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The Brockhouse X-Ray Diffraction and Scattering Sector for Materials Science. Stefan Kycia, Dept. of Physics, Univ. of Guelph, Guelph, ON, N1G 2W1 Canada.

An overview of the layout and science driving the proposed Brockhouse Sector will be presented. The facility will enable structural characterization of many forms of materials systems. Some potential applications include structural studies of polymers, drugs, emulsions, biomaterials, novel batteries, petroleum products and quantum materials. The instrumentation will provide excellent performance over the 3-60keV x-ray energy range. To achieve this, two complimentary insertion device (ID) beamlines will be incorporated into the Canadian Light Source. An undulator beamline will cover energies from 3-20keV and a superconducting wiggler beamline will cover energies from 15-60keV. Sharing a single straight section, the two ID's will operate simultaneously. The first of three hutches will support micro and anomalous single crystal crystallography, high-resolution powder diffraction, *ab-initio* structure solution, Rietveld refinement, and combinatorial materials research. A second hutch will aim at high-resolution PDF measurements at extreme environments. Diamond anvils, furnaces, and cryostats will create these environments. The third hutch will support SAXS/WAXS and have a diffractometer for inelastic scattering and reciprocal space mapping.