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

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Lijie Sun and Jun Chen	NDS 211,1 (2026)	30-Sep-2025

1975VaYG,1972Va07: A 4.25-MeV deuteron beam of 55 nA was provided from the Groningen 5 MV Van de Graaff generator. The target was 100 μg/cm^2 Co^{37}Cl enriched to 98% evaporated onto 10–μg/cm^2 Formvar plus 10–μg/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) detector at 90°. Measured σ(E$_\alpha$), Eγ, Iγ, and $\alpha\gamma$-coin. Deduced levels, γ-ray branching ratios.
Additional information 1.
1968Te06: 3.1-4.6-MeV deuteron beams of 50 nA were provided 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 10–μg/cm^2 Formvar plus 10–μg/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(E$_\alpha$), Eγ, and $\alpha\gamma$-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(E$_\alpha$). Deduced levels.

^{35}S Levels

E(level)[†]	Comments
0	
1572.2 *12*	
1990.0 *10*	E(level): Other: 1992 *10* from 1955Pa54.
2348.2 *10*	E(level): Other: 2348 *10* from 1955Pa54.
2716.7 *10*	E(level): Other: 2714 *10* from 1955Pa54.
2939.2 *13*	
3423 *5*	
3560.8 *19*	
3598.4 *21*	
3803.6 *19*	
3818.1 *11*	
3889.0 *19*	
4022.2 *22*	
4027.7 *10*	E(level): Other: 4025 *10* from 1955Pa54.
4108 *3*	
4180 *3*	
4187 *3*	
4302 *4*	
4480.0 *16*	

[†] From 1975VaYG based on measured Eγ, but the Eγ values are not provided in 1975VaYG.

γ(^{35}S)

E$_i$(level)	E$_\gamma$[†]	I$_\gamma$[‡]	E$_f$	Comments
1572.2	1572.2	100	0	
1990.0	1989.9	100	0	
2348.2	776.0	25 *2*	1572.2	
	2348.1	75 *2*	0	
2716.7	2716.6	100	0	
2939.2	2939.1	100	0	
3423	3423	100	0	
3560.8	1212.6	35 *4*	2348.2	
	1570.8	65 *4*	1990.0	
3598.4	3598.2	100	0	I$_\gamma$: >95 in 1975VaYG.

Continued on next page (footnotes at end of table)

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

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

E_i(level)	E_γ[†]	I_γ[‡]	E_f	Comments
3803.6	2231.3	38 *3*	1572.2	
	3803.4	62 *3*	0	
3818.1	1828.1	100	1990.0	
3889.0	1540.8	40 *4*	2348.2	
	1898.9	45 *5*	1990.0	
	3888.8	15 *3*	0	
4022.2	2032.1	100	1990.0	
4027.7	1088.5	33 *4*	2939.2	
	1679.5	33 *4*	2348.2	
	2455.4	34 *6*	1572.2	
4108	4108	100	0	I_γ: >95 in 1975VaYG.
4180	2608	18 *5*	1572.2	
	4180	82 *5*	0	
4187	1839	100	2348.2	I_γ: >95 in 1975VaYG.
4302	1954	59 *5*	2348.2	
	4302	41 *5*	0	
4480.0	1763.3	36 *4*	2716.7	
	2489.9	15 *4*	1990.0	
	2907.7	39 *4*	1572.2	
	4479.7	10 *2*	0	

[†] Deduced by evaluators from level-energy difference in 1975VaYG.
[‡] From 1975VaYG.

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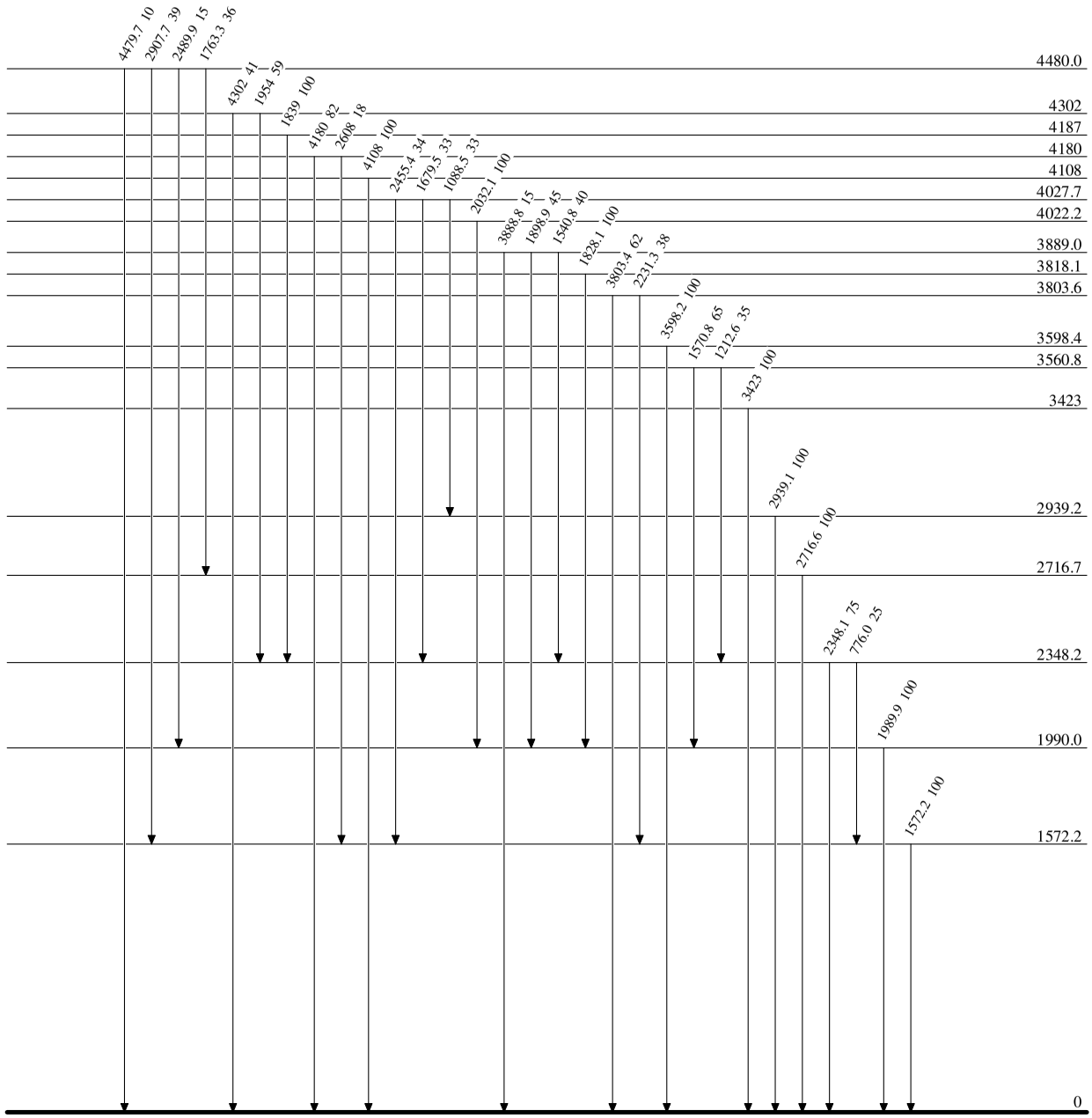
Level Scheme

Intensities: % photon branching from each level



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