^{32}S(d,pγ) 1977So07,1966Be15,1966Od01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 199,1 (2025)	30-Sep-2024

1977So07: E_d=3.5 MeV beam was produced from the Auckland University folded tandem accelerator. Target was thin natural sulphur evaporated onto a gold backing. Charged particles were detected with an annular Si surface-barrier detector and γ rays were detected with a 12.7 by 15.2 cm NaI(Tl) crystal. Measured Eγ, Iγ, pγ-coin, p$\gamma(\theta)$, $\gamma\gamma(\theta)$. Deduced levels, J, π, γ-ray branching ratios, multipolarities, mixing ratios.

1966Be15: E_d=3.20 MeV deuteron was produced from the Lockheed Palo Alto Research Laboratory Van de Graaff. Target was prepared by evaporating CdS onto a 10 μg/cm^2 carbon backing. Charged particles were detected with an annular Si surface-barrier detector (FWHM=60 keV at E_p=7 MeV) and γ rays were detected with a 10.2 by 10.2 cm NaI(Tl) crystal. Measured Eγ, Iγ, pγ-coin, p$\gamma(\theta)$. Deduced levels, J, π, γ-ray branching ratios, multipolarities, mixing ratios for 840, 1970, 2310, 2940 and 3220 levels.

1966Od01: E_d=2.0-3.0 MeV deuteron beams were produced from the University of Kansas Van de Graaff. Target was prepared by evaporating natural Sb_2S_3 onto gold foils. Charged particles were detected with a 100 mm^2 Si surface-barrier detector (FWHM=130 keV) and γ rays were detected with a 7.6 by 7.6 cm NaI(Tl) crystal. Measured Eγ, Iγ, pγ-coin, p$\gamma(\theta)$. Deduced levels, J, π, γ-ray branching ratios, multipolarities, mixing ratios for 1965, 2313, 2937 and 3224 levels.

1975VaYG: E=4.25 and 4.72 MeV deuteron beams were produced from the Groningen 5 MV Van de Graaff generator. Target was ZnS (natural isotopic abundance), thickness of about 100 μg/cm^2, evaporated onto 10 μg/cm^2 Formvar plus 10 μg/cm^2 carbon backings. γ rays were detected with a 7.6-cm by 7.6-cm NaI(Tl) and a Ge(Li) detectors and protons were detected with a 2 mm annular silicon surface-barrier detector for detecting protons. Measured $\sigma(E_p)$, Eγ, Iγ, pγ-coin, p$\gamma(\theta)$, $\gamma\gamma(\theta)$. Deduced levels, J, π, γ-ray branchings, multipolarities, mixing ratios.

Additional information 1.

1970Cu01: E_d=2.0 MeV deuteron beam on a copper sulfide target. γ rays were detected with a 20 cm^3 Ge(Li) detector. Measured Eγ, Doppler-shift attenuation. Deduced levels, $T_{1/2}$.

1969Va28: E_d=5.00 MeV beam of 40-70 nA was produced from the Utrecht 2x6 MV tandem Van de Graaff facility. Target was 530 μg/cm^2 and 73 μg/cm^2 onto carbon foils. Protons were detected with two 2 mm thick Si surface-barrier detectors and γ rays were detected with a 26 cm^3 Ge(Li) (FWHM=4.5 keV at Eγ= 1MeV). Measured Eγ, Iγ, pγ-coin, Doppler-shift attenuation. Deduced levels, $T_{1/2}$, γ-ray branching ratios. Comparisons with shell-model calculations.

Others:

2000El08: E_d=1.8 MeV beam of 0.5-10 nA produced from the 6 SDH-2 2 MV Pelletron accelerator of AGLAE. PbS target. 58 mm diameter, 160 cm^3 HPGe detector. Measured Eγ.

2017Ka41: E_d<2.2 MeV from the 3 MV Van de Graaff electrostatic accelerator of Nuclear Science and Technology Research Institute (NSTRI) in Tehran. HPGe and a Si detector. Measured thick-target yields.

^{33}S Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	Comments
0.0	3/2$^+$		J$^\pi$: from the Adopted Levels.
840.5 *3*	1/2	0.76 ps *+35−28*	J$^\pi$: from 1966Be15. $T_{1/2}$: from τ=1.10 ps *+50−40*, weighted average of 1.73 ps *+110−45* (1969Va28) and 0.9 ps *+5−4* (1970Cu01) by DSAM.
1350?			E(level): tentative level from 1966Od01. 1967Mo04 argued that the 1.35 MeV level observed in 1966Od01 was due to levels in ^{34}S at E_x=4.08 and 4.12 MeV.
1572?			2017Ka41 label this γ as the transition from the first excited level to g.s., but such level is not seen in any other work.
1966.0 *4*	5/2$^+$	104 fs *21*	J$^\pi$: from 1966Be15, 1966Od01 and 1977So07; parity from the Adopted Levels. $T_{1/2}$: from τ=150 fs *30*, weighted average of 150 fs *45* (1969Va28) and 150 fs *30* (1970Cu01) by DSAM.
2312.0 *12*	3/2$^+$	97 fs *21*	J$^\pi$: from 1966Be15 and 1977So07. Other: 3/2,5/2 from 1966Od01. Parity from the Adopted Levels. $T_{1/2}$: from τ=140 fs *30*, weighted average of 140 fs *30* (1969Va28) and 140 fs *40* (1970Cu01) by DSAM.
2867.4 *5*	1/2,3/2,5/2	9.0 fs *35*	J$^\pi$: from 1977So07.

Continued on next page (footnotes at end of table)

^{32}S(d,pγ) 1977So07,1966Be15,1966Od01 (continued)

^{33}S Levels (continued)

E(level)†	J$^{\pi}$‡	T$_{1/2}$#	Comments
			T$_{1/2}$: from τ=13 fs *5* in 1969Va28 by DSAM.
2933.2 *4*	7/2	>5 ps	J$^{\pi}$: from 1966Be15 and 1966Od01. Other: 3/2,7/2 from γ(θ) in 1977So07. T$_{1/2}$: from τ>7 ps in 1969Va28. Others: τ>1.4 ps (1970Cu01), τ<10 ns (1966Be15).
2968.6 *7*		60 fs *17*	T$_{1/2}$: from τ=86 fs *25* in 1969Va28 by DSAM.
3219.3 *6*	3/2	21 fs *6*	J$^{\pi}$: from 1966Be15, 1966Od01 and 1977So07. T$_{1/2}$: from τ=31 fs *9*, weighted average of 28 fs *9* (1969Va28) and 40 fs *+20−10* (1970Cu01) by DSAM.
3830.6 *12*	3/2,5/2		J$^{\pi}$: from 1975VaYG. Other: (3/2,5/2,7/2) from γ(θ) in 1977So07.
3933.6 *5*	1/2,3/2		J$^{\pi}$: from 1975VaYG and 1977So07.
4046.6 *11*			J$^{\pi}$: 1975VaYG propose 7/2 based on their γ(θ) and γγ(θ) combined with previous work. However, as also stated in 1975VaYG, only J=1/2 is excluded from their analysis of γγ(θ). 1975VaYG reject J=9/2 assigned by 1973Bu05 (also 1975Bu15) from γ(θ,pol) in (α,nγ), by arguing that the resulting δ(1966γ) for J=9/2 is in disagreement with δ(1966γ) from 977γ-1966γ(θ), which however does not seem a strong argument for rejection of J=9/2. Besides, A$_2$=+0.31 *12* and A$_4$=−0.26 *16* of 2081γ from this level to 1966 with J=5/2 seems to be consistent with ΔJ=0 or 2, which is also in agreement with the assignment of J(4047)=5/2,9/2 by 1973Ca20 in (α,nγ). J=9/2 is also confirmed by 1977St02 in (α,nγ) based on γγ(θ).
4054.7 *10*	(1/2 to 7/2)		J$^{\pi}$: from 1975VaYG.
4093.2 *11*	(3/2 to 9/2)		J$^{\pi}$: from 1975VaYG.
4144 *2*	(3/2,5/2)		J$^{\pi}$: from γγ(θ) in 1975VaYG. Additional information 2.
4209.3 *5*	3/2		J$^{\pi}$: spin=3/2,5/2 from 3370γ(θ) in 1977So07; 5/2 is excluded by 1977So07 as it would require an E3 or M3 strength for 3370γ that exceeds RUL.
4377.6 *11*	(1/2,3/2,5/2)		J$^{\pi}$: from 1975VaYG.
4430	(1/2$^+$,3/2)		E(level): from 1977So07. J$^{\pi}$: spin=1/2,3/2,5/2 from γ(θ) in 1977So07; 5/2 and 1/2$^-$ is excluded by 1977So07 as the δ solutions for those J$^{\pi}$ would require M2, E3 or M3 strengths that exceed RUL, by using measured T$_{1/2}$ from 1973Ca20 in (α,nγ).
5711			E(level): rounded value from the Adopted Levels.

† Values from 1975VaYG based on their measured Eγ data, unless otherwise noted. However, precise Eγ values are not listed in 1975VaYG.

‡ Spin from γ(θ) in 1966Be15, 1966Od01, 1975VaYG and 1977So07, as noted.

From DSAM in 1969Va28 and 1970Cu01, as noted.

γ(^{33}S)

Transitions with Iγ values given as upper limits are considered questionable by the evaluators, since they are not observed in measured γ spectra and the limits of their intensities are simply from authors′ estimate. Those transitions are not considered in Adopted Gammas.

E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$†	I$_{\gamma}$‡	E$_f$	J$^{\pi}_f$	Comments
840.5	1/2	840.5	100	0.0	3/2$^+$	A$_2$=−0.06 *10*; A$_4$=+0.20 *10* (1966Be15) A$_2$=−0.06 *4*; A$_4$=−0.02 *4* (1975VaYG) A$_2$=−0.03 *6*; A$_4$=+0.10 *10* (1975VaYG) I$_{\gamma}$: from 1966Be15 and 1975VaYG. γ(θ) at E$_d$=4.25 MeV (1975VaYG). γ(θ) at E$_d$=4.72 MeV (1975VaYG).
1572?		1572&		0.0	3/2$^+$	E$_{\gamma}$: from Fig.5 of 2017Ka41, labeled as the transition from the first excited level to g.s., which is likely to be in error.

Continued on next page (footnotes at end of table)

^{32}S(d,pγ) 1977So07,1966Be15,1966Od01 (continued)

γ(^{33}S) (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[‡]	E_f	J^{π}_f	Mult.[#]	δ[#]	Comments
1966.0	5/2+	1125.5[&]	<0.5	840.5	1/2			I_{γ}: from 1966Be15. Other: <2 (1977So07).
		1965.9	100	0.0	3/2+	M1+E2	−0.74 *7*	A_2=−0.79 *6*; A_4=+0.04 *4* (1966Be15); A_2=−0.95 *6*; A_4=−0.01 *14* (1966Od01) A_2=−0.74 *2*; A_4=+0.06 *3* (1975VaYG) A_2=−0.97 *6*; A_4=+0.04 *13* (1975VaYG) A_2=−0.71 *4* (1977So07) I_{γ}: from 1966Be15, 1969Va28 and 1977So07. Other: 98 *2* (1966Od01). Mult.: E1+M2 ruled out by RUL. δ: weighted average of −0.79 *26* (1966Od01), −0.75 *38* (1977So07), and −0.74 *7* (1975VaYG). Other: −1.04≤δ≤−0.38 (1966Be15). $\gamma(\theta)$ at E_d=4.25 MeV (1975VaYG). $\gamma(\theta)$ at E_d=4.72 MeV (1975VaYG).
2312.0	3/2+	346.0[&]	<3	1966.0	5/2+			I_{γ}: from 1966Be15. Other: <5 (1977So07).
		1471.5	65 *2*	840.5	1/2	D(+Q)		A_2=−0.90 *11*; A_4=+0.21 *10* (1966Be15); A_2=+0.41 *9* (1966Od01) A_2=−0.49 *17*; A_4=−0.36 *31* (1975VaYG); A_2=−0.19 *2* (1977So07) I_{γ}: weighted average of 65 *5* (1966Be15), 61 *3* (1966Od01), 67 *2* (1977So07), and 63 *4* (1975VaYG). Mult.: from 1966Od01. Additional information 3. δ: −0.6 *+8−23*, or >+0.3, or <−6 (1977So07); −0.73<δ<+8.14 or −1.33<δ<−0.13 (1966Be15).
		2311.9	35 *2*	0.0	3/2+	M1+E2		A_2=+0.01 *12*; A_4=+0.30 *12* (1966Be15); A_2=−0.27 *9* (1966Od01) A_2=−0.14 *9*; A_4=−0.14 *16* (1975VaYG); A_2=−0.03 *3* (1977So07) I_{γ}: weighted average of 35 *5* (1966Be15), 39 *3* (1966Od01), 33 *2* (1977So07), and 37 *4* (1975VaYG). Mult.: E1+M2 ruled out by RUL. δ: −0.38 *25*, or >+11, or <−3 (1977So07). Additional information 4.
2867.4	1/2,3/2,5/2	555.4[&]	<3	2312.0	3/2+			
		901.4[&]	<3	1966.0	5/2+			I_{γ}: also from 1966Be15.
		2026.8[&]	<3	840.5	1/2			I_{γ}: also from 1966Be15.
		2867.3	100	0.0	3/2+	D(+Q)	+0.16 *+5−25*	A_2=−0.06 *4* (1966Be15); A_2=−0.05 *3* (1977So07) I_{γ}: from 1966Be15, 1969Va28 and 1977So07. δ: +0.16 *+5−25* or −7.1 *+14−43* for J=5/2 (1977So07); the lower value is adopted here as compared to the value in (a,nγ).
2933.2	7/2	621.2[&]	<4	2312.0	3/2+			
		967.2	54 *2*	1966.0	5/2+	D(+Q)	−0.08 *9*	A_2=−0.27 *5*; A_4=+0.05 *5* (1966Be15); A_2=−0.35 *10* (1966Od01) A_2=−0.27 *6*; A_4=+0.08 *1* (1975VaYG) A_2=−0.20 *9*; A_4=+0.16 *17* (1975VaYG) A_2=−0.27 *5* (1977So07)

Continued on next page (footnotes at end of table)

^{32}S(d,pγ) 1977So07,1966Be15,1966Od01 (continued)

γ(^{33}S) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ[#]	Comments
								I_γ: weighted average of 51 *3* (1966Be15), 50 *5* (1966Od01), 59 *5* (1977So07), 55 *2* (1975VaYG). δ: from 1966Od01. Others: −0.0 *1* (1966Be15), −0.00 *4* (1977So07), −0.009 *4* (1975VaYG). $\gamma(\theta)$ at E_d=4.25 MeV (1975VaYG). $\gamma(\theta)$ at E_d=4.72 MeV (1975VaYG).
2933.2	7/2	2092.6[&]	<4	840.5	1/2			I_γ: from 1966Be15 and 1977So07.
		2933.1	46 *2*	0.0	3/2$^+$	Q+O	−0.32 *9*	A_2=+0.16 *7*; A_4=−0.04 *8* (1966Be15); A_2=+0.00 *12*; A_4=−0.37 *16* (1966Od01) A_2=+0.54 *4*; A_4=−0.03 *6* (1975VaYG) A_2=+0.11 *3*; A_4=−0.45 *4* (1975VaYG) A_2=+0.21 *5* (1977So07) I_γ: weighted average of 49 *3* (1966Be15), 50 *5* (1966Od01), 41 *5* (1977So07), and 45 *2* (1975VaYG). δ: −0.48 *9* or 1.64 *45* (1966Od01), −0.09 *27* or <−2.1 (1966Be15), −0.19 *14* (1977So07), −0.24 *9* (1975VaYG); the lower ones by absolute value are accepted as compared to values in (α,nγ) and (^{12}C,αpnγ). The weighted average of those values is −0.37 *11*. $\gamma(\theta)$ at E_d=4.25 MeV (1975VaYG). $\gamma(\theta)$ at E_d=4.72 MeV (1975VaYG).
2968.6		1002.6	20	1966.0	5/2$^+$			I_γ: from 1969Va28.
		2968.5	80	0.0	3/2$^+$			I_γ: from 1969Va28.
3219.3	3/2	250.7[&]	<3	2968.6				
		286.1[&]	<4	2933.2	7/2			
		351.9[&]	<3	2867.4	1/2,3/2,5/2			
		907.3[&]	<3	2312.0	3/2$^+$			
		1253.3[&]	<1	1966.0	5/2$^+$			
		2378.7	61 *2*	840.5	1/2	D(+Q)		A_2=−0.14 *7*; A_4=+0.05 *7* (1966Be15); A_2=−0.09 *3*; A_4=−0.08 *4* (1977So07) A_2=−0.37 *1*; A_4=−0.01 *3* (1975VaYG) A_2=−0.42 *8*; A_4=−0.02 *14* (1975VaYG) I_γ: weighted average of 59 *2* (1966Be15), 64 *3* (1966Od01), 58 *2* (1977So07), and 65 *2* (1975VaYG). δ: −0.053 *13* (1975VaYG), −2.5<δ<+0.2 (1977So07). $\gamma(\theta)$ at E_d=4.25 MeV (1975VaYG). $\gamma(\theta)$ at E_d=4.72 MeV (1975VaYG).
		3219.1	39 *2*	0.0	3/2$^+$	D(+Q)		A_2=−0.07 *5*; A_4=+0.12 *5* (1966Be15); A_2=+0.07 *3*; A_4=−0.06 *5* (1977So07) A_2=+0.27 *1*; A_4=−0.02 *3* (1975VaYG) A_2=+0.27 *15*; A_4=−0.1 *5* (1975VaYG) I_γ: weighted average of 41 *2* (1966Be15), 36 *3* (1966Od01), 42 *2* (1977So07) and 35 *2* (1975VaYG). δ: +0.015 *13* (1975VaYG), −0.2<δ<+7 (1977So07). $\gamma(\theta)$ at E_d=4.25 MeV (1975VaYG). $\gamma(\theta)$ at E_d=4.72 MeV (1975VaYG).

Continued on next page (footnotes at end of table)

^{32}S(d,pγ) 1977So07,1966Be15,1966Od01 (continued)

γ(^{33}S) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	δ[#]	Comments
3830.6	3/2,5/2	611.3[&]	<3	3219.3	3/2			
		862.0[&]	<11	2968.6				I_γ: other: 10 *2* (1975VaYG).
		897.4[&]	<11	2933.2	7/2			
		963.2[&]	<7	2867.4	1/2,3/2,5/2			
		1518.6	22 *5*	2312.0	3/2$^+$	D+Q	−0.33 *9*	A_2=−0.53 *10*; A_4=+0.06 *18* (1975VaYG) I_γ: other: 25 *4* (1975VaYG). δ: +1.8 *2* or −1.0 *2* or −0.3<δ<+3.7 for J=3/2, −0.33 *9* for J=5/2 (1975VaYG); the latter for J=5/2 is accepted here as compared to the value in (α,nγ) and adopted J^π=5/2$^+$.
		1864.5	9 *3*	1966.0	5/2$^+$			
		2990.0[&]	<13	840.5	1/2			
		3830.4	69 *6*	0.0	3/2$^+$	D+Q	+0.37 *2*	A_2=+0.19 *3*; A_4=−0.02 *6* (1975VaYG); A_2=+0.31 *6* (1977So07) I_γ: other: 65 *4* (1975VaYG). δ: −0.1<δ<+11 or −6<δ<−0.5 for J=3/2, +5 *+6−2* or −0.4 *+4−1* for J=5/2 (1977So07); −0.47 *10* if δ(2310γ)=0.27 *7* or −0.6 *2* if δ(2310)>11 for J=3/2, +0.37 *2* for J=5/2 (1975VaYG). The value from 1975VaYG for J=5/2 is adopted here as compared to values in (α,nγ) and adopted J^π=5/2$^+$.
3933.6	1/2,3/2	714.3[&]	<3	3219.3	3/2			
		965.0[&]	<3	2968.6				
		1000.4[&]	<6	2933.2	7/2			
		1066.2	6 *1*	2867.4	1/2,3/2,5/2			A_2=+0.05 *10* (1977So07)
		1621.6	5 *3*	2312.0	3/2$^+$			
		1967.5	12 *2*	1966.0	5/2$^+$			
		3092.9	16 *2*	840.5	1/2			A_2=−0.06 *6*; A_4=−0.1 *1* (1975VaYG); A_2=−0.26 *8* (1977So07) I_γ: other: 27 *7* (1975VaYG).
		3933.4	61 *3*	0.0	3/2$^+$			A_2=−0.03 *6*; A_4=−0.02 *5* (1975VaYG); A_2=+0.05 *7* (1977So07) I_γ: other: 73 *7* (1975VaYG).
4046.6		2080.5	100	1966.0	5/2$^+$			A_2=+0.31 *12*; A_4=−0.26 *16* (1975VaYG) δ: +0.03 *7* for J=5/2, +0.54 *6* for J=7/2, −0.67 *25* for J=11/2 (1975VaYG).
4054.7	(1/2 to 7/2)	4054.4	100	0.0	3/2$^+$			A_2=−0.01 *4*; A_4=−0.12 *7* (1975VaYG) Mult.,δ: δ(Q/D)=+0.27 *8* or −11.4 *13* for J=5/2, δ(O/Q)=−1.0 *1* for J=7/2 (1975VaYG).
4093.2	(3/2 to 9/2)	2127.1	100	1966.0	5/2$^+$	D+Q	+0.18 *5*	A_2=−0.13 *8*; A_4=−0.17 *14* (1975VaYG) Mult.,δ: δ(Q/D)=+0.09 *9* for J=3/2, −0.52 *9* for J=5/2, +0.18 *5* or −5.7 *6* for J=7/2, δ(O/Q)=−1.43 *13* for J=9/2 (1975VaYG). δ(Q/D)=+0.18 *5* is adopted here as compared to values in (α,nγ) and adopted J^π=7/2$^+$.
4144	(3/2,5/2)	4144	100	0.0	3/2$^+$	D+Q		A_2=−0.24 *2*; A_4=−0.05 *5* (1975VaYG) δ: −0.13<δ<+11.4 or −11.4<δ<−0.4 for

Continued on next page (footnotes at end of table)

^{32}S(d,pγ) 1977So07,1966Be15,1966Od01 (continued)

γ(^{33}S) (continued)

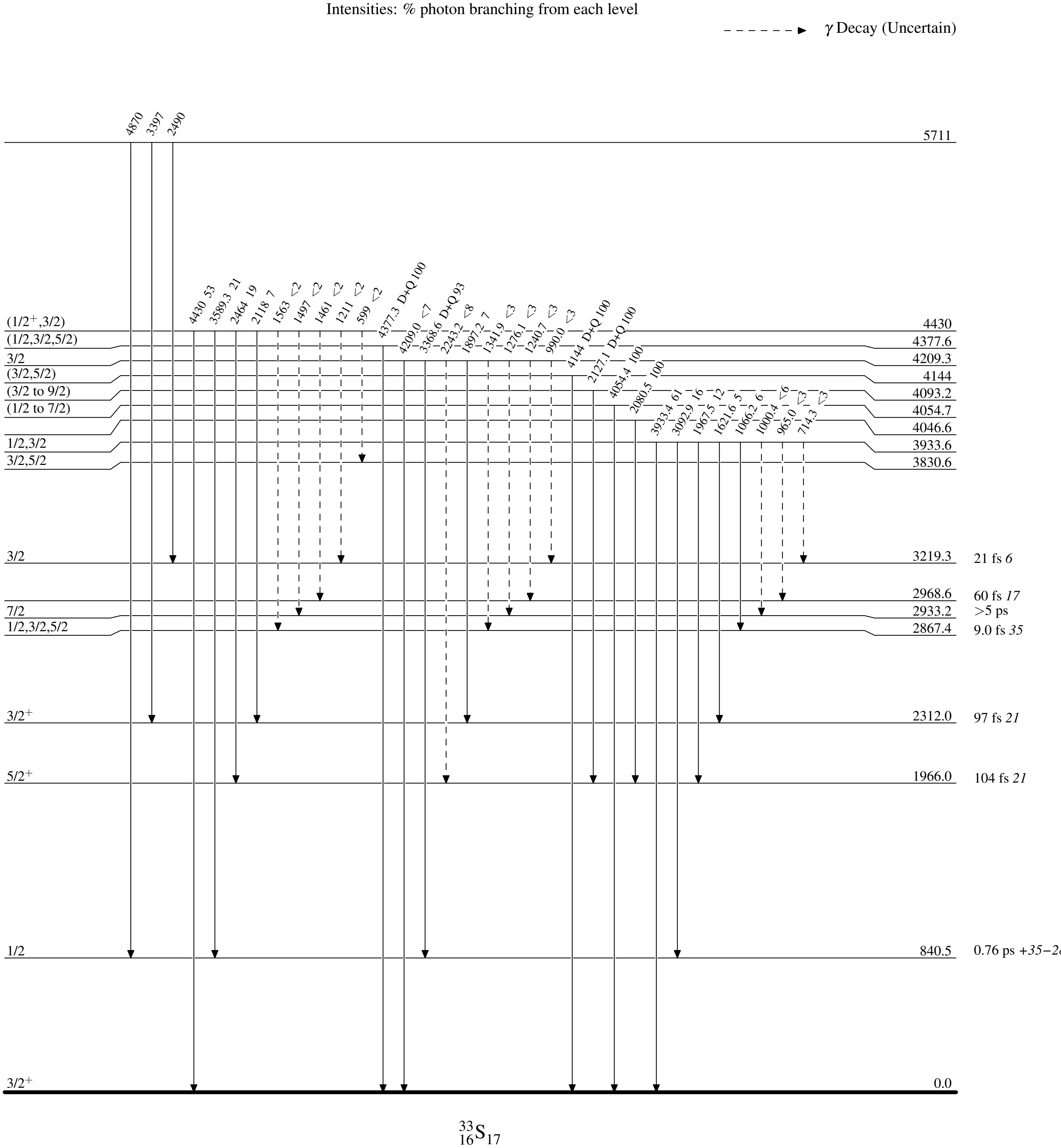
E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.[#]	Comments
							J=3/2, −0.27 *9* or −3.7 *3* for J=5/2 (1975VaYG).
4209.3	3/2	990.0[&]	<3	3219.3	3/2		
		1240.7[&]	<3	2968.6			
		1276.1[&]	<3	2933.2	7/2		
		1341.9[&]	<3	2867.4	1/2,3/2,5/2		
		1897.2	7 *2*	2312.0	3/2+		
		2243.2[&]	<8	1966.0	5/2+		
		3368.6	93 *2*	840.5	1/2	D+Q	A_2=−0.20 *7*; A_4=−0.08 *13* (1975VaYG); A_2=+0.15 *6*; A_4=+0.09 *8* (1977So07) Mult.,δ: −3<δ<+0.2 for J=3/2 (1977So07). The author state that for J=5/2, the resulting δ(O/Q) in Fig.5 of 1977So07 would require a E3 or M3 strength exceeding RUL using measured $T_{1/2}$ by 1973Ca20 in (α,nγ).
		4209.0	<7	0.0	3/2+		
4377.6	(1/2,3/2,5/2)	4377.3	100	0.0	3/2+	D+Q	A_2=+0.03 *4*; A_4=+0.04 *6* (1975VaYG) δ: +0.18 *9* or −11.4 *14* for J=5/2; no restrictions for other possible spins (1975VaYG).
4430	(1/2+,3/2)	599[&]	<2	3830.6	3/2,5/2		
		1211[&]	<2	3219.3	3/2		
		1461[&]	<2	2968.6			
		1497[&]	<2	2933.2	7/2		
		1563[&]	<2	2867.4	1/2,3/2,5/2		
		2118	7 *2*	2312.0	3/2+		
		2464	19 *3*	1966.0	5/2+		A_2=−0.04 *13* (1977So07)
		3589.3	21 *3*	840.5	1/2		A_2=−0.15 *2* (1977So07)
		4430	53 *5*	0.0	3/2+		A_2=−0.03 *4* (1977So07)
5711		2490[@]		3219.3	3/2		
		3397[@]		2312.0	3/2+		
		4870[@]		840.5	1/2		

† From level-energy differences, unless otherwise noted. No precise Eγ values with uncertainties are given in any of the studies in this dataset, while 1975VaYG report precise E(level) values based on their measured Eγ data which are not listed by the author.
‡ From 1977So07, unless otherwise noted.
\# From γ(θ), with electric/magnetic nature determined based on RUL and measured $T_{1/2}$ where available. Assignments in square brackets are assumed ones from level scheme.
@ From 2000El08, not placed by the authors; the placement here is from the Adopted Levels, Gammas.
& Placement of transition in the level scheme is uncertain.

^{32}S(d,pγ) 1977So07,1966Be15,1966Od01

Level Scheme

Intensities: % photon branching from each level

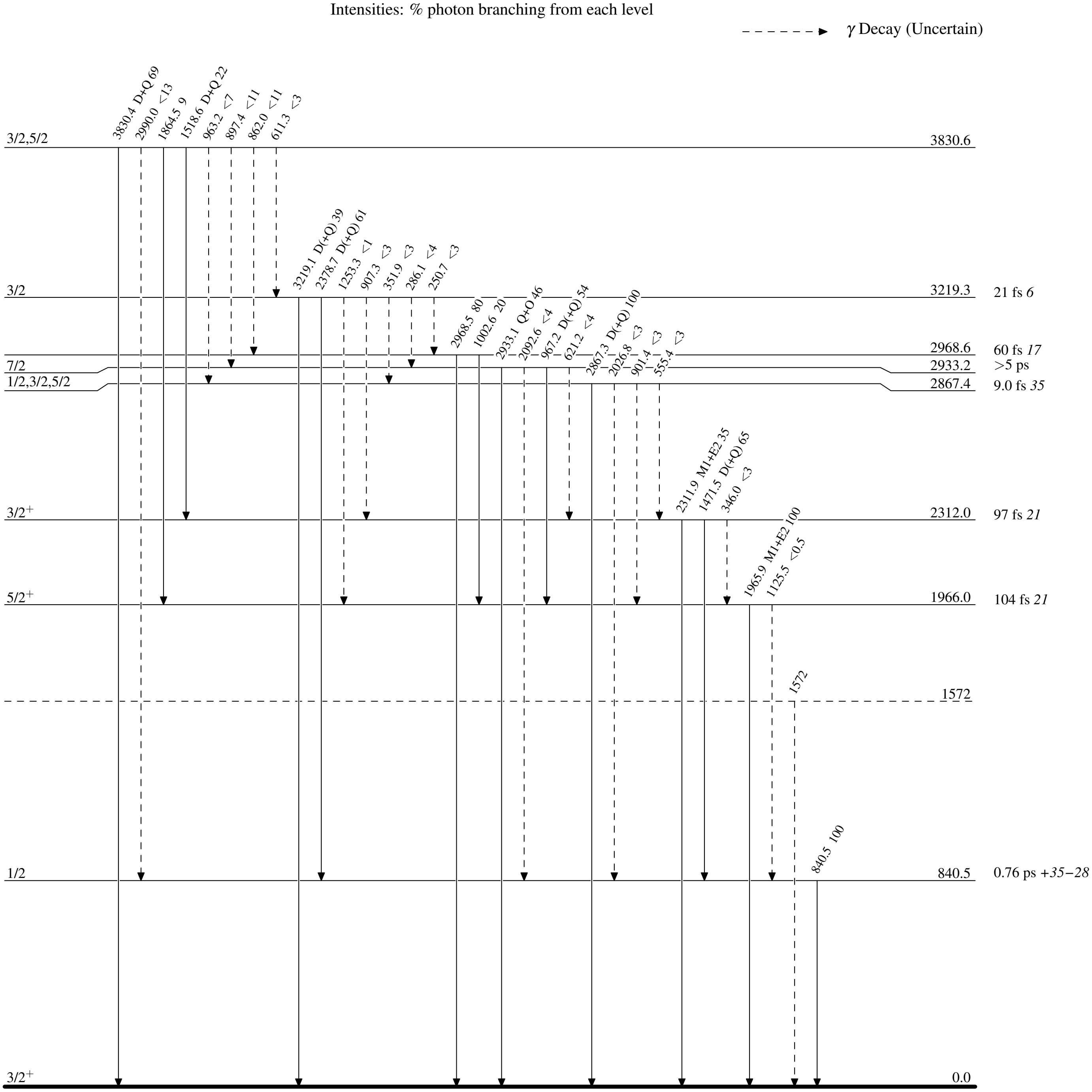


$^{32}S(d,p\gamma)$ 1977So07,1966Be15,1966Od01

Legend

Level Scheme (continued)

Intensities: % photon branching from each level



$^{33}_{16}S_{17}$