^{31}P(α,pγ)

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, Balraj Singh	NDS 113, 1563 (2012)	28-May-2012

1970Mo09: ^{31}P(α,pγ) E=8.00 MeV, target of Zn_3P_2 evaporated on C foil. Used annular surface barrier Si detector for protons At 172° *17575*° (FWHM=90 keV for protons corresponding to the 3300 keV level In ^{34}S). Used NaI γ-ray detector At ±26°, ±40°, ±50°, ±65°, and ±90°, As well As γ-ray coaxial Ge(Li) detector At 90°, relative to the beam axis. Measured pγ, and γ-ray angular correlations. Also studied one γ from 146 keV isomer (32 min) ^{34}Cl β^+ decay.

1970Gr11: ^{31}P(α,pγ) E=6-9 MeV, target of ^{31}P on Au backing. Used Ge(Li)-NaI(Tl) anti-Compton and pair escape spectrometer (annulus of four NaI(Tl) detectors surrounding the Ge(Li)). Measured lifetimes by DSAM At five angles between 0° and 130°.

1970Ra17: ^{31}P(α,pγ) E=5.0-7.3 MeV, target of GaP evaporated on Ni backing. Used Ge(Li) At 0°, 90°, and 143° relative to the beam axis. Measured lifetimes by DSAM.

1971So01: ^{31}P(α,pγ) E=7 MeV, target of Zn_3P_2 evaporated on thick Au and Cu backings, and on thin C foil. Used Ge(Li) detector and measured lifetimes by DSAM.

1971Mu03: ^{31}P(α,pγ) E=11.0 MeV, target of red phosphorous on C foils. Did angular correlations by measuring γ rays with five NaI(Tl) detectors and measured At the 8°, 30°, 45°, 60°, 90°, 120°, 270°, 315°, and 352° angles relative to the beam axis, In coincidence with protons stopped In an annular surface barrier detector At 180° relative to the beam direction.

1972Jo10: ^{31}P(α,pγ) E=9.3,11.0 MeV, target of red phosphorous on C foils. Did angular correlations by measuring γ rays with five NaI(Tl) detectors surrounding the target, In coincidence with protons stopped In an annular surface barrier detector At 180° relative to the beam direction. Data At E=9.3 MeV included γp coincidence with γ rays recorded by Ge(Li) detector. Another experiment At E=9.3 MeV was done with five Ge(Li) detectors surrounding the target to yield the correlations of 5689 level whose ΔE-exciting γ rays could not be resolved by NaI(Tl) detectors. Did spin assignments (by angular correlations), γ-ray branching ratios, and δ values.

1974Gr06: ^{31}P(α,pγ) E=7.2-8.0, 10.8, 11 MeV, target of Zn_3P_2 evaporated on Ta backing. Used Ge(Li) At 0° and 90° relative to beam direction. Measured pγ (annular Si surface barrier detector for protons, Ge(Li) for γ data) and $\gamma\gamma$ (NaI(Tl) detectors) angular correlations. Measured lifetimes by DSAM and line shape analysis.

1977GrZH: ^{31}P(α,pγ) E=13.9 MeV. Measured pγ angular correlations (with annular particle detector and three Ge(Li) for γ data) and lifetimes by DSAM.

1969Gr03: ^{31}P(α,pγ) E=5.90 MeV, target of Zn_3P_2 evaporated on Cu backing. Used Ge(Li) and measured lifetimes by DSAM.

1970Br18: ^{31}P(α,pγ) E=4.67 MeV, target of red phosphorous on C foils. Used two Ge(Li) detectors (planar and coaxial) and measured lifetimes by DSAM.

1970Cu02: ^{31}P(α,pγ) E=8.05, 8.14, 8.35 MeV, target of red phosphorous on Ni foils. Used NaI(Tl) detectors and measured lifetimes by DSAM.

1971Gr26: ^{31}P(α,pγ) E=9.5 MeV, target of red phosphorous on Au backing. Used Ge(Li) and did angular correlation and polarization measurements for two γ rays deexciting the 5689 level.

1972Gr15: ^{31}P(α,pγ) E=9.5 MeV, target of InP evaporated on Au backing. Used Ge(Li) detector At 0° and measured lifetimes by RDM (recoil-distance method).

1979Ba54: ^{31}P(α,pγ) E=6.30, 7.00 MeV. Measured linear polarization P(90°) with four Ge(Li) crystal Compton polarimeter (two different systems).

^{34}S Levels

The energies of the levels reported by 1970Mo09 were calculated from least-squares fit to their precisely measured and reported Eγ values, except the 4890 level for which No precisely measured γ data are reported.

The energies of the levels reported by 1970Ra17 seem to have been measured by them At least In part. Almost all authors are common with those of 1970Mo09, which already reported level and γ-ray energies while in 1970Ra17 main findings are the lifetimes. However we do not consider the level energies from 1970Ra17 because they are reported without uncertainties (so unless we adopt some arbitrary uncertainties we can not use these values for weighted averages). For same reason − lack of uncertainties − we do not use neither the level and γ-ray energies from 1971Mu03 and 1972Jo10.

The argument "test of spin HYPOTHESES" used for spin assignments means that several spins for the initial levels were tested by authors when doing the fits of angular correlations.

Spin assignments from 1977GrZH are based on their angular correlations measurements although they do not show any evidence.

Weighted averages were calculated ignoring values listed without uncertainties.

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^{31}P(α,pγ) (continued)

^{34}S Levels (continued)

E(level)	J^π	$T_{1/2}$	Comments
0.0	0^+		
2126.8 *4*	2^+	282 fs *14*	E(level): weighted average of: 2127.0 *6* (1970Mo09); 2126.8 *8* (1970Gr11); 2127 (1971Mu03); 2127 *1* (1974Gr06); 2126 *1* (1969Gr03). J^π: E2 $\Delta J=2$ γ to 0^+, g.s.. $T_{1/2}$: mean lifetime τ in fs: 440 *50* (1970Gr11); 400 *32* (1970Ra17); 400 *40* (1974Gr06); 350 *60* (1969Gr03); 460 *95* (1970Br18); 467 *90* (1970Cu02). Weighted average: 407 *20*.
3303.2 *4*	2^+	111 fs *9*	E(level): weighted average of: 3303.2 *4* (1970Mo09); 3303.0 *9* (1970Gr11); 3303 (1971Mu03); 3304 *2* (1974Gr06); 3300 *3* (1969Gr03). $T_{1/2}$: mean lifetime τ in fs: 218 *30* (1970Gr11); 175 *25* (1970Ra17); 145 *20* (1974Gr06); 120 *30* (1969Gr03); 190 *40* (1970Br18); 144 *28* (1970Cu02). Weighted average: 161 *13* (external uncertainty). J^π: D+Q $\Delta J=0$ γ to 2^+, 2127 (1970Mo09); π=+ from E2 γ to 0^+, g.s. (1979Ba54).
3914.9 *8*	0^+	1.12 ps *9*	E(level): weighted average of: 3913.1 *10* (1970Mo09); 3915.1 *9* (1970Gr11); 3915 (1971Mu03); 3914 *2* (1974Gr06). J^π: D,Q γ to 2^+, 2127 (1970Mo09); 0^+ in Adopted Levels. $T_{1/2}$: mean lifetime τ in fs: 1600 *130* (1970Gr11); 1890 *500* (1970Ra17, or a more conservative value is>1390);≥400 (1974Gr06). Weighted average: 1618 *126*.
4073.0 *14*	1^+	<17 fs	E(level): weighted average (external uncertainty) of: 4071.9 *10* (1970Mo09); 4075 *2* (1970Gr11); 4075 (1971Mu03); 4078 *3* (1974Gr06). J^π: D $\Delta J=1$ γ to 0^+, g.s. (1970Mo09, 1971Mu03); π=+ from M1+E2 γ to 2^+, 2127. $T_{1/2}$: mean lifetime τ in fs:<33 (1970Gr11);<24 (1970Ra17);≤50 (1974Gr06).
4114.7 *9*	2^+	73 fs *6*	E(level): weighted average (external uncertainty) of: 4114.2 *8* (1970Mo09); 4116 *2* (1970Gr11); 4116 (1971Mu03); 4119 *3* (1974Gr06). J^π: E2 $\Delta J=2$ γ to 0^+, g.s.. $T_{1/2}$: mean lifetime τ in fs: 89 *20* (1970Gr11); 110 *10* (1970Ra17); 100 *15* (1974Gr06). Weighted average: 105 *9*.
4622.4 *6*	3^-	84 fs *5*	E(level): weighted average of: 4622.4 *7* (1970Mo09); 4623 *2* (1970Gr11); 4623 (1971Mu03); 4622 *3* (1974Gr06). J^π: 3, D(+Q) $\Delta J=1$ γ to 2^+, 2127 and test of spin hyphotheses; π=− from E2 γ from 5^-, 5688. $T_{1/2}$: mean lifetime τ in fs: 125 *20* (1970Gr11); 135 *17* (1970Ra17); 145 *50* (1971So01); 115 *10* (1974Gr06). Weighted average: 121 *8*.
4687.7 *5*	4^+	88 fs *4*	E(level): weighted average of: 4687.6 *7* (1970Mo09); 4688 *2* (1970Gr11); 4688 (1971Mu03); 4687 *2* (1974Gr06); 4688 *1* (1977GrZH). J^π: E2 $\Delta J=2$ γ to 2^+, 2127 and test of spin hyphotheses (1971Mu03). $T_{1/2}$: mean lifetime τ in fs: 132 *15* (1970Gr11); 131 *13* (1970Ra17); 110 *20* (1971So01); 125 *10* (1974Gr06); 130 *20* (1977GrZH). Weighted average: 127 *6*.
4875.0 *7*	3^+	38 fs *14*	E(level): weighted average of: 4875.2 *7* (1970Mo09); 4874 *2* (1970Gr11); 4874 (1971Mu03); 4874 *4* (1974Gr06). J^π: M1+E2 $\Delta J=1$ γ to 2^+, 3303 and test of spin hyphotheses (1971Mu03). $T_{1/2}$: mean lifetime τ in fs:<85 (1970Gr11); 57 *22* (1970Ra17);≤70 (1974Gr06). Weighted average: 55 *20*.
4891.7 *16*	2^+	29 fs *10*	E(level): weighted average of: 4890 *4* (1970Mo09); 4892 *2* (1970Gr11); 4892 (1971Mu03); 4892 *4* (1974Gr06). J^π: E2 $\Delta J=2$ γ to 0^+ g.s. (1970Mo09, 1971Mu03). $T_{1/2}$: mean lifetime τ in fs:<40 (1970Gr11); 52 *14* (1970Ra17). Weighted average (external uncertainty): 42 *15*.
5225	0,2		E(level): 5225 (1971Mu03). J^π: D $\Delta J=1$ γ to 1, 4075.
5318.8 *18*	2	17 fs *7*	E(level): weighted average of: 5318 *2* (1970Gr11); 5318 (1971Mu03); 5322 *4* (1974Gr06). J^π: D+Q $\Delta J=0$ γ to 2^+, 2127. $T_{1/2}$: mean lifetime τ in fs: 24 *10* (1970Gr11);≤40 (1974Gr06).
5382 *4*	1^+	<49 fs	E(level): 5380 (1971Mu03); 5382 *4* (1974Gr06). J^π: D $\Delta J=1$ γ to 0^+, g.s. and M1+E2 $\Delta J=1$ γ to 2^+, 2127 (1971Mu03). $T_{1/2}$: mean lifetime τ in fs:≤70 (1974Gr06).
5679.1 *10*	2		E(level): weighted average of: 5680 (1972Jo10); 5680 *4* (1974Gr06); 5679 *1* (1977GrZH). J^π: D+Q $\Delta J=0$ γ to 2, 2127; J=3,(2) (1977GrZH).
5688 *4*	5^-	37 ps *3*	E(level): 5689 (1972Jo10); 5688 *4* (1974Gr06).

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^{31}P(α,pγ) (continued)

^{34}S Levels (continued)

E(level)	J^π	$T_{1/2}$	Comments
			J^π: $\Delta J=2$ γ to 3, 4622; E1 $\Delta J=1$ γ 4^+, 4688.
			$T_{1/2}$: mean lifetime τ in ps:≥0.5 (1974Gr06); 54 *5* (1972Gr15).
5753			E(level): 5753 (1972Jo10).
5848			E(level): 5848 (1972Jo10).
5993	2		E(level): 5993 (1972Jo10).
			J^π: Q $\Delta J=2$ γ to 0^+, g.s..
6120	2		E(level): 6120 (1972Jo10).
			J^π: Q $\Delta J=0$ γ to 2^+, 3303.
6173	3		E(level): 6173 (1972Jo10).
			J^π: D+Q $\Delta J=1$ gammas to 2^+, 3303 and 4^+, 4688.
6251 *2*	4^+	0.42 ps *+49−21*	E(level): 6250 (1972Jo10); 6251 *2* (1977GrZH).
			J^π: M1+E2 $\Delta J=1$ γ to 3^+, 4875 and test of spin hypotheses; J=4,(3) (1977GrZH).
			$T_{1/2}$: mean lifetime τ in fs: 600 *+700−300* (1977GrZH).
6347	1		E(level): 6347 (1972Jo10).
			J^π: D $\Delta J=1$ γ to 0^+, g.s..
6415	4		E(level): 6415 (1972Jo10).
			J^π: D $\Delta J=0$ γ 4, 4688.
6480	1		E(level): 6480 (1972Jo10).
			J^π: D+Q $\Delta J=1$ γ to 2, 2127 and test of spin hypotheses.
6639 *1*	(3,4)	42 fs *10*	E(level): 6640 (1972Jo10); 6639 *1* (1977GrZH).
			J^π: presence of non-zero A_4 coefficients for correlations from this level (A_4=+0.19 *7* for 1176γ, and A_4=−0.29 *13* for 3303, both from 3303, J=2) makes unlikely J=1 but allow J=(2,3,4) (1972Jo10); J=3 from D $\Delta J=1$ γ to 2, 5679; J=4 (1977GrZH).
			$T_{1/2}$: mean lifetime τ in fs: 60 *15* (1977GrZH).
6731	2,4		E(level): 6731 (1972Jo10).
			J^π: D+Q $\Delta J=0$ γ, or Q $\Delta J=2$ γ, to 2, 2127.
6830	2		E(level): 6830 (1972Jo10).
			J^π: Q $\Delta J=2$ γ to 0^+, g.s. and test of spin hypotheses.
6864 *1*	5	27 fs *7*	E(level): 6864 (1972Jo10); 6864 *1* (1977GrZH).
			J^π: 5, from Q $\Delta J=2$ γ to 3, 4622 (1977GrZH); (0,2,4) from D+Q $\Delta J=0$ γ, or Q $\Delta J=2$ γ, to 2, 2127 and test of spin hypotheses.
			$T_{1/2}$: mean lifetime τ in fs: 39 *10* (1977GrZH).
6890 *1*	(3,4)	<14 fs	E(level): 6890 *1* (1977GrZH); 6898 (1972Jo10 with No other piece of information).
			J^π: (3,4) from 1977GrZH.
			$T_{1/2}$: mean lifetime τ in fs:<20 (1977GrZH).
6950	2		E(level): 6950 (1972Jo10).
			J^π: from test of spin hypotheses of secondary 4892γ with primary 2058γ treated As unobserved (see A_2,A_4 values At 4892γ from 4892).
7112	2		E(level): 7112 (1972Jo10).
			J^π: Q, $\Delta J=2$ γ to 0^+, g.s. and test of spin hypotheses.
7220			E(level): 7220 (1972Jo10).
			J^π: Q, $\Delta J=2$ γ to 0^+, g.s. and test of spin hypotheses.
7248 *2*	(4)	14 fs *7*	E(level): 7245 (1972Jo10); 7248 *2* (1977GrZH).
			J^π: (2,4) from 1977GrZH; (4) from D $\Delta J=1$ γ to 5^-, 5688.
			$T_{1/2}$: mean lifetime τ in fs: 20 *10* (1977GrZH).
7392 *1*	5,(4)	159 fs *35*	E(level): 7392 *1* (1977GrZH).
			J^π: 5,(4) from 1977GrZH.
			$T_{1/2}$: mean lifetime τ in fs: 230 *50* (1977GrZH).
7629 *1*		14 fs *7*	E(level): 7629 *1* (1977GrZH).
			$T_{1/2}$: mean lifetime τ in fs: 20 *10* (1977GrZH).
7788 *1*	6	80 fs *24*	E(level): 7788 *1* (1977GrZH).
			J^π: 4,6 from D $\Delta J=1$ γ to 5^-, 5688; 6 from 1977GrZH (test of spin hypotheses).
			$T_{1/2}$: mean lifetime τ in fs: 115 *35* (1977GrZH).
8083 *1*	5	44 fs *7*	E(level): 8083 *1* (1977GrZH).
			J^π: 5 from 1977GrZH.
			$T_{1/2}$: mean lifetime τ in fs: 64 *10* (1977GrZH).

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^{31}P(α,pγ) (continued)

^{34}S Levels (continued)

E(level)	J^π	$T_{1/2}$	Comments
8293 *2*	4	<28 fs	E(level): 8293 *2* (1977GrZH). J^π: 4 from 1977GrZH. $T_{1/2}$: mean lifetime τ in fs:<40 (1977GrZH).
8369 *1*	7,(5)	83 fs *14*	E(level): 8293 *2* (1977GrZH). J^π: 7(5) from 1977GrZH. $T_{1/2}$: mean lifetime τ in fs: 120 *20* (1977GrZH).
8502 *2*	(4,6)	28 fs *7*	E(level): 8502 *2* (1977GrZH). J^π: (4,6) from 1977GrZH. $T_{1/2}$: mean lifetime τ in fs: 40 *10* (1977GrZH).

γ(^{34}S)

The following abbreviations are used In comments: "m" for directly reported Eγ data; "ΔE_{levs}" for Eγ values calculated by evaluators as energy differences of initial and final levels for reported level energies.

The multipolarities from 1971Mu03 and 1972Jo10 were adopted by evaluators based on their angular correlations measurements (A_2, A_4 coefficients) and tests of spin hypotheses At 0.1% confidence limit.

Mixing ratio from 1971Mu03 and 1972Jo10 (minimum of χ^2 As function of $\tan^{-1}$(MR) for those spin hypotheses not rejected by the 0.1% confidence limit criterion).

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
2126.8	2^+	2126.8 *5*	100	0.0	0^+	E2		A_2=+0.63 *1*; A_4=−0.93 *1* (1971Mu03) A_2=+0.25 *2*; A_4=−0.10 *2* (1979Ba54) A_2=+0.29 *2*; A_4=−0.09 *2* (1979Ba54) E_γ: weighted average of: 2126.8 *8* (1970Mo09, m); 2126.7 *8* (1970Gr11, ΔE_{levs}); 2127 (1971Mu03, ΔE_{levs}); 2127 *1* (1974Gr06, ΔE_{levs}). I_γ: 100 (1970Mo09); 100 (1970Gr11); 100 (1971Mu03); 100 (1974Gr06). P(90°): +0.37 *4* (1979Ba54, system 1); +0.46 *4* (1979Ba54, system 2) (electric transition). Mult.: Q ΔJ=2 γ (1970Mo09, 1971Mu03, 1974Gr06, 1979Ba54); E2 (1979Ba54). Additional information 1.
3303.2	2^+	1175.6 *7*	52 *3*	2126.8	2^+	D+Q	−0.16 *2*	A_2=+0.28 *3*; A_4=−0.04 *3* (1971Mu03) E_γ: weighted average of: 1175.2 *8* (1970Mo09, m); 1176.2 *15* (1970Gr11, ΔE_{levs}); 1176 (1970Ra17, ΔE_{levs}); 1177 *2* (1974Gr06, ΔE_{levs}). I_γ: weighted average of: 50 *5* (1970Mo09); 57 *5* (1970Gr11); 45 *5* (1970Ra17); 56 *5* (1974Gr06). Mult.: D+Q ΔJ=0 γ (1970Mo09, 1971Mu03, 1974Gr06). δ: weighted average of: −0.09 *6* (1970Mo09); −0.14 *6* (1971Mu03); −0.17 *2* (1974Gr06). Other: +2.5 *5* (1970Mo09). Additional information 2.
		3303.1 *4*	48 *3*	0.0	0^+	E2		A_2=+0.65 *2*; A_4=−1.22 *2* (1971Mu03) A_2=+0.31 *2*; A_4=−0.06 *2* (1979Ba54) A_2=+0.37 *2*; A_4=−0.06 *2* (1979Ba54) E_γ: weighted average of: 3303.1 *4* (1970Mo09, m); 3302.8 *9* (1970Gr11, ΔE_{levs}); 3303 (1971Mu03, ΔE_{levs}); 3304

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^{31}P(α,pγ) (continued)

$\gamma(^{34}S)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
								2 (1974Gr06, ΔE_{levs}). I_γ: weighted average of: 50 *5* (1970Mo09); 43 *5* (1970Gr11); 55 *5* (1971Mu03); 44 *5* (1974Gr06). P(90°): +0.53 *4* (1979Ba54, system 1); +0.65 *4* (1979Ba54, system 2) (electric transition). Mult.: Q $\Delta J=2$ γ (1970Mo09, 1971Mu03, 1974Gr06, 1979Ba54); E2 (1979Ba54). Additional information 3.
3914.9	0^+	609.9† *11*	<3	3303.2	2^+			E_γ: 609.9 *11* (1970Mo09, ΔE_{levs}). I_γ: <3 (1970Mo09).
		1786.7 *7*	100	2126.8	2^+	(E2)		E_γ: weighted average of: 1786.0 *8* (1970Mo09, m); 1788.2 *12* (1970Gr11, ΔE_{levs}); 1788 (1971Mu03, ΔE_{levs}); 1787 *2* (1974Gr06, ΔE_{levs}). I_γ: 100 (1970Mo09); 100 (1970Gr11); 100 (1971Mu03). Mult.: D,Q $\Delta J=0,1,2$ γ (1970Mo09, simultaneous fit with 2127γ); D,E2 based on RUL; ΔJ^π requires E2. Additional information 4.
		3912.9† *10*	<2	0.0	0^+			E_γ: 3912.9 *10* (1970Mo09, ΔE_{levs}). I_γ: <2 (1970Mo09).
4073.0	1^+	158.8† *14*	<5	3914.9	0^+			E_γ: 158.8 *14* (1970Mo09, ΔE_{levs}). I_γ: <5 (1970Mo09).
		769.6 *12*	3 *1*	3303.2	2^+	D		E_γ: weighted average (external uncertainty) of: 768.7 *11* (1970Mo09, ΔE_{levs}); 772.0 *22* (1970Gr11, ΔE_{levs}); 772 (1971Mu03, ΔE_{levs}); 774 *4* (1974Gr06, ΔE_{levs}). I_γ: weighted average of:<4 (1970Mo09); 3 *1* (1970Gr11); 3 *1* (1971Mu03). Additional information 5. Mult.: D γ based on RUL. δ: −1.3 *15* (1971Mu03).
		1946.8 *13*	49 *3*	2126.8	2^+	M1+E2	+1.3 *+9−32*	E_γ: weighted average (external uncertainty) of: 1945.5 *13* (1970Mo09, m); 1948 *2* (1970Gr11, ΔE_{levs}); 1948 (1970Gr11, ΔE_{levs}); 1951 *3* (1974Gr06, ΔE_{levs}). I_γ: weighted average (external uncertainty) of: 46 *15* (1970Mo09); 56 *4* (1970Gr11); 43 *4* (1971Mu03); 51 *7* (1974Gr06). @B@0@0@@@@ @B@0@1@@@@@6 A_2,A_4 are for both 1948γ and 2127γ (1971Mu03). Mult.: D+Q $\Delta J=1$ γ (1974Gr06); M1+E2 based on RUL. δ: +0.1 *+3−39* (1971Mu03); +1.3 *+9−32* (1974Gr06).
		4072.8 *18*	48 *3*	0.0	0^+	D		A_2=−0.21 *2*; A_4=−0.02 *3* (1971Mu03) E_γ: weighted average (external uncertainty) of: 4070.9 *13* (1970Mo09, m); 4075 *2* (1970Gr11, ΔE_{levs}); 4075 (1971Mu03, ΔE_{levs}); 4078 *3* (1974Gr06, ΔE_{levs}). I_γ: weighted average (external uncertainty) of: 50 *15* (1970Mo09); 41 *5* (1970Gr11); 54 *5* (1971Mu03); 49 *7* (1974Gr06). Mult.: D $\Delta J=1$ γ (1970Mo09, simultaneous fit with Q $\Delta J=2$ 4114γ from 2, 4114 level; 1971Mu03). Mult.: D $\Delta J=1$ γ (1971Mu03, 1974Gr06).

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^{31}P(α,pγ) (continued)

γ(^{34}S) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
4114.7	2^+	811.0† *9*	<11	3303.2	2^+			E_γ: 811.0 *9* (1970Mo09, ΔE_{levs}). I_γ: <11 (1970Mo09).
		1987.9 *10*	48 *3*	2126.8	2^+	M1+E2	−0.40 *5*	E_γ: weighted average (external uncertainty) of: 1987.1 *10* (1970Mo09, m); 1989 *2* (1970Gr11, ΔE_{levs}); 1989 (1971Mu03, ΔE_{levs}); 1992 *3* (1974Gr06, ΔE_{levs}). I_γ: weighted average of: 20 *20* (1970Mo09); 52 *5* (1970Gr11); 45 *5* (1971Mu03); 50 *7* (1974Gr06). Additional information 7. Mult.: D+Q ΔJ=0 γ (1974Gr06); M1+E2 based on RUL. δ: weighted average of: −0.57 *12* (1971Mu03); −0.37 *5* (1974Gr06).
		4114.5 *8*	52 *20*	0.0	0^+	E2		A_2=+0.60 *2*; A_4=−1.00 *2* (1971Mu03) E_γ: weighted average (external uncertainty) of 4113.7 *9* (^{31}P(α,pγ)) and 4115.0 *20* (146 keV isomer (32 min) ^{34}Cl β^+ decay) both from 1970Mo09, m; 4116 *2* (1970Gr11, ΔE_{levs}); 4116 (1971Mu03, ΔE_{levs}); 4119 *3* (1974Gr06, ΔE_{levs}). I_γ: weighted average of: 80 *20* (1970Mo09); 48 *5* (1970Gr11); 55 *5* (1971Mu03); 50 *7* (1974Gr06). Mult.: Q ΔJ=2 γ (1971Mu03, 1974Gr06); E2 based on RUL.
4622.4	3^-	508.2† *12*	<3	4114.7	2^+			E_γ: 508.2 *12* (1970Mo09, ΔE_{levs}). I_γ: <3 (1970Mo09).
		550.5† *12*	<4	4073.0	1^+			E_γ: 550.5 *12* (1970Mo09, ΔE_{levs}). I_γ: <4 (1970Mo09).
		709.3† *12*	<7	3914.9	0^+			E_γ: 709.3 *12* (1970Mo09, ΔE_{levs}). I_γ: <7 (1970Mo09).
		1319.0 *9*	75.5 *25*	3303.2	2^+	D(+Q)	−0.03 *5*	A_2=−0.46 *2*; A_4=+0.09 *2* (1971Mu03) E_γ: weighted average of: 1318.8 *10* (1970Mo09, m); 1320 *2* (1970Gr11, ΔE_{levs}); 1320 (1971Mu03, ΔE_{levs}); 1318 *3* (1971Mu03, ΔE_{levs}). I_γ: weighted average of: 76 *5* (1970Mo09); 75 *5* (1970Gr11); 76 *5* (1971Mu03); 75 *5* (1974Gr06). Mult.: D(+Q) ΔJ=1 γ (1970Mo09, angular correlation and RUL); D(+Q) ΔJ=1 γ (1971Mu03); D ΔJ=1 (1974Gr06). δ: +0.02 *8* (1970Mo09); −0.03 *5* (1971Mu03). Additional information 8.
		2495.5 *6*	24.5 *25*	2126.8	2^+	D(+Q)	+0.02 *4*	A_2=−0.32 *2*; A_4=−0.04 *2* (1971Mu03) E_γ: weighted average of: 2495.5 *7* (1970Mo09, m); 2496 *2* (1970Gr11, ΔE_{levs}); 2496 (1971Mu03, ΔE_{levs}); 2495 *2* (1971Mu03, ΔE_{levs}). I_γ: weighted average of: 24 *5* (1970Mo09); 25 *5* (1970Gr11); 24 *5* (1971Mu03); 25 *5* (1974Gr06). Mult.: D(+Q) ΔJ=1 γ (1971Mu03); D ΔJ=1 (1974Gr06). δ: +0.02 *4* (1971Mu03). Additional information 9.
		4622.1† *7*	<1	0.0	0^+			E_γ: weighted average of: 4622.1 *7* (1970Mo09, ΔE_{levs}); 4622 *2* (1974Gr06, ΔE_{levs}). I_γ: <1 (1970Mo09);≤1 1974Gr06.

Continued on next page (footnotes at end of table)

^{31}P(α,pγ) (continued)

γ(^{34}S) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
4687.7	4+	573.4† *11*	<3	4114.7	2+			E_γ: 573.4 *11* (1970Mo09, ΔE_{levs}). I_γ: <3 (1970Mo09).
		615.7† *12*	<4	4073.0	1+			E_γ: 615.7 *12* (1970Mo09, ΔE_{levs}). I_γ: <4 (1970Mo09).
		774.5† *12*	<7	3914.9	0+			E_γ: 774.5 *12* (1970Mo09, ΔE_{levs}). I_γ: <7 (1970Mo09).
		1384.4† *8*	<2	3303.2	2+			E_γ: 1384.4 *8* (1970Mo09, ΔE_{levs}). I_γ: <2 (1970Mo09).
		2560.5 *4*	100	2126.8	2+	E2		A_2=+0.44 *2*; A_4=−0.25 *2* (1971Mu03) E_γ: weighted average of: 2560.5 *4* (1970Mo09, m); 2561 *2* (1970Gr11, ΔE_{levs}); 2561 (1971Mu03, ΔE_{levs}); 2560 *2* (1974Gr06, ΔE_{levs}). I_γ: 100 (1970Mo09); 100 (1970Gr11); 100 (1971Mu03); 100 (1974Gr06). Mult.: Q ΔJ=2 γ (1971Mu03, 1974Gr06); E2 based on RUL. Additional information 10.
		4687.3† *7*	<1	0.0	0+			E_γ: 4687.3 *7* (1970Mo09, ΔE_{levs}). I_γ: <1 (1970Mo09).
4875.0	3+	187.6† *10*	<14	4687.7	4+			E_γ: 187.6 *10* (1970Mo09, ΔE_{levs}). I_γ: <14 (1970Mo09).
		252.8† *10*	<21	4622.4	3−			E_γ: 252.8 *10* (1970Mo09, ΔE_{levs}). I_γ: <21 (1970Mo09).
		761.0† *10*	<6	4114.7	2+			E_γ: 761.0 *10* (1970Mo09, ΔE_{levs}). I_γ: <6 (1970Mo09).
		803.3† *12*	<4	4073.0	1+			E_γ: 803.3 *12* (1970Mo09, ΔE_{levs}). I_γ: <4 (1970Mo09).
		962.2† *11*	<8	3914.9	0+			E_γ: 962.2 *11* (1970Mo09, ΔE_{levs}). I_γ: <8 (1970Mo09).
		1571.8 *5*	37 *3*	3303.2	2+	M1+E2	−0.09 *4*	A_2=−0.57 *2*; A_4=−0.05 *2* (1971Mu03) E_γ: weighted average of: 1571.9 *5* (1970Mo09, m); 1571 *2* (1970Gr11, ΔE_{levs}); 1571 (1971Mu03, ΔE_{levs}); 1570 *4* (1974Gr06, ΔE_{levs}). I_γ: weighted average of: 32 *7* (1970Mo09); 35 *5* (1970Gr11); 40 *5* (1971Mu03); 40 *10* (1974Gr06). Mult.: D+Q ΔJ=1 γ (1971Mu03); M1+E2 based on RUL. δ: −0.09 *4* (1971Mu03).
		2748.3 *15*	63 *3*	2126.8	2+	M1+E2	−0.11 *3*	A_2=−0.65 *3*; A_4=+0.05 *3* (1971Mu03) E_γ: weighted average of: 2750.9 *25* (1970Mo09, m); 2747 *2* (1970Gr11, ΔE_{levs}); 2747 (1971Mu03, ΔE_{levs}); 2747 *4* (1974Gr06, ΔE_{levs}). I_γ: weighted average of: 68 *7* (1970Mo09); 65 *5* (1970Gr11); 60 *5* (1971Mu03); 60 *10* (1974Gr06). Mult.: D+Q ΔJ=1 γ (1971Mu03); M1+E2 based on RUL. δ: −0.11 *3* (1971Mu03).
		4874.8† *7*	<4	0.0	0+			E_γ: 4874.8 *7* (1970Mo09, ΔE_{levs}). I_γ: <4 (1970Mo09).
4891.7	2+	775† *4*	<13	4114.7	2+			E_γ: 775 *4* (1970Mo09, ΔE_{levs}). I_γ: <13 (1970Mo09).
		818† *4*	<10	4073.0	1+			E_γ: 818 *4* (1970Mo09, ΔE_{levs}). I_γ: <10 (1970Mo09).
		976† *4*	<22	3914.9	0+			E_γ: 976 *4* (1970Mo09, ΔE_{levs}). I_γ: <22 (1970Mo09).

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^{31}P(α,pγ) (continued)

$\gamma(^{34}S)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
4891.7	2^+	1588.3 *16*	49 *7*	3303.2	2^+			E_γ: weighted average of: 1586 *4* (1970Mo09, ΔE_{levs}); 1589 *2* (1970Gr11, ΔE_{levs}); 1589 (1970Gr11, ΔE_{levs}); 1588 *4* (1974Gr06, ΔE_{levs}). I_γ: weighted average (external uncertainty) of: 36 *11* (1970Mo09); 59 *10* (1970Gr11).
		2763† *4*	<36	2126.8	2^+			E_γ: 2763 *4* (1970Mo09, ΔE_{levs}). I_γ: <36 (1970Mo09).
		4891.5 *16*	51 *7*	0.0	0^+	E2		A_2=+0.51 *4*; A_4=−0.74 *5* (1971Mu03) E_γ: weighted average of: 4889 *4* (1970Mo09, ΔE_{levs}); 4892 *2* (1970Gr11, ΔE_{levs}); 4892 *4* (1974Gr06, ΔE_{levs}). I_γ: weighted average (external uncertainty) of: 64 *11* (1970Mo09); 41 *10* (1970Gr11). Mult.: Q ΔJ=2 γ (1970Mo09, 1971Mu03); E2 based on RUL. Additional information 11.
5225	0,2	1150	100	4073.0	1^+	D		A_2=−0.01 *3*; A_4=−0.02 *4* (1971Mu03) E_γ: 1150 (1971Mu03, ΔE_{levs}). Mult.: D ΔJ=1 γ (1971Mu03).
5318.8	2	3191.8 *18*	100	2126.8	2^+	D+Q	−0.17 *6*	A_2=+0.12 *2*; A_4=+0.05 *2* (1971Mu03) E_γ: weighted average of: 3191 *2* (1970Gr11, ΔE_{levs}); 3191 (1971Mu03, ΔE_{levs}); 3195 *4* (1971Mu03, ΔE_{levs}). I_γ: 100 (1970Gr11); 100 (1971Mu03); 100 (1974Gr06). Mult.: D+Q ΔJ=0 γ (1971Mu03, 1974Gr06). δ: −0.17 *6* (1971Mu03); +1.8 *10* (1974Gr06).
5382	1^+	3255 *4*	62 *8*	2126.8	2^+	M1+E2	−1.1 *10*	A_2=+0.04 *3*; A_4=+0.02 *3* (1971Mu03) E_γ: 3253 (1971Mu03, ΔE_{levs}); 3255 *4* (1974Gr06, ΔE_{levs}). I_γ: 62 *8* (1971Mu03). Mult.: D+Q ΔJ=1 γ (1971Mu03); M1+E2 based on RUL. δ: −1.1 *10* (1971Mu03).
		5382 *4*	32 *8*	0.0	0^+	D		A_2=−0.13 *3*; A_4=+0.02 *4* (1971Mu03) E_γ: 5380 (1971Mu03, ΔE_{levs}); 5382 *4* (1974Gr06, ΔE_{levs}). I_γ: 32 *8* (1971Mu03). Mult.: D ΔJ=1 γ (1971Mu03).
5679.1	2	2376 *4*		3303.2	2^+	D+Q	<−0.4	A_2=−0.13 *12*; A_4=−0.50 *14* (1972Jo10) E_γ: 2377 (1972Jo10, ΔE_{levs}); 2376 *4* (1974Gr06, ΔE_{levs}). I_γ: 65 *10* (1974Gr06). Mult.: D+Q ΔJ=0 γ (1972Jo10). δ: <−0.4 or>+2.4 (1972Jo10).
		3553 *4*		2126.8	2^+	D+Q	−0.47 *+7−11*	A_2=−0.14 *2*; A_4=−0.15 *2* (1972Jo10) E_γ: 3553 (1972Jo10, ΔE_{levs}); 3553 *4* (1974Gr06, ΔE_{levs}). I_γ: 35 *10* (1974Gr06). Mult.: D+Q ΔJ=0 γ and test of spin hyphotheses (1972Jo10). δ: −0.47 *+7−11* (1972Jo10).
5688	5^-	1001 *4*	45 *10*	4687.7	4^+	E1		A_2=−0.32 *5*; A_4=−0.22 *5* (1972Jo10)

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^{31}P(α,pγ) (continued)

$\gamma(^{34}S)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
								E_γ: 1001 (1972Jo10, ΔE_{levs}); 1001 *4* (1974Gr06, ΔE_{levs}).
								I_γ: 45 *10* (1974Gr06).
								Mult.: D(+Q) $\Delta J=1$ γ (1972Jo10, 1971Gr26); E1 from polarization measurement (1971Gr26).
								δ: −0.05 *9* (1972Jo10); 0.00 *2* (1971Gr26).
5688	5⁻	1066 *4*	55 *10*	4622.4	3⁻	E2		A_2=+0.29 *7*; A_4=−0.36 *7* (1972Jo10)
								E_γ: 1065 (1972Jo10, ΔE_{levs}); 1066 *4* (1974Gr06, ΔE_{levs}).
								I_γ: 55 *10* (1974Gr06).
								Mult.: Q $\Delta J=2$ γ (1972Jo10, 1971Gr26); E2 from polarization measurement (1971Gr26).
5753		3623		2126.8	2⁺			E_γ: 3623 (1972Jo10, ΔE_{levs}).
5848		3721		2126.8	2⁺			E_γ: 3721 (1972Jo10, ΔE_{levs}).
5993	2	1918	20 *8*	4073.0	1⁺			E_γ: 1918 (1972Jo10, ΔE_{levs}).
		3866	25 *8*	2126.8	2⁺			E_γ: 3866 (1972Jo10, ΔE_{levs}).
		5993	55 *10*	0.0	0⁺	Q		A_2=+0.40 *2*; A_4=−0.61 *3*
								E_γ: 5993 (1972Jo10, ΔE_{levs}).
								Mult.: Q $\Delta J=2$ γ (1972Jo10).
6120	2	2817	82 *7*	3303.2	2⁺	Q		A_2=+0.38 *5*; A_4=+0.06 *6* (1972Jo10)
								E_γ: 2817 (1972Jo10, ΔE_{levs}).
								Mult.: Q $\Delta J=0$ γ (1972Jo10).
								δ: −0.09 *4* (1972Jo10).
		3993	18 *7*	2126.8	2⁺			E_γ: 3993 (1972Jo10, ΔE_{levs}).
								Additional information 12.
6173	3	1281	6 *5*	4891.7	2⁺			E_γ: 1281 (1972Jo10, ΔE_{levs}).
		1485	36 *5*	4687.7	4⁺	D(+Q)	−0.04 *+6−3*	A_2=−0.34 *3*; A_4=+0.06 *3* (1972Jo10)
								E_γ: 1485 (1972Jo10, ΔE_{levs}).
								Mult.: D(+Q) $\Delta J=1$ γ (1972Jo10).
		2870	38 *5*	3303.2	2⁺	D+Q	−0.23 *7*	A_2=−0.67 *6*; A_4=+0.01 *7* (1972Jo10)
								E_γ: 2870 (1972Jo10, ΔE_{levs}).
								Mult.: D+Q $\Delta J=1$ γ (1972Jo10).
								δ: more likely: −0.23 *7*; another value: −1.9 *6* (1972Jo10).
		4046	20 *5*	2126.8	2⁺	D+Q	−0.43 *16*	A_2=−0.94 *4*; A_4=+0.14 *4* (1972Jo10)
								E_γ: 4046 (1972Jo10, ΔE_{levs}).
								Mult.: D+Q $\Delta J=1$ γ (1972Jo10).
								δ: −0.43 *16* or −1.0 *3* (1972Jo10).
6251	4⁺	1376.0 *20*	57 *10*	4875.0	3⁺	M1+E2	+3.7 *+7−26*	A_2=−0.44 *6*; A_4=+0.63 *8* (1972Jo10)
								E_γ: 1376.0 *20* (this dataset ΔE_{levs}); 1376 (1972Jo10, ΔE_{levs}).
								Mult.: D+Q $\Delta J=1$ γ (1972Jo10); M1+E2 based on RUL.
								δ: from 1972Jo10.
		1563.3 *20*	43 *10*	4687.7	4⁺			E_γ: 1563.3 *20* (this dataset ΔE_{levs}); 1562 (1972Jo10, ΔE_{levs}).
6347	1	3044	70 *10*	3303.2	2⁺	D+Q	−0.55 *65*	A_2=−0.05 *3*; A_4=−0.03 *3* (1972Jo10)
								E_γ: 3044 (1972Jo10, ΔE_{levs}).
								primary γ In coin with 3303γ from 3303; A_2,A_4 are for both 3044γ and 3303γ.
								Mult.: D+Q $\Delta J=1$ γ (1972Jo10).
								δ: from 1972Jo10.
		6347	30 *10*	0.0	0⁺	D		A_2=−0.20 *5*; A_4=+0.02 *6* (1972Jo10)
								E_γ: 6347 (1972Jo10, ΔE_{levs}).
								Mult.: D $\Delta J=1$ γ (1972Jo10).
6415	4	1541	62 *5*	4875.0	3⁺	D		A_2=−0.16 *2*; A_4=+0.0 *3* (1972Jo10)

Continued on next page (footnotes at end of table)

^{31}P(α,pγ) (continued)

γ(^{34}S) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	Comments
								E_γ: 1541 (1972Jo10, ΔE_{levs}). Mult.: D $\Delta J=1$ γ (1972Jo10). δ: 0.00 *6* (1972Jo10).
6415	4	1727	38 *5*	4687.7	4^+	D		A_2=+0.12 *5*; A_4=+0.05 *6* (1972Jo10) E_γ: 1727 (1972Jo10, ΔE_{levs}). Mult.: D $\Delta J=0$ γ (1972Jo10). δ: 0.00 *+32−14* (1972Jo10).
6480	1	3177	59 *10*	3303.2	2^+			E_γ: 3177 (1972Jo10, ΔE_{levs}).
		4353	41 *10*	2126.8	2^+	D+Q	−1.1 *9*	A_2=+0.12 *5*; A_4=+0.05 *6* (1972Jo10) E_γ: 4353 (1972Jo10, ΔE_{levs}). Mult.: D+Q $\Delta J=1$ γ (1972Jo10). δ: from 1972Jo10.
6639	(3,4)	959.9 *14*	22 *10*	5679.1	2	D		A_2=−0.46 *8*; A_4=+0.00 *10* (1972Jo10) E_γ: 959.9 *14* (this dataset ΔE_{levs}); 960 (1972Jo10, ΔE_{levs}). Mult.: D $\Delta J=1$ γ (1972Jo10 and RUL).
		2016.8 *12*	78 *10*	4622.4	3^-			E_γ: 2016.8 *12* (this dataset ΔE_{levs}); 2017 (1972Jo10, ΔE_{levs}).
6731	2,4	1857	5 *5*	4875.0	3^+			E_γ: 1857 (1972Jo10, ΔE_{levs}).
		2043	20 *7*	4687.7	4^+			E_γ: 2043 (1972Jo10, ΔE_{levs}).
		3428	20 *7*	3303.2	2^+			E_γ: 3428 (1972Jo10, ΔE_{levs}).
		4604	55 *5*	2126.8	2^+	D+Q,Q	+1.8 *3*	A_2=+0.44 *2*; A_4=−0.23 *2* (1972Jo10) A_2=+0.50 *2*; A_4=−0.27 *2* (1972Jo10) E_γ: 4604 (1972Jo10, ΔE_{levs}). Mult.: D+Q $\Delta J=0$ γ, or Q $\Delta J=2$ γ (1972Jo10); first A_2,A_4: from E_α=11.0 MeV; second A_2,A_4: from E_α=9.3 MeV. δ: +1.8 *3* (for J=2); −0.00 *3* (for J=4) (1972Jo10).
6830	2	2207		4622.4	3^-			E_γ: 2207 (1972Jo10, ΔE_{levs}).
		2714		4114.7	2^+			E_γ: 2714 (1972Jo10, ΔE_{levs}).
		6830		0.0	0^+	Q		A_2=+0.49 *9*; A_4=−0.39 *12* (1972Jo10) E_γ: 6830 (1972Jo10, ΔE_{levs}). Mult.: Q $\Delta J=2$ γ (1972Jo10).
6864	5	2176.3 *11*		4687.7	4^+			E_γ: 2176.3 *11* (this dataset ΔE_{levs}); 2176 (1972Jo10, ΔE_{levs}).
		2241.6 *12*		4622.4	3^-	Q		E_γ: 2241.6 *12* (this dataset ΔE_{levs}); 2242 (1977GrZH, ΔE_{levs}). Mult.: Q $\Delta J=2$ (1977GrZH).
		4737.2† *11*		2126.8	2^+			A_2=+0.50 *5*; A_4=−0.25 *7* (1972Jo10) E_γ: 4737.2 *11* (this dataset ΔE_{levs}); 4737 (1972Jo10, ΔE_{levs}). Mult.: D+Q $\Delta J=0$ γ, or Q $\Delta J=2$ γ (1972Jo10) − not adopted (based on the assigned spins, this would be a $\Delta J=3$ γ). δ: +2.2 *5* (for J=2); 0.00 *4* (for J=4) (1972Jo10).
6950	2	2058		4891.7	2^+			E_γ: 2058 (1972Jo10, ΔE_{levs}).
		3647		3303.2	2^+			E_γ: 3647 (1972Jo10, ΔE_{levs}).
7112	2	3809	26 *7*	3303.2	2^+			E_γ: 3809 (1972Jo10, ΔE_{levs}).
		4985	66 *7*	2126.8	2^+	[D+Q]	+0.27 *+19−15*	A_2=+0.64 *3*; A_4=−0.04 *3* (1972Jo10) E_γ: 4985 (1972Jo10, ΔE_{levs}). δ: +0.27 *+19−15* or +1.2 *+7−4* (1972Jo10).
		7112	8 *6*	0.0	0^+	Q		A_2=+0.70 *12*; A_4=−1.03 *17* (1972Jo10) E_γ: 7112 (1972Jo10, ΔE_{levs}). Mult.: Q, $\Delta J=2$ γ (1972Jo10).

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^{31}P(α,pγ) (continued)

$\gamma(^{34}S)$ (continued)

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Mult.	Comments
7220		2532	4687.7	4^+		E_γ: 2532 (1972Jo10, ΔE_{levs}).
		5093	2126.8	2^+		E_γ: 5093 (1972Jo10, ΔE_{levs}).
		7220	0.0	0^+		A_2=+0.46 *4*; A_4=−0.73 *5* (1972Jo10) E_γ: 7220 (1972Jo10, ΔE_{levs}). Mult.: Q, ΔJ=2 γ (1972Jo10).
7248	(4)	1560 *4*	5688	5^-	(D)	E_γ: 1560 *4* (this dataset ΔE_{levs}); 1556 (1972Jo10, ΔE_{levs}). Mult.: (D) ΔJ=1 γ based on RUL.
7788	6	2100 *4*	5688	5^-	D+Q	E_γ: 2100 *4* (this dataset ΔE_{levs}). Mult.: D+Q ΔJ=1 γ (1977GrZH).

† Placement of transition in the level scheme is uncertain.

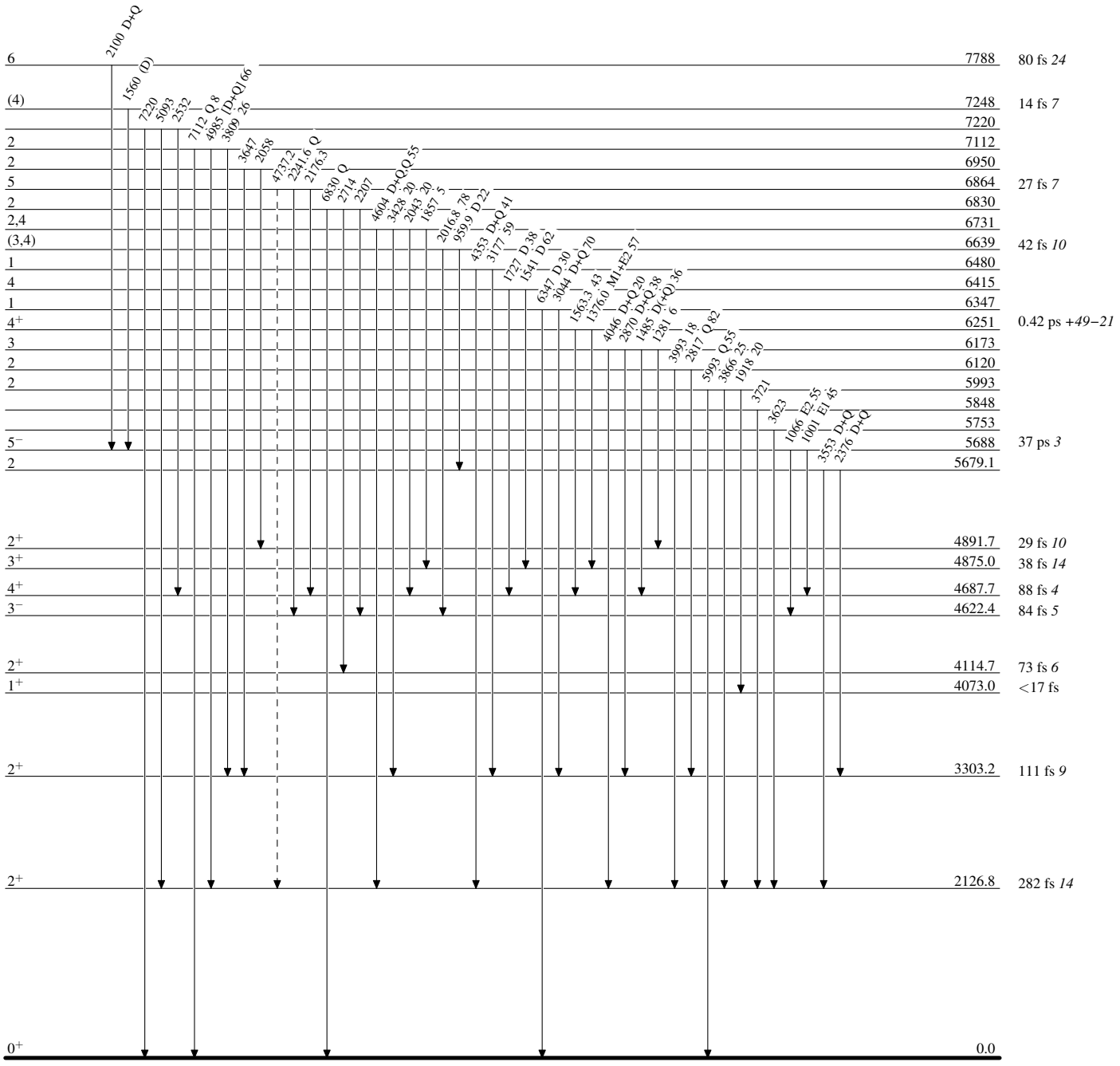
$^{31}P(\alpha,p\gamma)$

Legend

Level Scheme

Intensities: % photon branching from each level

γ Decay (Uncertain)



$^{34}_{16}S_{18}$

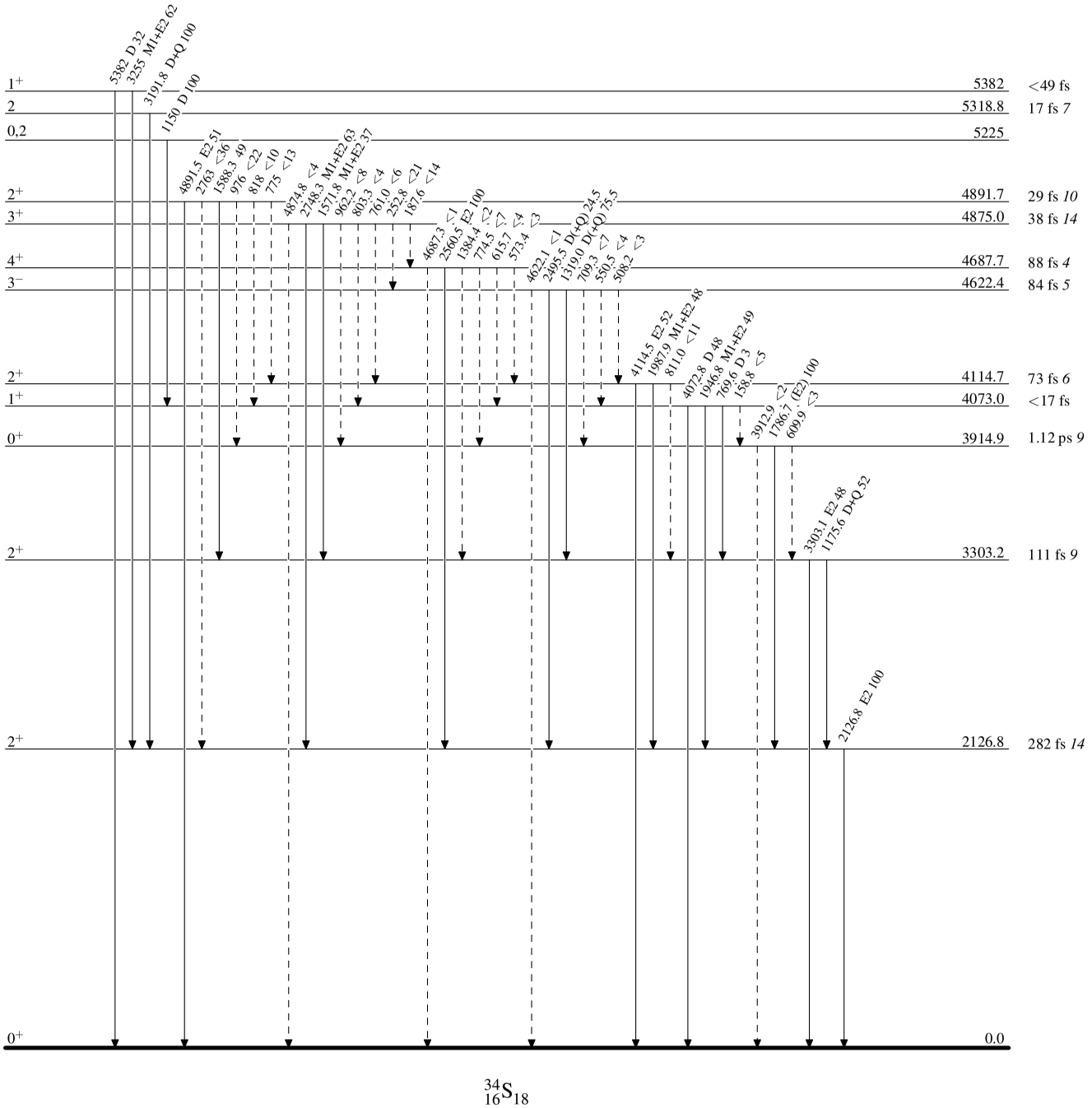
^{31}P(α,pγ)

Legend

Level Scheme (continued)

Intensities: % photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{34}_{16}S_{18}$