Coulomb excitation 1969Ha17,1977Sc36

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, John Cameron and Balraj Singh	NDS 112,2715 (2011)	20-Oct-2011

1969Ha17: E=51-61 MeV $^{35}Cl^{5+}$ beam of 80 nA produced from the Chalk River MP tandem accelerator. Thick targets of carbon (9.6 mg/cm^2) and of 99% enriched ^{24}Mg (5 mg/cm^2). Two Ge(Li) (40 cm^3) detectors: one fixed at 125° and the other one at 0° or 90°. Measured Eγ, I$\gamma(\theta)$. Deduced levels, mixing ratio, transition strengths, $T_{1/2}$ for the levels of 1220 and 1762 keV using the Doppler Shift Attenuation Method (DSAM).

1977Sc36: E=53-56 MeV $^{35}Cl^{5+}$ beam of 60 nA produced from a single MP Tandem Van de Graaff tandem accelerator at the three-state facility of Brookhaven National Laboratory. Targets of natural Na and Al. A 55 cm^3 coaxial Ge(Li) detector. Measured Eγ, I$\gamma(\theta)$. Deduced levels, mixing ratios, transition strengths, $T_{1/2}$ for the levels of 1220, 1762 and 2650 keV using the Doppler Shift Attenuation Method (DSAM).

^{35}Cl Levels

E(level)	J^π[†]	$T_{1/2}$[‡]	Comments
0	$3/2^+$		
1220	$1/2^+$	0.15 ps *2*	$T_{1/2}$: weighted average of 0.11 ps *4* (1969Ha17) and 0.16 ps *2* (1977Sc36).
1762	$5/2^+$	0.41 ps *4*	$T_{1/2}$: weighted average of 0.38 ps *4* (1969Ha17) and 0.44 ps *4* (1977Sc36).
2645	$7/2^+$	0.18 ps *6*	E(level),$T_{1/2}$: from 1977Sc36.

[†] From Adopted Levels.
[‡] From DSAM.

$\gamma(^{35}Cl)$

Eγ	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[†]	δ[†]	Comments
885	2645	$7/2^+$	1762	$5/2^+$			Eγ: from 1977Sc36. B(M1)(W.u.)=1.29 *34*;B(E2)(W.u.)=3.7 *18* (1977Sc36).
1220	1220	$1/2^+$	0	$3/2^+$	M1+E2	+0.106 *7*	Mult.,δ: from 1977Sc36. B(M1)(W.u.)=0.108 *32*;B(E2)(W.u.)=2.30 *25* (1969Ha17). B(M1)(W.u.)=0.075 *8*;B(E2)(W.u.)=2.14 *21* (1977Sc36).
1762	1762	$5/2^+$	0	$3/2^+$	M1+E2	−2.88 *45*	δ: Weighted average of −2.95 *45* (1969Ha17) and −2.7 *7* (1977Sc36). B(M1)(W.u.)=11.2×10^{-4} *33*;B(E2)(W.u.)=11.1 *9* (1969Ha17). B(M1)(W.u.)=11×10^{-4} *7*;B(E2)(W.u.)=9.98 *44* (1977Sc36).
2645	2645	$7/2^+$	0	$3/2^+$			B(E2)(W.u.)=2.5 *6* (1977Sc36).

[†] From $\gamma(\theta)$.

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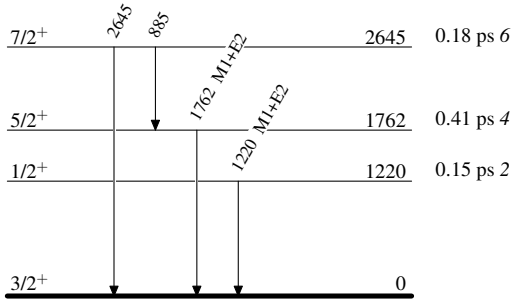
Level Scheme



$^{35}_{17}Cl_{18}$