State-of-the-art X-ray Scattering Systems (Ramot)

code: 12-2011-220

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Services:

Small Angle X-ray Scattering (SAXS), Wide Angle X-ray Scattering (WAXS), Grazing Incident Small Angle X-ray Scatter (GISAXS)

X-ray scattering provide structural information (shape and size) in non-destructive and stain free conditions. Small angle scattering is an ideal characterization technique for characteristic distances of partially ordered materials, pore sizes, composite material and macromolecules. For biologic macromolecules such as proteins, lipids or nucleic acids, SAXS advantage over crystallography is that a crystalline sample is not needed and interaction based studies using buffer alterations can be easily done.

The laboratory of Experimental Biophysics is equipped with state-of-the-art X-ray scattering system enabling simultaneous measurements of both wide and small angle scatterings thus enable probing length scales from 0.1 – 100 nm.

Measurements can be easily done with minimum sample preparation at native conditions such as liquid, suspension, solid, powder, gel, sponge etc.

The system includes:

- Pilatus 300K (Dectris) solid-state CMOS hybrid-pixel technology X-ray detector with high frame-rate capabilities
- MAR345 (MAR research) 2D image plate X-ray detector
- Xenocs (Genix) monochromatic (Cu) microfocus beam delivery system
- Temperature controlled chamber
- Motorized multi axis sample stage (x/y/z/q) enabling multiple samples loading and grazing incident capabilities
- Motorized detector stage
- Variable scattered flight-path tube lengths up to 3 meter for optimal resolution.

Key Words:
SAXS, WAXS, GISAXS, Nano particles, Nano structures, supramolecular, self-assembly, macromolecules, protein, lipid, DNA, RNA, siRNA, partially ordered materials, composite materials, Gel, powder, liquid, suspension

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