LASER SPECTROSCOPY OF HOLMIUM CONTAINING MOLECULES.

M. J. DICK, A. K. KRISTOFFERSEN, C. LINTON, J. L. MCBRIDE, *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 containing molecules is presently in progress. A laser ablation source is used to obtain low resolution survey spectra using pulsed lasers, and high resolution spectra are obtained with both laser ablation and oven sources using a cw ring laser. The results of the survey and high resolution studies will be presented. At present, high resolution spectra have been obtained for several bands of the A9 - X8 and B8 - X8 transitions of HoF and the A9 - X8 transition of HoCl. All of the transitions show 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.