^{153}Sm IT decay (10.6 ms) 1971KiZC

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 170, 1 (2020)	16-Aug-2020

Parent: ^{153}Sm: E=98.39 *10*; $J^{\pi}=11/2^{-}$; $T_{1/2}$=10.6 ms *3*; %IT decay=100.0
Sources produced in Sm(pulsed n,γ) reaction, with natural and enriched Sm targets.

^{153}Sm Levels

E(level)	J^{π}†	$T_{1/2}$	Comments
0.0	$3/2^{+}$		
7.5	$5/2^{+}$		
53.533	$7/2^{+}$		
65.475	$9/2^{+}$		
98.39 *10*	$11/2^{-}$	10.6 ms *3*	$T_{1/2}$: From 1971KiZC.

† From ^{153}Sm Adopted Levels where the band assignments are also given.

^{153}Sm IT decay (10.6 ms) 1971KiZC (continued)

γ(^{153}Sm)

Iγ normalization: From %IT=100 of 98 isomeric state.

E_γ	I_γ[@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ[#]	α[‡]	$I_{(\gamma+ce)}$[†@]	Comments
7.5		7.5	5/2$^+$	0.0	3/2$^+$	M1		≈2×10^2	156 *16*	ce(M)/(γ+ce)≈0.47 α: The γ energy is too low for internal conversion in the L_1 subshell, but it is allowed in the L_2 and L_3 subshells. From α(M) and the evaluator's estimated of α(L) and α(N+..), α(M1) ≈ 2×10^2 and α(E2) ≈ 4×10^5.
11.9		65.475	9/2$^+$	53.533	7/2$^+$	[M1,E2]		1.9×10^4 *19*	156 *8*	ce(L)/(γ+ce)=0.78 *52*; ce(M)/(γ+ce)=0.18 *23* ce(N)/(γ+ce)=0.039 *53*; ce(O)/(γ+ce)=0.0047 *66*; ce(P)/(γ+ce)=2.9×10^{-6} *29* α(L)=1.5×10^4 *15*; α(M)=3.4×10^3 *34* α(N)=7.3×10^2 *73*; α(O)=89 *88*; α(P)=0.055 *7* α: From calculated α(L) and α(M) and estimated α(N+..), α(M1) ≈ 143 and α(E2) ≈ 3.9×10^4.
32.9 *1*	100 *4*	98.39	11/2$^-$	65.475	9/2$^+$	[E1]		0.996 *17*	200	ce(L)/(γ+ce)=0.393 *5*; ce(M)/(γ+ce)=0.0848 *15* ce(N)/(γ+ce)=0.0185 *4*; ce(O)/(γ+ce)=0.00239 *5*; ce(P)/(γ+ce)=8.55×10^{-5} *16* α(L)=0.785 *13*; α(M)=0.169 *3* α(N)=0.0369 *6*; α(O)=0.00476 *8*; α(P)=0.000171 *3*
46.1 *1*	4.4 *7*	53.533	7/2$^+$	7.5	5/2$^+$	M1+E2	1.0 *+10−5*	24 *13*	110 *14*	ce(L)/(γ+ce)=0.74 *27*; ce(M)/(γ+ce)=0.17 *12* ce(N)/(γ+ce)=0.038 *28*; ce(O)/(γ+ce)=0.0047 *35*; ce(P)/(γ+ce)=2.3×10^{-5} *14* α(L)=18.4 *99*; α(M)=4.3 *24* α(N)=0.93 *51*; α(O)=0.115 *61*; α(P)=5.7×10^{-4} *18* α: The γ energy is too low for K internal conversion. $I_{(\gamma+ce)}$: From intensity balance.
53.6 *1*	1.7 *4*	53.533	7/2$^+$	0.0	3/2$^+$	E2		25.6	46 *11*	ce(K)/(γ+ce)=0.149 *3*; ce(L)/(γ+ce)=0.630 *8*; ce(M)/(γ+ce)=0.147 *3* ce(N)/(γ+ce)=0.0321 *8*; ce(O)/(γ+ce)=0.00394 *9*; ce(P)/(γ+ce)=7.76×10^{-6} *17* α(K)=3.96 *6*; α(L)=16.8 *3*; α(M)=3.91 *7* α(N)=0.853 *15*; α(O)=0.1047 *18*; α(P)=0.000206 *3*
58.0 *1*	2.3 *4*	65.475	9/2$^+$	7.5	5/2$^+$	(E2)		18.6	46 *8*	ce(K)/(γ+ce)=0.193 *4*; ce(L)/(γ+ce)=0.586 *8*; ce(M)/(γ+ce)=0.137 *3* ce(N)/(γ+ce)=0.0298 *7*; ce(O)/(γ+ce)=0.00367 *8*; ce(P)/(γ+ce)=9.07×10^{-6} *19* α(K)=3.78 *6*; α(L)=11.46 *19*; α(M)=2.67 *5* α(N)=0.584 *10*; α(O)=0.0718 *12*; α(P)=0.000177 *3*

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$\gamma(^{153}Sm)$ (continued)

† Calculated from the measured Iγ where they are known, otherwise from intensity balances, except as noted.
‡ Additional information 1.
# Additional information 2.
@ For absolute intensity per 100 decays, multiply by 0.501 *22*.

$^{153}_{62}Sm_{91}$-3

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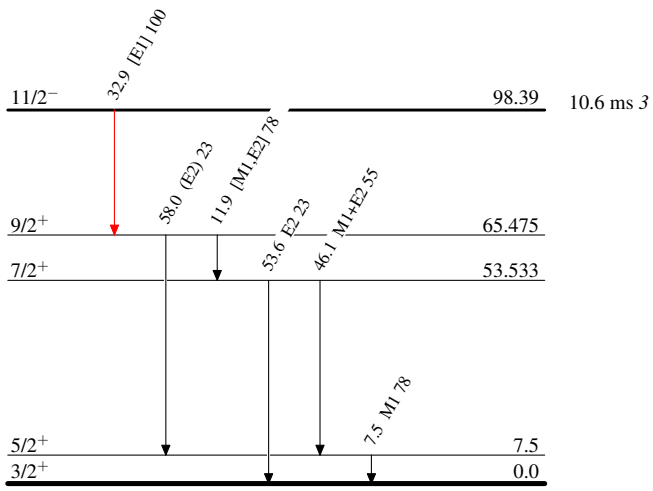
Decay Scheme

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

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{153}_{62}Sm_{91}$