

about the physical processes that occur during the manufacture of materials. This information can lead to refinements of material processing routes and the development of improved materials, including metals, alloys, ceramics and composites.

Physical Sciences

The physical sciences program encompasses measurement of the structures and the excitation spectra of newly discovered materials and of materials exhibiting novel or unusual properties. Crystalline, magnetic and amorphous structures are determined and related to the physical properties of the material. The spectrum of excitations is measured to investigate the fundamental atomic and molecular dynamics. This structural and dynamical information will advance our understanding of the responses and phases that occur in materials as a function of parameters such as temperature, pressure, magnetic field etc.. Neutron scattering is an essential tool for such investigations.

Biomaterials

The program for biomaterials research explores topics of current interest to biology using neutron diffraction, small-angle scattering and reflectometry. Unlike x-rays, neutrons scatter equally well from low- and high-atomic number elements making them

an ideal probe for the study of biological materials which are naturally rich in hydrogen and other low-atomic number elements (e.g. carbon, oxygen and nitrogen). The biomaterials program focuses on structural studies of model membrane systems and the development of techniques to study aligned biological materials under physiologically relevant conditions.

Applied Neutron Diffraction for Industry (ANDI)

Neutron beams are exploited to obtain experimental information that bears directly on the quality and reliability of industrial materials and engineering components. This information is delivered as a commercial service to industrial clients who need to solve industrial problems. For more details see the ANDI fact sheet.

Facilities

The six neutron scattering instruments are (clockwise in Figure 2):

C2: DUALSPEC, High Resolution Powder Diffractometer

C5: DUALSPEC, Polarized Beam Triple Axis Spectrometer & Reflectometer

E3: Materials Science Diffractometer

L3: Strain Scanning Diffractometer

N5: Triple Axis Spectrometer

T3: Biomaterials Diffractometer

Analyze Failures
Processing Problems
Benchmark Models
Qualify New Supplier
Meet New Protocols

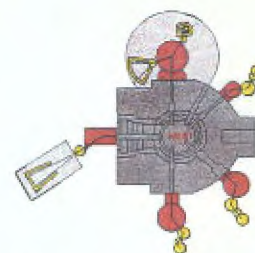


Figure 2: Instrument layout around NRU Reactor.

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