

$^{32}\text{S}(\text{e},\text{e}')$ [1994Pe08](#),[1990Cl03](#),[1964Lo08](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 201,1 (2025)	31-Oct-2024

- [1994Pe08](#): E=28.4-63.4 MeV electron beams were produced from MUSL-2 microtron superconducting linac and the NPL of the university of Illinois, Urbana Champagne. Target was natural CaS targets. Scattered electrons were momentum-analyzed with a 180° scattering spectrometer (FWHM=100 keV). Measured energy spectra, σ . Deduced M1, M2 strengths for 19 groups from 9.66-14.77 MeV. Comparisons with shell-model calculations. PWBA analysis.
- [1990Cl03](#): E=207 MeV electron beams was from the NIKHEF-K electron linear accelerator as well as E=182 MeV from the Bates Linear accelerator at MIT. Target was Li_2S containing natural ^{32}S (95%). Scattered electrons were momentum-analyzed with a QDD spectrometer at NIKHEF-K and an energy loss spectrometer (ELSSY). Measured energy spectra, σ . Deduced levels, spectroscopic amplitudes. Comparisons with shell-model calculations.
- [1964Lo08](#): E=250 MeV electrons were from Laboratoire de L'Accelérateur Lineaire, Orsay. Target was natural sulfur. Scattered electrons were detected with a Cerenkov counter. Measured energy spectra, σ . Deduced deformation parameters, transition strengths.
- [2002Ho02](#),[2000Vo10](#): E=42, 66 and 82 MeV electron beams were produced from the superconducting Darmstadt electron linear accelerator (S-DALINAC). Target was natural Li_2Si . Scattered electrons were momentum-analyzed with a 180° scattering system coupled to the Q-CLAM magnetic spectrometer. Measured energy spectra, σ . Deduced levels, transition strengths for 8130, 9660, 11140, 11640 levels.
- [1984Bu06](#): E=34-74 MeV electron beams were from electron linear accelerators at the National Bureau of Standards (NBS) and the MIT-Bates Laboratory. Targets were natural Li_2S . Measured energy spectra, σ . Deduced transition strengths and widths for 8110, 9680, 10050, 11120 and 11630 levels. PWBA analysis.
- [1971Fa15](#): E=39, 56 MeV electrons were from the Naval Research laboratory 60-MV linac. Target was natural CaS (95% ^{32}S). Scattered electrons were analyzed with a 180° spectrometer. Measured σ . Deduced levels, widths for 8130, 70820, 11140 and 11620 levels.
- Others: [1999Re01](#), [1997We01](#), [1970St10](#), [1969Gu12](#), [1963Ba19](#), [1956He83](#).

 ^{32}S Levels

Transition strengths given under comments are from [1994Pe08](#) determined using a model-independent analysis of measured σ , unless otherwise noted.

[Additional information 1](#).

E(level) [†]	J π [†]	Comments
2240 [#]		B(E2) $\uparrow$ =0.0200 22 (1964Lo08) Deformation parameter β_2 =0.0626 75 (1964Lo08), 0.11 1 (1956He83).
3780 [#]		
4360 [#]		
5010 [#]		B(E3) $\uparrow$ =0.0050 5 (1964Lo08) β_3 =0.126 13 (1964Lo08).
5800 [#]		B(E2) $\uparrow$ =0.0043 6 (1964Lo08) β_2 =0.0134 20 (1964Lo08).
6600 [#]		E(level): known unresolved doublet.
7003 @ 30	1+ @	
7190 @ 30	1+ @	E(level): also seen unresolved in 1964Lo08 where E=7200 120.
7700		
8130 @ 30	1+ @	B(M1) $\uparrow$ =0.93 9 E(level): others: 8110 (1984Bu06), 8130 70 (1971Fa15). B(M1) $\uparrow$: weighted average of 0.87 9 (2002Ho02), 1.14 18 (1984Bu06), 1.4 7 (1971Fa15). $\Gamma_0(\text{M1})$ =2.35 eV 37 (1984Bu06), 2.8 eV +18-14 (1971Fa15).
8300 [#]		B(E3) $\uparrow$ =0.00077 11 (1964Lo08) β_3 =0.0193 20 (1964Lo08).

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$^{32}\text{S}(\text{e},\text{e}')$ [1994Pe08](#),[1990CI03](#),[1964Lo08](#) (continued) ^{32}S Levels (continued)

E(level) [†]	J ^π [†]	Comments
9660 <i>10</i>	1 ⁺	B(M1)↑=0.41 7 E(level): other: 9660 <i>30</i> (2002Ho02). B(M1)↑: weighted average of 0.37 6 (2002Ho02), 0.55 24 (1994Pe08), and 0.69 18 (1984Bu06). $\Gamma_0(\text{M1})=2.41$ eV 63 (1984Bu06).
9980 <i>10</i>	1 ⁺	B(M1)↑=0.09 4
10090 <i>10</i>	2 ⁻	B(M2)↑=0.68 30 Other: B(M1)↑=0.57 22 (1984Bu06) for 10050, with $\Gamma_0(\text{M1})=2.23$ eV 86.
10450 <i>10</i>	1 ⁺	B(M1)↑=0.10 8
10810 <i>10</i>	2 ⁻	B(M2)↑=1.03 26 E(level): other: 10820 <i>70</i> (1971Fa15). $\Gamma_0(\text{M2})=0.07$ eV +8-5 (1971Fa15).
10900 <i>10</i>	1 ⁺ , (2 ⁻)	B(M1)↑=0.33 4
10980 [‡] <i>40</i>	6 ^{-[‡]}	Additional information 2.
11160 <i>10</i>	1 ⁺	B(M1)↑=2.28 15 E(level): others: 11140 <i>70</i> (1971Fa15), 11140 <i>30</i> (2002Ho02). B(M1)↑: weighted average of 2.21 15 (2002Ho02), 2.40 22 (1984Bu06), and 3.6 13 (1971Fa15). Other: 1.24 13 (1994Pe08) is discrepant. $\Gamma_0(\text{M1})=11.6$ eV 12 (1984Bu06), 18.9 eV +74-63 (1971Fa15).
11170 [‡] <i>50</i>	6 ^{-[‡]}	Additional information 3.
11500 <i>10</i>	1 ⁺	B(M1)↑=0.10 4
11650 <i>10</i>	1 ⁺	B(M1)↑=1.00 9 E(level): others: 11620 <i>70</i> (1971Fa15), 11640 <i>30</i> (2002Ho02). B(M1)↑: weighted average of 1.04 9 (2002Ho02), 0.77 14 (1994Pe08), 1.26 20 (1984Bu06), 1.6 9 (1971Fa15). $\Gamma_0(\text{M1})=7.7$ eV 12 (1984Bu06), 9.7 eV +61-48 (1971Fa15).
11880 <i>10</i>	2 ⁻	B(M2)↑=0.24 5
11940 [‡] <i>40</i>	6 ^{-[‡]}	Additional information 4.
12030 <i>10</i>	2 ⁻ , (1 ⁺)	B(M2)↑=0.26 6
12190 <i>10</i>	1 ⁺	B(M1)↑=0.14 9
12650 <i>10</i>	1 ⁺	B(M1)↑=0.11 4
12740 [‡] <i>40</i>	6 ^{-[‡]}	Additional information 5.
12980 <i>10</i>	1 ⁺	B(M1)↑=0.07 4
13260 [‡] <i>50</i>	6 ^{-[‡]}	Additional information 6.
13410 <i>10</i>	1 ⁺ , (2 ⁻)	B(M1)↑=0.54 6
13540 [‡] <i>50</i>	6 ^{-[‡]}	Additional information 7.
13780 <i>10</i>	1 ⁺	B(M1)↑=0.39 5
13970 <i>10</i>	1 ⁺ , (2 ⁻)	B(M1)↑=0.20 11
14290 [‡] <i>50</i>	6 ^{-[‡]}	Additional information 8.
14450 <i>10</i>	1 ⁺	B(M1)↑=0.18 5
14770 <i>10</i>	2 ⁻	B(M2)↑=0.26 6
16430 [‡] <i>70</i>	6 ^{-[‡]}	Additional information 9.
17180 [‡] <i>80</i>	6 ^{-[‡]}	Additional information 10.

[†] From [1994Pe08](#), unless otherwise noted. Spin-parities are from a model-independent analysis of measured σ .

[‡] From [1990CI03](#).

From [1964Lo08](#).

@ From [2002Ho02](#).