THE POTENTIAL AND LIMITATIONS OF THIRD GENERATION LIGHT SOURCES

Josef Hormes

Canadian Light Source, University of Saskatchewan, 101 Perimeter Road,

Saskatoon, SK, S7N 0X4, Canada

Abstract

To date, 3rd generation Light Sources, i.e. electron storage rings where mainly radiation from insertion devices (wigglers and undulators) is used for synchrotron radiation experiments are the "workhorses" for basic and applied VUV/X-ray research.

Several machine parameters. i.e. the energy of the electrons, the emittance and the circumference of the machine, together with the specification of the corresponding insertion devices determine the "quality" of a facility and a specific beamline.

In this talk, several of these aspects are discussed mainly from a users' point of view, i.e. what are the required specifications to carry out "state-of-the-art" experiments in various areas, e.g. protein crystallography, Resonant Elastic and Inelastic X-ray Scattering (REIXS), Micro-/nano-spectroscopy, and time resolved experiments in the femtosecond time domain.