Description of the Facility

Mission

The mission of the CUNY X-ray Facility is to perform single-crystal analyses for the structure determination of molecules, which make up a crystal. This technique is called single-crystal X-ray crystallography. It is the ultimate method for definitive determination of molecular structures at the atomic level for both organic and inorganic compounds. Its uses range from simple identification of compounds to various exotic configuration and conformational studies.
Instruments

**Bruker-Nonius KappaCCD System**


Capabilities: The KappaCCD, acquired in 2001, embodies the state-of-the-art technologies for rapid, precise, and accurate measurements of small-angle X-ray scattering patterns. This diffractometer is equipped to measure structures of inorganic compounds containing heavy atoms, such as technetium and rhenium, to minimize absorption-correction errors.

**Enraf-Nonius CAD4**

Nonius CAD4 serial diffractometer, equipped with a scintillation detector and a liquid-nitrogen low-temperature device, on a Nonius Diffractis 586 X-ray generator with a copper sealed tube.

Capabilities: A serial diffractometer collects one diffraction spot at a time. This CAD4 is an excellent instrument for routine structure determination, e.g., for protein crystallography. The CAD4 is rugged and requires little maintenance. The instrument can illustrate, display, and apply the principles of crystallography in a variety of ways.

Instrument: Nonius CAD4 serial diffractometer, equipped with a scintillation detector, liquid-nitrogen low-temperature device, and a long 2theta-detector arm, on a Nonius FR571 X-ray generator with a copper rotating anode.

Capabilities: The long 2theta-detector arm allows better resolution of diffraction spots for crystals with long unit-cell lengths. The better resolution permits a higher signal-to-noise ratio and so smaller crystals may be used to collect data. The low-temperature options immensely improve the flexibility of a diffractometer. When a crystal is cooled, the crystal’s conductivity is greatly increased. The low-temperature options make possible analyses of compounds whose crystallinity deteriorates at ambient temperature.