LIF AND MICROWAVE SPECTROSCOPY OF CH_2CHS

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Precise molecular constants of the CH_2CHS (vinylthio) radical in the ground vibronic level were determined by Fourier-transform microwave (FTMW) and FTMW-millimeter wave double-resonance spectroscopy[a]. The $\tilde{B} - \tilde{X}$ electronic transition of CH_2CHS was observed by LIF spectroscopy. Rotational constants in the upper electronic state were determined from a rotationally resolved LIF excitation spectrum of jet-cooled CH_2CHS. A dispersed fluorescence spectrum from the zero-vibtational level of the $\tilde{B}$ state was also measured to determine vibrational frequencies in the ground electronic state. The experimental molecular constants were compared with results of *ab initio* calculations.

[a] Y. Sumiyoshi *et al.*, *J. Chem. Phys.* **123**, 054324 (2005).