

Operation of an Infrared Beamline Dedicated to the Study of Bio-Medical Problems

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Beamline(s): **U2B**

Beamline U2B at the NSLS has been built and is fully operational since March 2000, giving about 25% time to general users. Several additions and improvements have been done since previous report. The spectrometer is Nicolet Magna 860, equipped with interchangeable (1) KBr and silicon beam splitters, and (2) MCT and DTGS detector with polyethylene window for mid- and far-IR, respectively. A dual silicon bolometer/copper-germanium detector, capable of covering both mid- ($3500\text{-}600\text{ cm}^{-1}$) and far-IR ($10\text{-}650\text{ cm}^{-1}$) has been obtained. Another two wide-range MCT/B detectors covering $4000\text{-}450\text{ cm}^{-1}$ have been obtained. All these detectors are designed to work with the external chambers, such as evacuated cryo-chamber for far-IR spectroscopy and Nicolet Nic-Plan IR microscope. The microscope optics has been rearranged to drive the light to external detectors, by means of a fully motorized stage. A whole set of translator stages and collimating optics were built behind the microscope to precisely align the external detectors. The Nic-Plan microscope has been further optimized for the use in portions of mid-IR and far-IR regions where water vapor significantly adsorbs radiation, producing noise in the spectra, by means of building a set of purged areas throughout the optical path of the instrument.