

A LASER INDUCED FLUORESCENCE STUDY OF JET-COOLED HCCI IN THE REGION 515-615 NM

H. FAN, I. IONESCU, C. ANNESLEY, AND S. A. REID, *Department of Chemistry, Marquette University, Milwaukee, WI 53233.*

We report new measurements of the laser induced fluorescence spectra of the HCCI $A^1A''-X^1A'$ system in the 515-615 nm region. The spectra were obtained under jet-cooled conditions using a pulsed discharge source. The pure bending transitions 2_0^n with $n=5-8$ and combination bands $2_0^3 3_0^m$ with $n=4-6$ and $m=1,2$ have been measured and the rotational structure fit to a asymmetric top Hamiltonian, which yielded precise values for the band origins and effective rotational constants. Consistent with previous work, only sub-bands with $K_a' = 0$ appear strongly in the spectra. Fluorescence lifetimes were measured for rotational levels in each band, and the energy dependence of the lifetimes will be discussed.