^{147}Sm(^{14}N,5nγ),^{144}Sm(^{19}F,2p5n) 1985Ko30,1995Su12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Additional information 1.

1995Su12: ^{144}Sm(^{19}F,2p5n). 1.0 mg/cm^2 ^{144}Sm target, form and isotopic composition not given. γ radiation was studied using five HPGE BGO Compton-suppressed detectors and a 14-element ball of BGO detectors. Singles γ-ray spectra were collected at E(^{19}F)=85, 90, 95 and 100 MeV to measure the excitation function. At 105 MeV, a $\gamma\gamma$ BGO coincidence experiment was carried out. In addition to ^{156}Tm, the nuclides ^{159}Lu, ^{158}Yb and ^{159}Yb were produced with appreciable intensity in this experiment.

1985Ko30: self-supporting, isotopically enriched targets. The data are from either ^{144}Sm(^{14}N,2nγ) or ^{147}Sm(^{14}N,5nγ), with E(^{14}N)=80-120 MeV. The γ measurement system consisted of three Ge and 14 NaI(Tl) detectors. These data are from a brief comment; and the order of the γ transitions is tentative.

^{156}Tm Levels

The level scheme reported by 1995Su12 is more extensive than that of 1985Ko30. Where they overlap, they are in agreement.

E(level)	J$^\pi$[†]	T$_{1/2}$	Comments
0+x			
203.6+x[‡]	(11$^-$)	≈400 ns	T$_{1/2}$: value shown on the level scheme of 1985Ko30, but further details regarding it are not given.
771.2+x[‡]	(13$^-$)		
1366.0+x[‡]	(15$^-$)		
1725.7+x[‡]	(16$^-$)		
2056.6+x[‡]	(17$^-$)		
2335.6+x[‡]	(18$^-$)		
2535.0+x[‡]	(19$^-$)		
3234+x[‡]	(21$^-$)		
3407+x[‡]	(22$^-$)		
3978+x[‡]	(23$^-$)		
4773+x[‡]	(25$^-$)		

[†] Values proposed by 1995Su12. These values are based on the assumption that this is a decoupled (π h$_{11/2}$)(ν i$_{13/2}$) band, by analogy with bands of similar character in a number of doubly odd nuclides in this mass region.

[‡] Band(A): Possible (π 7/2[523])(ν 1/2[660]) band. This configuration was proposed by 1995Su12, based on a consistency with the systematics for the neighboring isotone and isotopes. From this, 1995Su12 suggest K^π=4$^-$ for the band and "I$_0$"=11$^-$ for the 400-ns isomeric state.

γ(^{156}Tm)

E$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
173	3407+x	(22$^-$)	3234+x	(21$^-$)	
199.4	2535.0+x	(19$^-$)	2335.6+x	(18$^-$)	
203.6	203.6+x	(11$^-$)	0+x		
330.9	2056.6+x	(17$^-$)	1725.7+x	(16$^-$)	
359.7	1725.7+x	(16$^-$)	1366.0+x	(15$^-$)	
479	2535.0+x	(19$^-$)	2056.6+x	(17$^-$)	E$_\gamma$: γ not reported by 1985Ko30.
567.6	771.2+x	(13$^-$)	203.6+x	(11$^-$)	
594.8	1366.0+x	(15$^-$)	771.2+x	(13$^-$)	
609.9	2335.6+x	(18$^-$)	1725.7+x	(16$^-$)	

Continued on next page (footnotes at end of table)

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γ(^{156}Tm) (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π
699	3234+x	(21$^-$)	2535.0+x	(19$^-$)
744	3978+x	(23$^-$)	3234+x	(21$^-$)
795	4773+x	(25$^-$)	3978+x	(23$^-$)

[†] Values quoted to tenths of a keV are those reported by 1985Ko30. Others are from 1995Su12.

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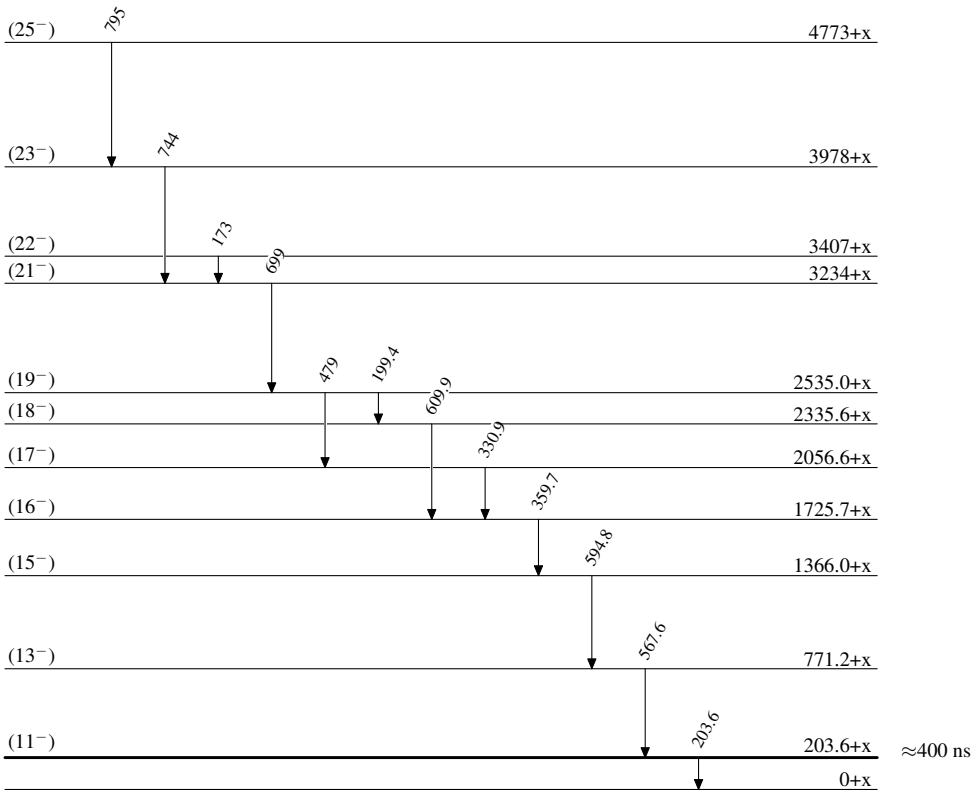
Level Scheme



$^{156}_{69}Tm_{87}$

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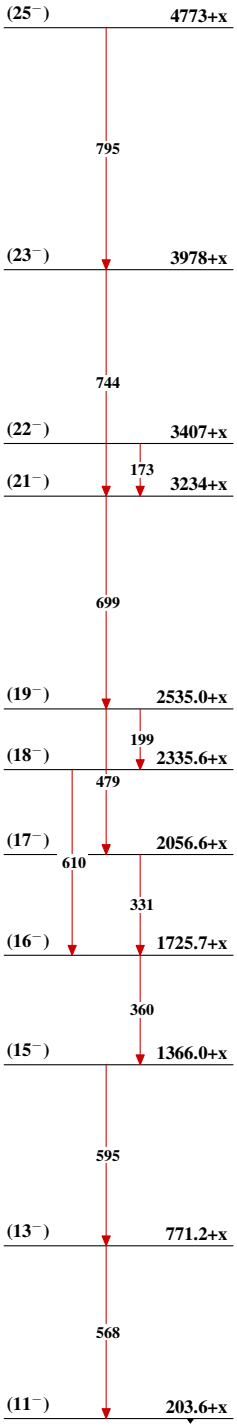
Band(A): Possible (π 7/2[523])(ν 1/2[660]) band



$^{156}_{69}Tm_{87}$