MEASURING THE SUBMILLIMETER WAVE SPECTRUM OF METHYL-HYPOCHLORITE UP TO 500 GHz

B. M. HAYS, L. MARGULES, R. A. MOTIYENKO, *Univ. Lille, CNRS, UMR 8523 - PhLAM - Physique des Lasers Atomes et Molécules, F-59000 Lille*; **J.-C. GUILLEMIN**, *UMR 6226 CNRS - ENSCR, Institut des Sciences Chimiques de Rennes, Rennes, France*

Chlorine containing organic molecules are important reactants in Earth's atmosphere contributing to ozone layer loss. The simplest oxygen bearing organochloride, methyl hypochlorite CH_3OCl, is expected to be a product in ozone hole chemistry. Interstellar chemistry of chlorine containing organic molecules has received recent interest through the detection of the methylchloride in a cometary and a low mass protostar. Searches for more complex organochlorides maybe limited due to lack of available spectra, so we synthesized and recorded the submillimeter wave spectrum of methyl hypochlorite between 150-500 GHz using absorption spectroscopy. The fitted spectra are extended from previous studies up 500 GHz for both chlorine isotopologues. These spectra are complicated due to both hyperfine splitting from the chlorine nucleus and tunneling splitting due to internal rotation, warranting the use a Hamiltonian that can account for both. The details of the spectroscopic analysis and prospects for detection in space will be discussed.