

SEMINAR

High Resolution Imaging and X-Ray Microanalysis in the FE-SEM

Professor Raynald Gauvin
McGill University, Montréal, Canada

Wednesday 11 November, 2015
2.00pm – 3.00pm
Science Lecture Theatre S1
16 Rainforest Walk (prev. Bldg 25)

Abstract

The new generation of Field Emission Scanning Electron Microscope (FE-SEM) can perform high resolution imaging with resolution better than 1 nm in the bulk mode and in the transmission mode. This research seminar will present new results for the characterization of various materials and nanomaterials obtained with the various cold field FE-SEM of the research group of Prof. Gauvin, including the new SU-8230 from Hitachi that has the auto flash mode, giving current stability. This FE-SEM has 1 SE lower detector, 2 SE upper detectors with various modes of energy filtration, a STEM detector that works in bright field and the FlashQuad SDD detector from Bruker with a solid angle of 1.2 Sr, allowing the mapping of particulates of few nanometers. Results in bulk mode and in transmission mode will be presented covering x-ray microanalysis, high resolution imaging of phases and defects, like dislocations and also EBSD in bulk and in the transmission mode.

Bio

Pr. 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. Pr. 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 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 by 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. Pr. Gauvin was the President of the Inter American Societies of Electron Microscopy (CIASEM) from 2009 to 2001, the President of the Microbeam Analysis Society of America (MAS) from 2005 to 2006, the President of the Microscopical Society of Canada (SMC) from 2001 to 2003 and the President of the International Union of the Microbeam Analysis Societies (IUMAS) from 2000 to 2005.

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