

ANALYSIS OF THE FASSST ROTATIONAL SPECTRUM OF S(CN)₂

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We report a detailed analysis of the FASSST rotational spectrum of the S(CN)₂ molecule, which has been recorded almost continuously from 110 to 375 GHz. S(CN)₂ is of C_{2v} symmetry, is characterised by a low frequency bending mode of 120-130 cm⁻¹, and has four other normal modes with frequencies of less than 500 cm⁻¹. Only cm-wave transitions in the ground state of several isotopomers,^{a,b,c} and some transitions in the first excited bending state^a have previously been observed.

Rotational transitions in first excited states of all five lowest frequency normal have now been assigned, as well as in the bending progression up to $v = 5$, and in some combination states. The use of the efficient, newly written *AABS* package for Analysis and Assignment of Broadband Spectra allowed several thousand lines to be added also to the datasets for the ground states of the parent, and the ³⁴S isotopomers. The total number of lines measured in the FASSST spectrum of S(CN)₂ is well over 10000. Octic level spectroscopic constants have been derived for the studied states, and their vibrational dependence will be discussed. Vibrational assignment was confirmed by means of *ab initio* inertial defect calculations.

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