HIGH RESOLUTION, ROTATIONALLY RESOLVED LASER INDUCED FLUORESCENCE SPECTRA OF THE HCCS RADICAL

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We have obtained the high resolution, rotationally resolved jet-cooled LIF spectrum of the $\tilde{A}\ ^2\Pi \leftarrow \tilde{X}\ ^2\Pi$ electronic transition of the HCCS radical. The radical was produced by KrF laser photolysis of thiophene in a supersonic free-jet expansion.The LIF spectrum was obtained by a pulse-amplified, frequency-doubled Ti:Sapphire ring-dye laser. A number of vibrational bands, including the origin and several excited vibrational modes, have been observed. The rotational analysis of all the bands will be presented. The implications of their analyses for Renner-Teller interaction in the molecule will be discussed.