



Canadian National Committee  
for Crystallography  
<http://xtallography.ca/>

# 2019 Canadian Materials Diffraction Workshop

## Aug 20<sup>th</sup> to Aug 23<sup>rd</sup>, 2019

University of New Brunswick

Head Hall D108

15 Dineen Drive, Fredericton, NB

## Tentative Program (Rev. 4 – Aug 20)

Daily start times are fixed. Everything else will depend on the students' requests.



## Tuesday, Aug 20

10:00-10:15	Welcome & Introductions (Andreas, Mohsen, Vicky)
10:15-11:15	Fundamentals of XRD- Bragg's Law, Crystal Systems, Crystal Planes, Polycrystalline Diffraction (Jim Britten)
11:15-12:00	Fundamentals of Two-dimensional X-Ray Diffraction (Bob He)
12:00-13:30	Lunch
13:30-14:15	Sample Preparation & Experimental Errors (Vicky)
14:15-15:00	Phase Identification and Intro to Rietveld Method (Jim /Vicky)
15:00-16:30	Demo- Finding CIFs, Mercury, WinWulff, GADDS, etc. (Jim)
16:30-18:00	Work on practice data sets and individual problems

## Wednesday, Aug 21

09:15-10:15	Residual Stress Measurement with Two-dimensional XRD (Bob He)
10:15-10:30	Break
10:30-11:15	GADDS Demo (residual stress) (Jim)
11:15-12:00	Leptos Demo (Bob)
12:00-13:00	Lunch
13:30-17:00	Work on practice data sets and individual problems

## Thursday, Aug 22

08:30-09:15	Introduction to Texture Analysis (Jim Britten)
09:15-10:15	Pole Figure Construction (GADDS demo) (Vicky Jarvis)
10:15-10:30	Break
10:30-11:15	ODF & MTEX Demo (Michael Nemcko)
11:15-12:00	Applications of XRD in Materials Science and Mechanical Engineering (Michael Nemcko)
12:00-13:30	Lunch
13:30-17:00	Work on practice data sets and individual problems

## Friday, Aug 23

08:30-09:15	Visualization of 3D Diffraction Data (Jim)
09:15-10:15	Thin Film Characterization (Beatriz Moreno)
10:15-10:30	Break
10:30-11:15	Micro-Diffraction (Renfei Feng)
11:15-12:00	In-Situ Diffraction (Beatriz Moreno)
12:00-13:30	Lunch
13:30-15:30	Work on practice data sets and individual problems
15:30-17:00	Student Presentations

Discussion during the presentations is encouraged.

**Instructors, Organizers:** Beatriz Moreno, PhD (group leader of the BXDS beamline, CLS); Feizhou He, PhD (beamline scientist of the VESPERS beamline, CLS); Bob He, PhD (Director of Innovation & Business Development- XRD2, Bruker AXS and author of “Two-Dimensional X-Ray Diffraction”, 2<sup>nd</sup> Edition, Wiley); Jim Britten, PhD (MAX Diffraction Facility Manager, McMaster University); Michael Nemcko, PhD (High Speed Imaging Inc.); Mohsen Mohammadi, PhD (Associate Professor and Director of MAMCE, University of New Brunswick); Andreas Decken, PhD (Crystallographer & Assistant Dean, University of New Brunswick); Vicky Jarvis, MSc (Research Scientist, MAX Diffraction Facility, McMaster University); Zahra Khatami, PhD (Assistant Professor, University of New Brunswick); Renfie Feng, PhD (Senior Scientist, VESPERS beamline, CLS), Anita Lam (MSc.; X-ray Specialist, Structural Chemistry Facility, University of British Columbia)