^{37}Cl(d,α),^{37}Cl(d,$\alpha\gamma$) 1972Va07

History

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

1972Va07: E=4.25 MeV deuteron beam of 55 nA produced from the Groningen 5 MV Van de Graaff generator. Target: a 100 μg/cm^2 Co^{37}Cl enriched to 98% evaporated onto 10μg/cm^2 Formva plus 10μg/cm^2 carbon. Detectors: a 60 μm annular silicon detector for detecting α-particles and a 120 cm^3 Ge(Li) for γ-rays. Measured θ(E$_\alpha$,$\theta(\alpha\gamma)$). Deduced levels, J, branchings, mixing ratios.

1975VaYG: E=4.25 MeV deuteron beam of 55 nA produced from the Groningen 5 MV Van de Graaff generator. Target of 100 μg/cm^2 $CoCl_2$ (98% ^{37}Cl), evaporated onto 10 μg/cm^2 Formvar plus 10 μg/cm^2 carbon backings. Detectors: a 120 c.c. Ge(Li) for detecting γ-rays and a 60 μg annular silicon detector for detecting alphas (FWHM=34 keV). Measured σ(E$_\alpha$), Eγ, Iγ, branchings.

1955Pa54: E=30,5.6,7.0 and 7.5 MeV deuterons produced from the MIT-ONR electrostatic generator. Targets: Barium-chloride (75.4% ^{35}Cl, 24,6% ^{37}Cl) prepared by evaporation onto formvar films on a gold layer, 80 and 300 μg/cm^2 thick. Alpha particles analyzed by a broad-range spectrograph. Measured σ(E$_\alpha$). Deduced levels.

1968Te06: E=3.1-4.6 MeV deuterons of 50 nA produced from the Groningen 5-MV Van de Graaff generator. Targets: 100 μg/cm^2 NaCl on 10 μg/cm^2 Formvar and 10 μg/cm^2 carbon both of natural abundance and enriched in ^{37}Cl (93%). Detector: an annular solid-state detector for detecting α-particles and a 3 inch by 3 inch NaI(Tl) scintillator for γ-rays. Measured σ(E$_\alpha$), Eγ. Deduced levels.

^{35}S Levels

E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	E(level)†
0	3/2$^+$	2939.2 *13*	(3/2,5/2)	3818.1 *11*	4180 *3*
1572.2 *12*	1/2$^+$	3423 *5*		3889.0 *19*	4302 *4*
1990.0 *11*	5/2$^-$,7/2$^-$	3560.8 *19*		4022.2 *22*	4480.0 *16*
2348.2 *20*	3/2$^-$	3598.4 *21*		4027.7 *22*	
2716.7 *11*	(3/2,5/2,7/2)	3803.6 *19*		4108 *3*	

† From 1975VaYG.
‡ From $\gamma(\theta)$ in 1972Va07.

γ(^{35}S)

E$_i$(level)	J$_i^\pi$	E$_\gamma$†	I$_\gamma$‡	E$_f$	J$_f^\pi$
1572.2	1/2$^+$	1572	100	0	3/2$^+$
1990.0	5/2$^-$,7/2$^-$	1990	<98	0	3/2$^+$
2348.2	3/2$^-$	776	25 *2*	1572.2	1/2$^+$
		2348	75 *2*	0	3/2$^+$
2716.7	(3/2,5/2,7/2)	2717	<98	0	3/2$^+$
2939.2	(3/2,5/2)	2939	<98	0	3/2$^+$
3423		3423	<98	0	3/2$^+$
3560.8		1213	35 *4*	2348.2	3/2$^-$
		1571	65 *4*	1990.0	5/2$^-$,7/2$^-$
3598.4		3598	<95	0	3/2$^+$
3803.6		2232	38 *3*	1572.2	1/2$^+$
		3804	62 *3*	0	3/2$^+$
3818.1		1828	<98	1990.0	5/2$^-$,7/2$^-$
3889.0		1541	40 *4*	2348.2	3/2$^-$
		1899	45 *5*	1990.0	5/2$^-$,7/2$^-$
		3889	15 *3*	0	3/2$^+$
4022.2		2032#	100#	1990.0	5/2$^-$,7/2$^-$
4027.7		1089#	33# *4*	2939.2	(3/2,5/2)

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^{37}Cl(d,α),^{37}Cl(dαγ) 1972Va07 (continued)

γ(^{35}S) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π
4027.7		1679#	33# *4*	2348.2	$3/2^-$
		2455#	34# *6*	1572.2	$1/2^+$
4108		4110	>95	0	$3/2^+$
4180		1835	15 *3*	2348.2	$3/2^-$
		2193	6 *3*	1990.0	$5/2^-$,$7/2^-$
		2611	14 *2*	1572.2	$1/2^+$
		4186	65 *5*	0	$3/2^+$
4302		1953	59 *5*	2348.2	$3/2^-$
		4304	41 *5*	0	$3/2^+$
4480.0		1765	36 *4*	2716.7	(3/2,5/2,7/2)
		2492	15 *4*	1990.0	$5/2^-$,$7/2^-$
		2910	39 *4*	1572.2	$1/2^+$
		4485	10 *2*	0	$3/2^+$

† From level energy difference.
‡ From 1972Va07.
# From 1975VaYG.

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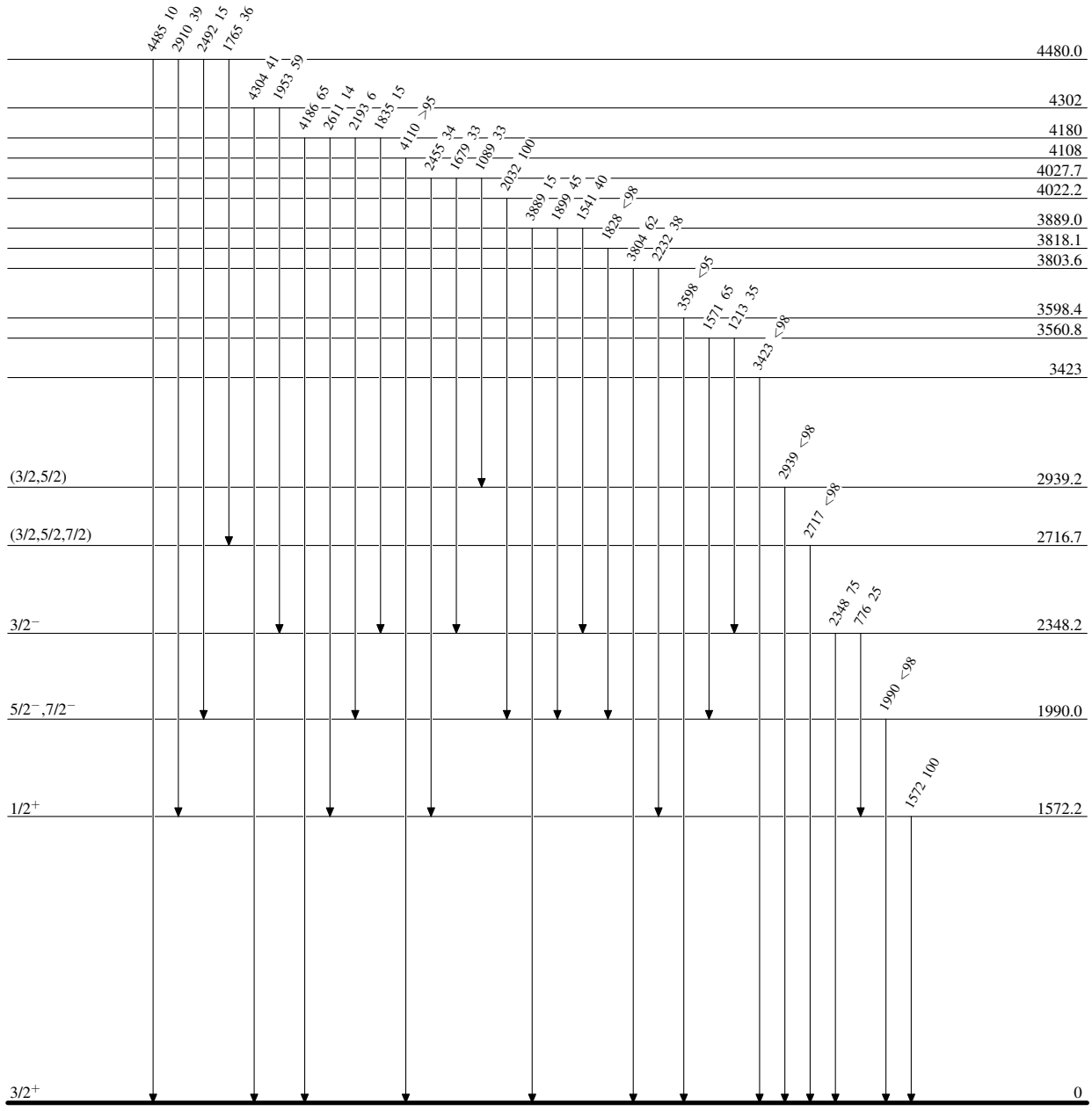
Level Scheme

Intensities: % photon branching from each level



$^{35}_{16}S_{19}$