LASER SPECTROSCOPY OF HOLMIUM MONOCHLORIDE.

M. J. DICK, C. LINTON, J. L. MACGREGOR, *Physics Department, University of New Brunswick, Fredericton, NB, Canada E3B 5A3*; A. G. ADAM, *Department of Chemistry, University of New Brunswick, Fredericton, NB, Canada E3B 6E2*; P. CROZET AND A. J. ROSS, *Laboratoire de Spectrométrie Ionique et Moléculaire (UMR 5579 CNRS), Bâtiment A. Kastler, Université Lyon I, Domaine Scientifique de la Doua, 69622 Villeurbanne Cedex, France*.

As part of a continuing investigation of the properties and structure of lanthanide molecules, a laser spectroscopic study of holmium halides is presently in progress. High resolution spectra are obtained with both laser ablation and oven sources using a cw ring laser. At present, high resolution spectra of two electronic transitions of Holmium Chloride have been obtained. A global fit of the A9-X8 transition has been completed and work continues on the second transiton. With the ablation source, the transitions show resolved hyperfine structure due to the I = 3.5 spin of the Holmium nucleus. The results of the analyses of the rotational and hyperfine structure will be presented and discussed in terms of the electron configurations of the electronic states. In addition the results of HoCl will be compared and contrasted with those obtained from previous work on HoF.