LASER INDUCED FLUORESCENCE EXCITATION SPECTRA OF THE ELECTRONICBAND SYSTEMS OF ALKYLTHIO RADICALS[a]

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Alkylthio radicals (RS, R=CH_3, C_2H_5, andi-C_3H_7) are involved in the chemistry of sulfur-rich fuels. These radicals were produced by excimer laser photolysis of theprecursor dialkyl disulphide (R_2S_2). The photolyzed fragments were then probed by a frequency doubled Nd:YAG-pumped dye laser and therotationally-resolved excitation spectra of these radicals were recordedin the UV. Optogalvanic transitions of Ne and Ar were used to calibratethe wavelength of the recorded excitation spectra. Rotational analysisof several bands of the electronic system of the three alkylthioradicals was carried out. Precise rotational parameters for both theupper and lower electronic states involved in the transitions wereobtained for the three radicals.

[a]Financial support from theNASA Lewis Research Center (#NAG3-1677), U.S. Environmental ProtectionAgency's Office of Exploratory Research (#R819720-02-0)and the Centerfor the Terrestrial and Extraterrestrial Atmospheres (#NASA NAGW-2950)is gratefully acknowleged.