

Fundamentals and Practical Applications of Raman Spectroscopy for 2D Crystals

May 15-16, 2018
Harvard University • 9am-5pm



David Tuschel
Manager-Raman Applications
HORIBA Scientific

Sponsored by Center for Nanoscale Systems (CNS) and HORIBA Scientific, this 2-day course offers the basics of applied Raman spectroscopy, with a special focus on the field of 2D materials. The instructors, led by David Tuschel, Manager of the Raman Applications Lab at HORIBA, will teach Raman spectroscopy at the introductory to intermediate level and cover those topics which will allow the student to practically apply the material learned in the laboratory, workplace and classroom.

We will have two guest speakers at the lunches: Dr. Kwabena Bediako from Harvard University and Dr. James Schuck from Columbia University.

In this workshop, students will learn about:

- Raman scattering through the classical description
- Laser excitation wavelength dependence
- Raman sampling
- Dispersive grating based Raman spectrometers
- Spectral resolution and range
- Spatial resolution and confocality
- Signal detection and wavelength dependence
- Raman imaging including 3D imaging
- Interpretation of Raman spectra of organic compounds
- Spectral assignment of functional groups
- Interpretation of Raman spectra of inorganic compounds
- Phonons and lattice vibrational modes
- Low-Energy phonon modes
- Chemical bond interactions and Raman band shape
- Group theory and spectral selection rules
- Crystal classes and Raman tensors
- Polarization-Orientation micro-Raman spectroscopy
- Spectral differences of crystals, glasses and amorphous materials
- Effect of microscope objectives on the Raman spectra of crystals
- Application of "Raman crystallography"
- Raman spectroscopy and imaging of few-layer 2D crystals
- Raman sensitivity to number of crystal layers

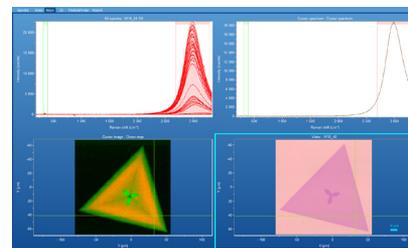
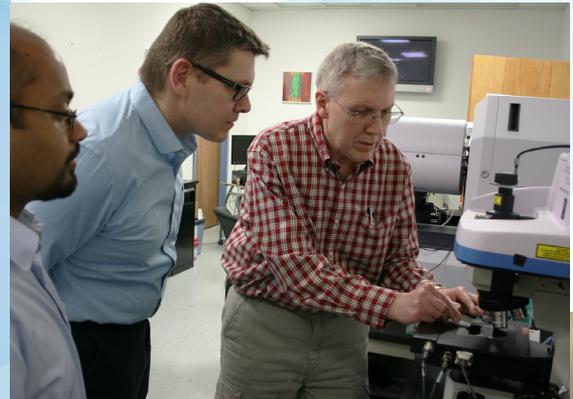
Demonstrations on the instrument will be conducted on each day, following the lectures, to help facilitate the understanding.

Continental breakfast and lunch are included in the registration fee. There will be a cocktail mixer on the first day, during the poster session.

If you would like to submit a poster abstract, please email it to: joanne.lowy@horiba.com

The topics and content will be of value to researchers in industry and academia, analytical chemists, laboratory technicians, teachers, graduate students and materials scientists.

Registration: <https://www.eventbrite.com/e/fundamentals-and-practical-applications-of-raman-spectroscopy-for-2d-crystals-tickets-44255850440>



Raman Scattering (Green) and PL (Red) of 2D WS₂



Harvard University
Geological Lecture Hall
Room 100
24 Oxford Street
Cambridge, MA 02138

Cost: \$30-\$60

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