

# LASER INDUCED FLUORESCENCE EXCITATION SPECTRA OF THE ELECTRONIC BAND SYSTEMS OF ALKYLTHIO RADICALS<sup>a</sup>

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Alkylthio radicals (RS, R=CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, and i-C<sub>3</sub>H<sub>7</sub>) are involved in the chemistry of sulfur-rich fuels. These radicals were produced by excimer laser photolysis of the precursor dialkyl disulphide (R<sub>2</sub>S<sub>2</sub>). The photolyzed fragments were then probed by a frequency doubled Nd:YAG-pumped dye laser and the rotationally-resolved excitation spectra of these radicals were recorded in the UV. Optical galvanic transitions of Ne and Ar were used to calibrate the wavelength of the recorded excitation spectra. Rotational analysis of several bands of the electronic system of the three alkylthio radicals was carried out. Precise rotational parameters for both the upper and lower electronic states involved in the transitions were obtained for the three radicals.

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