IMB X-Ray Facility Overview

Institute of Molecular Biophysics
X-Ray Facility (XRF)
410-413 Kasha Laboratory
www.sb.fsu.edu/~xray
850-644-6448
IMB MOB XRF

- IMB interdisciplinary Institute
- Home to MOB Prgm
- Chemistry, Biology, Physics, Mathematics, and Engineering
- Major research focus:
  - Structural Biology
  - Computational Biophysics
- X-Ray Facility was established in 1993
- One of the four Core Facilities in IMB
- Open Access to FSU and SUS Institutions
- Nominal fees for usage
- Safety & On-site Training Required
What XRF Can Do For You?

Crystal

Data Collection

Images courtesy of Michael Chapman Lab

Diffraction

Data Processing

XRF can help you in Steps

Atomic Modeling

Structure

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Service and Resources

Data Collection
- X-Ray Generator & Mirror System
- Digital Detector & Control

Data Processing
- Extract intensity and index
- Obtain phase information
- Refine and fit the data to model

Amenities
- Crystal Room
- Cold Room
- Digital Imaging
- Synchrotron Time

Resources
- Screening & Crystallization
- Data Collection Strategy
- Crystal Storage & Transport
- Synchrotron Time & Usage
X-Ray Generator & Mirror

- *Rigaku RU-H2R*
- Cu Rotating Anode
- Brilliant Beam
- Osmic Confocal Mirror
- Wavelength Purity
- High Flux
X-Ray Detectors

Imaging Plate

- *Rigaku R-Axis Ilc*
- Two 19cm$^2$ IPs
- 8 minute Read-out
- *MarCCD165*
- Single CCD
- 3 s Read-out
Computer and Software

- Linux and/or Windows O/S
- Software for machine control and collection
- Software for extracting intensity information
- Data storage and retrieval
X-Ray (Cryo) Data Collection

- MarCCD/CrystalClear
- GUI
- Automated
- Analog » Digital
- Oxford CryoSystem
- Collect at 100°K
- Protects Crystals
- Sharper eDensity

www.oxfordcryosystems.co.uk
CryoCrystallography

- Flash Cool in Stream
  - For Immediate Collection
  - Ease of Handling
- Flash Cool in Liquid
  - For Storage
  - For Shipping & Transport
How to become a user?

- Contact the Director of IMB
- Preliminary trial (free)
  - Bring protein for crystallization screen or
  - Bring crystal for diffraction
- Establish an account with XRF
- Independent or collaborative work
XRF-Contact

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