

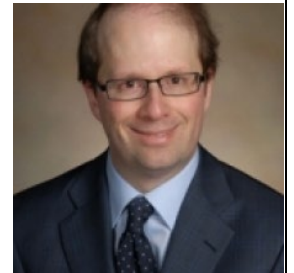
# Seminar

## Chemical Analysis of Lithium of Battery Materials with high spatial resolution using EDS and EELS in the Electron Microscope

**Monday 20 February, 2023****11.00am****Lecture Theatre S10****16 Rainforest Walk, Monash Clayton Campus**This Seminar will also be available on **ZOOM** via this link<https://monash.zoom.us/j/84963470250?pwd=NUNweXJ5RC9iUHB2WUxnWDJWYmc1QT09>

Passcode 830094

**Professor Raynald Gauvin**  
**Materials Engineering,**  
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**Montréal, Québec, Canada.**



### Abstract

This seminar will present the scanning transmission electron microscope (STEM) SU-9000 from Hitachi which characterizes thin and massive samples with electrons beam energies ranging from 0.1 to 30 keV. This microscope is equipped with an electron energy loss spectroscopy (EELS) detector which allows the detection of Lithium. High spatial resolution images are possible with a resolution of 0.16 nm. Many examples will be presented on Li materials and on nano-materials. This microscope is equipped with a EDS detector of lithium (Extreme, Oxford Instrument) and the microanalysis of lithium compounds, which is very difficult and challenging, will also be covered. The preparation of thin films by focus ion beam (FIB) for high spatial resolution images in STEM will be also shown with the newly acquired Hitachi NX-5000 FIB. Also, Bohmian mechanics simulations of electron trajectories will be presented

### The Presenter

Professor Raynald Gauvin received his Ph.D. in 1990 at École Polytechnique de Montréal in Metallurgical Engineering. He was then appointed as an assistant professor in Mechanical Engineering at Université de Sherbrooke where he became associate Professor in 1995 and full Professor in 1998. In 2001, he joined the department of Mining and Materials Engineering of McGill University, Montréal, Canada, as a full Professor.

Professor Gauvin's research interests are related in developing new methods to characterize the microstructure of materials using high resolution scanning electron microscopy with X-ray microanalysis and Monte Carlo simulations. He is the creator of the CASINO program that is used by more than 10,000 users in the world. He has more than 300 papers in scientific journals and conference proceedings. He was Invited Speaker in more than 100 international scientific conferences. He won several scientific prizes, most notably the 31st Canadian Materials Physics Medal in 2007 from the Metallurgical Society of the Canadian Institute of Mining, the Heinrich Award in 1997 from the Microbeam Analysis Society of America and the Prix d'excellence du président de l'École for the best Doctorate Thesis defended in 1990 at École Polytechnique de Montréal.

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