GENERATION OF HIGH RESOLUTION IR RADIATION FOR FREE RADICAL SPECTROSCOPY

PATRICK DUPRÉ and TERRY A. MILLER, *Department of Chemistry, Ohio State University, 120 W 18th Ave, Columbus OH, 43210*.

Some radicals, e.g. peroxy radicals, exhibit potentially well resolved spectral structure in the near IR electronic transition. Almost all molecules, including reactive radicals have well resolved rovibronic spectra in the mid-IR. To probe these two domains we have built up a high resolution, high energy, tunable source based on a CW Ti:Sapphire laser and an amplifier[a]. This laser is used as a primary source for Raman shifting (SRS) and for Difference-Frequency Generation (DFG). We will present preliminary results showing the capabilities of source, and results from a CRDS spectrometer which includes a discharge environment inside a supersonic slit-jet expansion.

[a] P. Dupré and T.A. Miller, 60th Symposium on Molecular Spectroscopy (2005), talk TJ10