

**1 A Cold Neutron Depth Profiling** instrument (not shown) for quantitative profiling of subsurface impurities currently at this site will be moved to another position. Shown is MACS, a cold neutron Triple Axis Crystal Spectrometer under construction with double focusing monochromator and multiple crystal analyzer/detectors that can be flexibly configured for several energies simultaneously or for high throughput at one energy.

**2 BT-6 (temporary location) Neutron Imaging Facility** for imaging hydrogenous matter in large components such as water in fuel cells or lubricants in engines.

**3 BT-7 Triple Axis Crystal Spectrometer** with fixed incident energy for measurements of excitations and structure.

**4 BT-8 Residual Stress Diffractometer** optimized for depth profiling of residual stress in large components.

**5 BT-9 Triple Axis Crystal Spectrometer** for measurements of excitations and structure.

**6 Thermal Column** a very well-thermalized beam of neutrons used for radiography, tomography, dosimetry and other experiments.

**7 BT-1 Powder Diffractometer** with 32 detectors; incident wavelengths of 0.208 nm, 0.154 nm, and 0.159 nm, with highest resolution of  $\delta d/d = 8 \times 10^{-4}$ .

**8 BT-2 Triple Axis Crystal Spectrometer** with polarized beam capability for measurement of magnetic dynamics and structure.

**9 BT-4 Filter Analyzer Neutron Spectrometer** with cooled Be/Graphite filter analyzer for chemical spectroscopy.

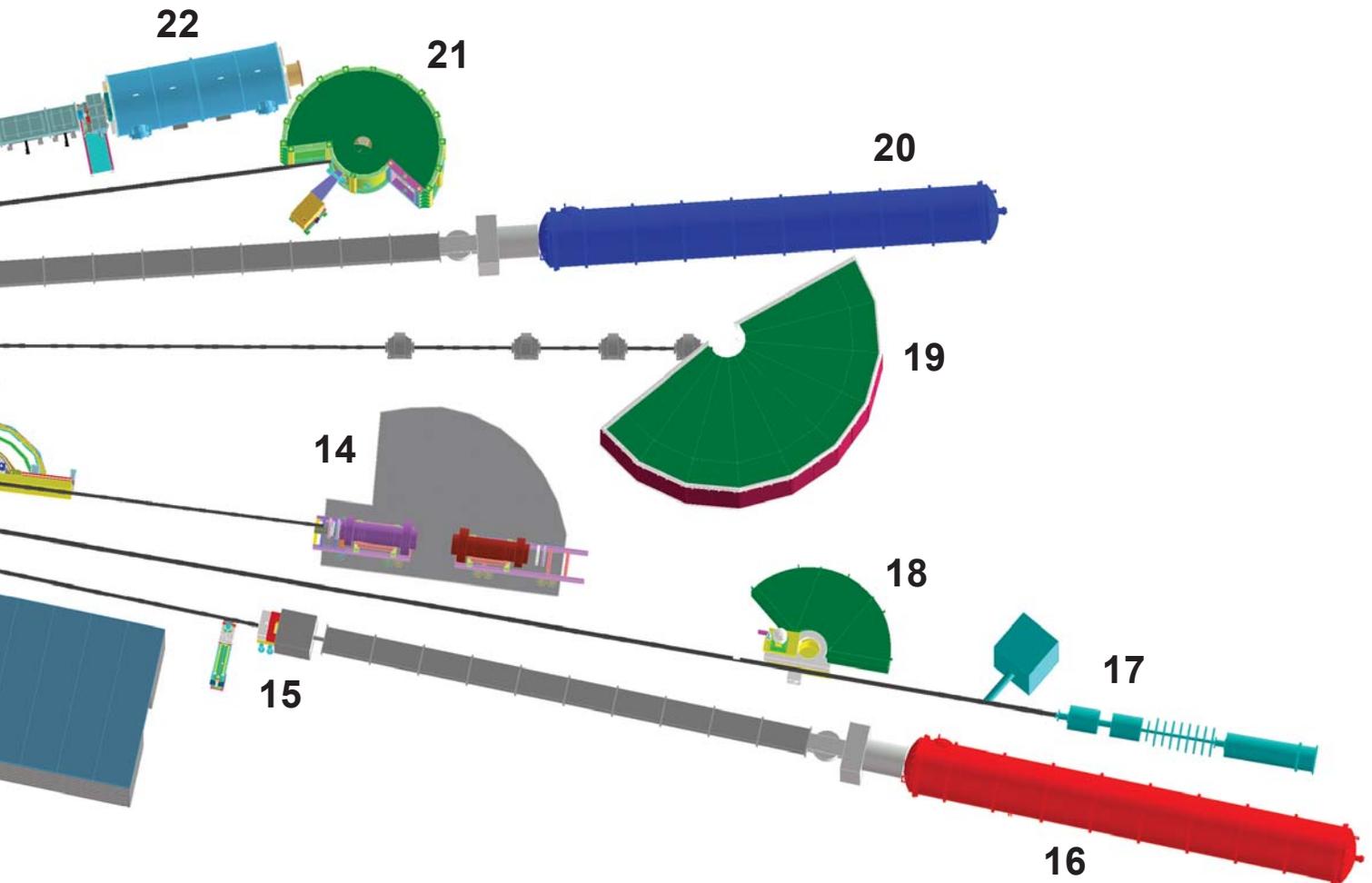
**10 BT-5 Perfect Crystal Diffractometer SANS** small angle neutron scattering instrument for microstructure on the  $10^4$  nm length scale, sponsored by the National Science Foundation and NIST, part of the Center for High Resolution Neutron Scattering (CHRNS).

**11 NG-7 Horizontal Sample Reflectometer** allows reflectivity measurements of free surfaces, liquid vapor interfaces, as well as polymer coatings.

**12 Neutron Interferometry and Optics Station** with perfect silicon interferometer; vibration isolation system provides exceptional phase stability and fringe visibility.

**13 Spin Polarized Triple Axis Spectrometer (SPINS)** using cold neutrons with position sensitive detector capability for high-resolution studies — part of CHRNS.

# NIST Center for Neutron Research Layout



**14 Spin Echo Spectrometer** offering neV energy resolution, based upon Jülich design, sponsored by NIST, Jülich and ExxonMobil — part of CHRNS.

**15 Prompt Gamma Activation Analysis** cold neutron fluxes allow detection limit for H of 1  $\mu\text{g}$  to 10  $\mu\text{g}$ . Focused beams are available for profiling.

**16 NG-7 30 m SANS** for microstructure measurements sponsored by NIST, ExxonMobil, and the University of Minnesota.

**17 Neutron Physics Station** offering three cold neutron beams having wavelengths of 0.5 nm, 0.9 nm, and “white” that are available for fundamental neutron physics experiments.

**18 Fermi Chopper hybrid time-of-flight (TOF) Spectrometer** for inelastic scattering with selected incident wavelengths between 0.23 nm and 0.61 nm.

**19 Disk Chopper TOF Spectrometer** a versatile time-of-flight spectrometer, with beam pulsing and monochromatization effected by 7 disk choppers. Used for studies of dynamics in condensed matter, including macromolecular systems — part of CHRNS.

**20 NG-3 30 m SANS** for microstructure measurements sponsored by the National Science Foundation and NIST — part of CHRNS.

**21 Backscattering Spectrometer** high intensity inelastic scattering instrument with energy resolution  $< 1 \mu\text{eV}$ , for studies of motion in molecular and biological systems — part of CHRNS.

**22 NG-1 10 m SANS** (under construction.) It replaces the current 8 m SANS and will be made available for CHRNS use along with use by the NIST Polymers Division.

**23 Vertical Sample Reflectometer** instrument with polarization analysis capability for measuring reflectivities down to  $10^{-8}$  to determine subsurface structure.

**24 Advanced Neutron Diffractometer / Reflectometer (AND/R)**, a vertical sample reflectometer with polarization analysis and off-specular reflection capabilities for measuring reflectivities down to  $10^{-9}$ . It is part of the Cold Neutrons for Biology and Technology program committed to studies of biological membrane systems.