

Inelastic X-Ray Scattering: Recent Results and Potential

Alfred Q.R. Baron
Materials Dynamics Laboratory
SPring-8/RIKEN 1-1-1 Kouto, Sayo, Hyogo 679-5148, JAPAN

We discuss meV-resolved inelastic x-ray scattering (IXS), with an emphasis on its implementation at BL35XU of SPring-8. The technique has specific advantages over inelastic neutron scattering, especially for disordered materials and small samples, but pushes the limits of what is possible even at a third generation source: the high resolution needed ($\Delta E/E \sim 10^{-7}$), small inelastic cross-section, and relatively high photo electric absorption cross-section make the technique extremely flux-limited. We will discuss some recent example to highlight both potential applications and the strengths of the technique. Instrumentation issues will also be discussed with consideration of future possibilities at SPring-8 with a new beamline, and also the possibility of going to non-silicon analyzers, which are interesting both for high-resolution resonant investigations and possibly for lower-energy storage rings.