FURTHER STUDIES OF POTASSIUM-BEARING MOLECULES : THE MILLIMETER-WAVE SPECTRUM OF KSH (X^1A')

MATTHEW P. BUCCHINO, *Department of Chemistry and Biochemistry, University of Arizona, Tucson, Arizona 85721*; JUSTIN P. YOUNG, PHIL M. SHERIDAN and DAVID EWING, *Department of Chemistry, Canisius College, Buffalo, New York 14208*; LUCY M. ZIURYS, *Department of Chemistry and Biochemistry, Department of Astronomy, and Steward Observatory, University of Arizona, Tucson, Arizona 85721*.

The pure rotational spectrum of KSH (X^1A') has been measured using millimeter-wave direct-absorption techniques for the first time. KSH was synthesized by the reaction of potassium vapor and H_2S in the presence of a direct current discharge. Five rotational transitions in the frequency range of $260-300$ GHz were recorded for both KSH and KSD in their ground electronic states. The K-ladder structure indicates C_s symmetry, and therefore a bent molecule. Accurate rotational and hyperfine constants have been determined from a global fit including previously measured microwave spectra. A comparison of KSH to other alkali metal hydrosulfides will be presented.