



Western University
Department of Physics and Astronomy

PHYSICS & ASTRONOMY COLLOQUIUM

Date: MONDAY, 3 December 2018
Time: 2:00 p.m.
Location: Physics & Astronomy Seminar Room 100

Dr. Ian Coulthard

Beamline Development Scientist, Canadian Light Source Inc.
Adjunct Professor, Department of Chemistry, Western University

“Advanced x-ray spectroscopy at the Canadian Light Source and beyond”

ABSTRACT

For the most part, work in the fields of X-ray spectroscopy is still dominated by bulk, flux intensive experiments. There is however, a rapidly expanding demand for brilliance intensive spectroscopy techniques. The need for these advanced X-ray spectroscopy techniques is driven by demands for: improved spectral resolution, improved trace sensitivity, smaller size scales, in-situ/in-operando sample environments, faster data collection, and time-resolved data collection.

A team of researchers led by principal investigators from the University of Saskatchewan and Western University have proposed a new beamline for the Canadian Light Source specifically designed with the demands of advanced X-ray spectroscopy techniques in mind. This undulator-sourced beamline would access both the tender and hard X-ray regimes and would be able to produce beam characteristics well suited for multiple modes of X-ray spectroscopy including X-ray Absorption Spectroscopy (XAS), X-ray Emission Spectroscopy (XES), and X-ray Photoelectron Spectroscopy (XPS).

Conceptual design details of this proposed beamline shall be presented, with particular attention paid to how they specifically create advanced conditions for X-ray spectroscopy. Some specific examples of the types of leading edge research that could be conducted on such a beamline shall also be presented. Finally, there will be a discussion in terms of how such advanced x-ray spectroscopy research programs would fit into the strategic goals of a possible diffraction limited successor to the CLS to be built in the future.

HOST: L. Goncharova