Coulomb excitation 1971Ne16,1974St12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

Both references are from the same laboratory. Detailed results are from 1971Ne16. 1974St12 study $\gamma(\theta)$ of transitions from the 295.1 level.
Reactions: (d,d′) at E=5, 12 MeV and (^{35}Cl,^{35}Cl′) at 50, 75 MeV.
Enriched ^{151}Sm target (93%).
The γ-ray data are from (^{35}Cl,^{35}Cl′) reaction.
In (d,d′), FWHM=5-9 keV. Uncertainty in relative σ′s=10-15%.
The $\sigma(\theta)$ data obtained at 140° at E(d)=5 MeV and at 90°, 125° and 140° at E(d)=12 MeV.
Multipolarity of an excitation deduced from ratio of cross sections at 90° and at 125°.
B(E2)↑ deduced from ratio of inelastic and elastic cross sections.

^{151}Sm Levels

E(level)	J^π †	$T_{1/2}$ ‡	Comments
0.0	$5/2^-$		
4.8 *1*	$3/2^-$		
65.8 *1*	$7/2^-$	0.40 ns *6*	B(E2)↑=0.82 *8* (E(d)=5 MeV); 0.75 (E(d)=12 MeV).
104.8 *1*	$3/2^-$	0.62 ns *23*	B(E2)↑=0.013 (E(d)=12 MeV).
168.4 *1*	$(5/2)^-$	39 ps *+66−37*	B(E2)↑=0.14 *3* (E(d)=5 MeV); 0.16 (E(d)=12 MeV).
207# *4*	$(7/2)^-$	≈47 ps	B(E2)↑=0.010 (E(d)=12 MeV).
295.1 *1*	$9/2^-$	26 ps *7*	J^π: $\gamma\gamma(\theta)$ for either 295γ or the 229γ support 9/2, not≤7/2. B(E2)↑=0.45 *4* (E(d)=5 MeV), 0.48 (E(d)=12 MeV).
≈420#			Doublet.
502# *4*			
529# *4*			B(E2)↑=0.023 at 12 MeV.
621# *4*			
≈666#			
700# *4*			
715# *4*			B(E2)↑=0.064 at 12 MeV.
796# *4*			

† See 'Adopted Levels'.
‡ Deduced from B(E2)′s. See 'Adopted Levels'.
# Populated in (d,d′) at E(d)=12 MeV only. Uncertainty estimated (evaluator).

$\gamma(^{151}Sm)$

E_γ †	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
65.8 *1*	106 *7*	65.8	$7/2^-$	0.0	$5/2^-$	
100.0 *1*	2.4 *12*	104.8	$3/2^-$	4.8	$3/2^-$	
104.8 *1*	3.6 *12*	104.8	$3/2^-$	0.0	$5/2^-$	
163.6 *1*	49 *5*	168.4	$(5/2)^-$	4.8	$3/2^-$	
168.4 *1*	29 *4*	168.4	$(5/2)^-$	0.0	$5/2^-$	
229.3 *1*	100 *8*	295.1	$9/2^-$	65.8	$7/2^-$	A_2=−0.46 *3* at E(^{35}Cl)=50 MeV (1974St12).
295.1 *1*	58 *5*	295.1	$9/2^-$	0.0	$5/2^-$	A_2=+0.18 *4* at E(d)=50 MeV (1974St12).

† Uncertainty of 0.1 keV estimated (evaluator).

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Level Scheme

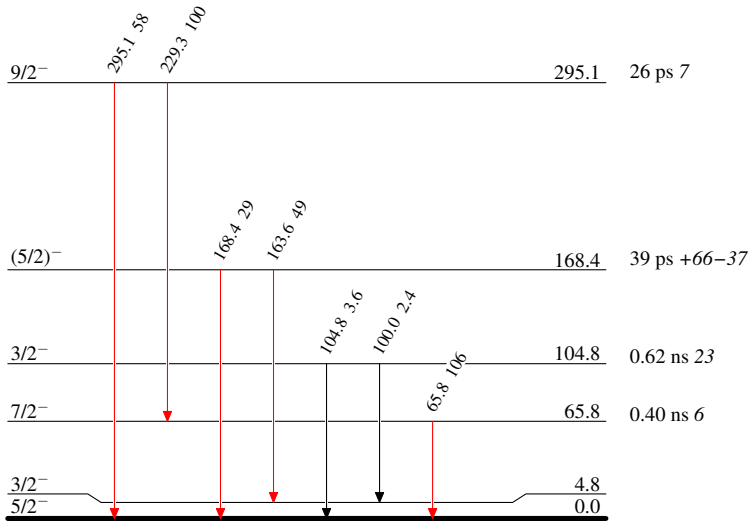
Intensities: Relative I_γ

Legend

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

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

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



$^{151}_{62}Sm_{89}$