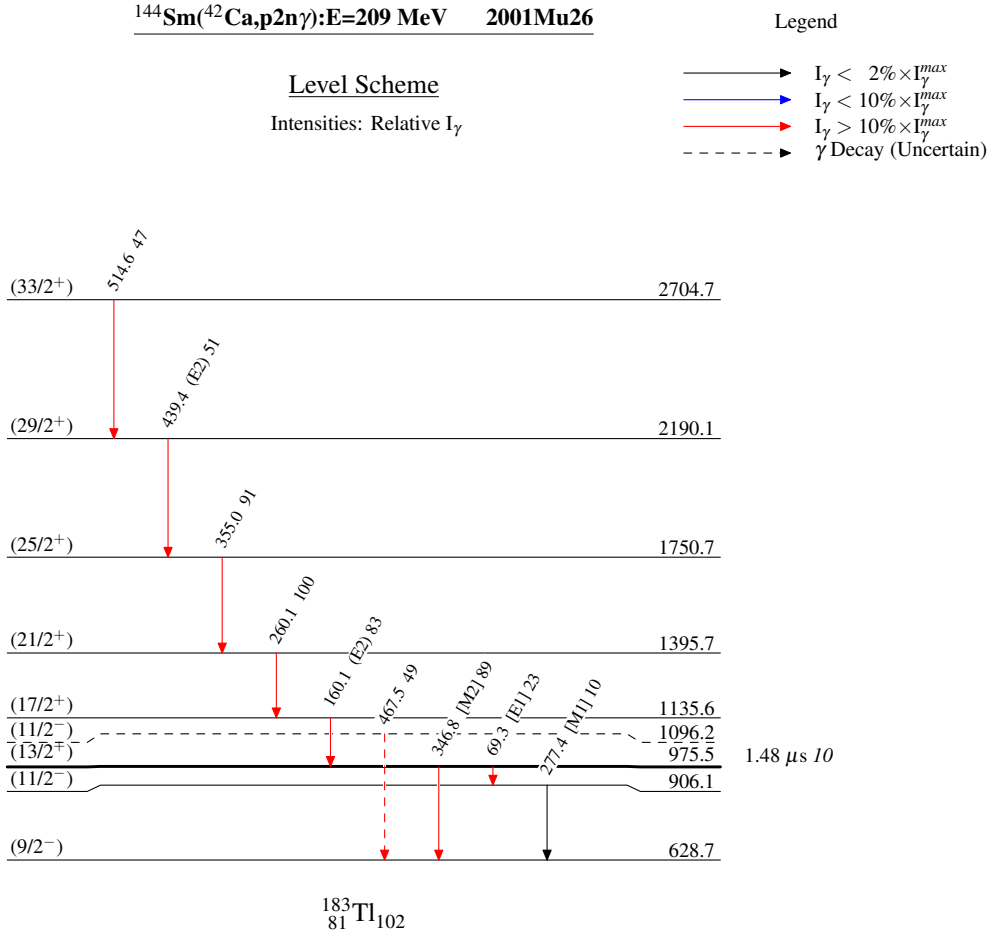
Level Scheme

Intensities: Relative I_γ



$^{183}_{81}Tl_{102}$

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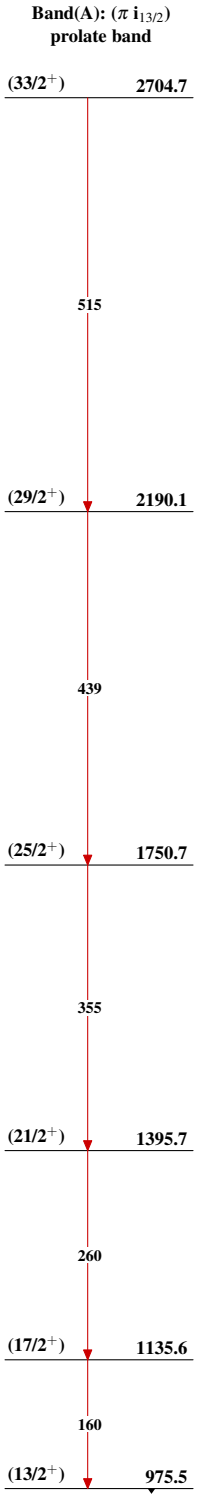

$^{183}_{81}Tl_{102}$