^{37}Cl(d,α),^{37}Cl(d,αγ) 1975VaYG,1972Va07

1972Va07,1975VaYG: ^{37}Cl(d,αγ)^{35}S with a 4.25-MeV deuteron beam of 55 nA from the Groningen 5 MV Van de Graaff generator. The target was a 100 μg/cm^2 Co^{37}Cl enriched to 98% evaporated onto 10μg/cm^2 Formva plus 10μg/cm^2 carbon. α particles were detected using a 60−μm annular silicon detector. γ rays were detected using a 120 cm^3 Ge(Li) at 90°. Measured σ(Eα), Eγ, Iγ, and αγ-coin. Deduced levels, γ-branching ratios.

1968Te06: ^{37}Cl(d,αγ)^{35}S with 3.1-4.6-MeV deuteron beams of 50 nA from the Groningen 5-MV Van de Graaff generator. The target was a 100 μg/cm^2 Co^{37}Cl both of natural ^{37}Cl abundance and enriched to 93% evaporated onto 10μg/cm^2 Formva plus 10μg/cm^2 carbon. α particles were detected using an annular solid-state detector at 168-173°. γ rays were detected using a 3 in. by 3 in. NaI(Tl) scintillator at 55°. Measured σ(Eα), Eγ, and αγ-coin. Deduced levels.

1955Pa54: ^{37}Cl(d,α)^{35}S with 3.0, 5.6, 6.0, 7.0, and 7.5-MeV deuteron beams from the MIT-ONR electrostatic generator. Targets were 80$^-$ and 300−μg/cm^2 Barium chloride (75.4% ^{35}Cl, 24.6% ^{37}Cl) evaporated onto formvar films on a gold layer. Charged reaction products emitted at 90° were magnetically analyzed by a broad-range spectrograph. Measured σ(Eα). Deduced levels.

^{35}S Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	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 based on γ-ray energies.
‡ From γ(θ) of ^{34}S(d,pγ)^{35}S in 1972Va07.

γ(^{35}S)

E_i(level)	J^π_i	E_γ†	I_γ‡	E_f	J^π_f
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)
		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$^-$

Continued on next page (footnotes at end of table)

^{37}Cl(d,α),^{37}Cl(d,$\alpha\gamma$) 1975VaYG,1972Va07 (continued)

$\gamma(^{35}S)$ (continued)

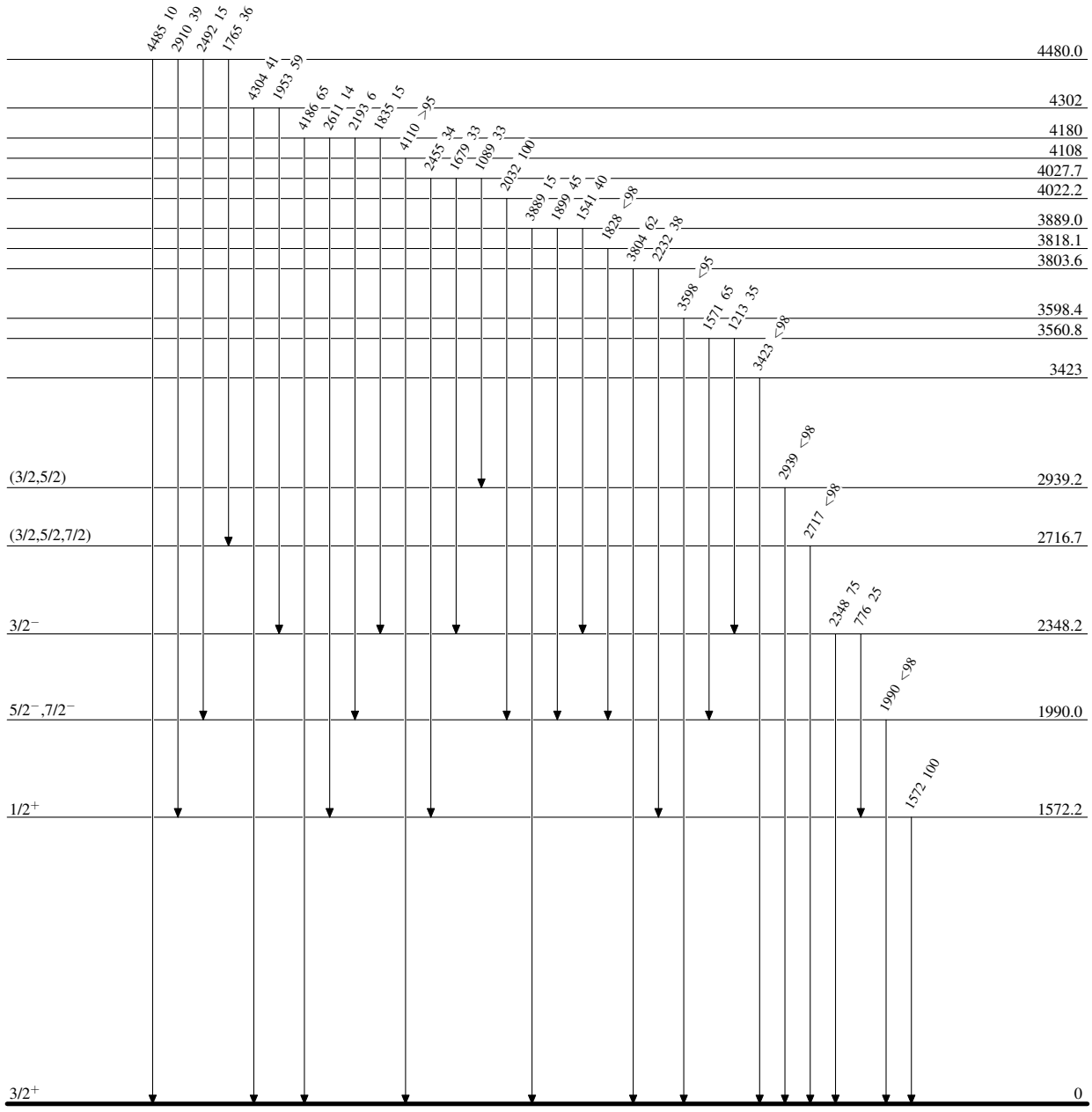
E_i(level)	E_γ [†]	I_γ [‡]	E_f	J^π_f
4302	4304	41 *5*	0	$3/2^+$
4480.0	1765	36 *4*	2716.7	(3/2,5/2,7/2)
	2492	15 *4*	1990.0	$5/2^-$,$7/2^-$
	2910	39 *4*	1572.2	$1/2^+$
	4485	10 *2*	0	$3/2^+$

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

^{37}Cl(d,α),^{37}Cl(d,$\alpha\gamma$) 1975VaYG,1972Va07

Level Scheme

Intensities: % photon branching from each level



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