OPTICAL PROBING OF OCS IN EXTREME ROTATIONAL STATES

QINGNAN LIU, CARLOS TORO and AMY S. MULLIN, *Department of Chemistry and Biochemistry, University of Maryland, College Park, MD 20742*.

We have used an optical centrifuge to drive OCS into extreme rotational states and interrogated the outcome using high resolution transient IR absorption spectroscopy. The extreme rotational states are not accessible with traditional optical methods. OCS is of interest in optical centrifuge studies because it has molecular features that lead to efficient centrifugation, namely a large polarizability anisotropy and a small moment of inertia. In these studies we explore how molecular rotation can be controlled by varying the nature of the trapping optical field and how molecular dissociation competes with the preparation of high rotational states.