LASERS AND BIOMOLECULES:
THE DEVELOPMENT OF A NEW APPARATUS FOR STUDYING LASER SPECTROSCOPY OF BIOMOLECULES

D. ROLLAND, C. LAM and J. W. HEPBURN, *Department of Chemistry, University of British Columbia, 2036 Main Mall, Vancouver B.C., V6T 1Z1, Canada..*

We discuss the construction of a new apparatus for laser spectroscopy of supersonically cooled biomolecules. This apparatus is composed of a laser desorption source coupled to a supersonic expansion, an excitation/ionization region and a reflectron mass spectrometer. The desorption process typically leaves evaporated molecules in an excited predissociative state; the rare gas expansion provides a means to cool down the molecules in order to perform high resolution spectroscopic analysis. The source can also be used for softer ionization processes such as MALDI. Photoionization and eventual dissociation of the neutral molecules is performed through multiphoton absorption of the light from two Nd-YAG pumped dye lasers. Experimental conditions, ablation, ionization and detection are monitored and controlled with in-house developed LabView software. Preliminary results will be discussed.