

Postgraduate Shortcourse:

Raman, Luminescence Spectroscopy and Imaging in the Earth and Planetary Sciences

Department of Earth and Planetary Sciences, Macquarie University, Sydney, Australia

Monday, November 28 - Thursday, December 1, 2016
Lectures 9:15 am E3A244

The four-day short course will give an introduction to Raman and photoluminescence (PL) micro-spectroscopy. The course is targeted towards postgraduate students and Early Career Researchers who are interested in applying laser-spectroscopy techniques in their projects. Organisers aim at putting participants in the position to use Raman and PL spectroscopy in their own research.

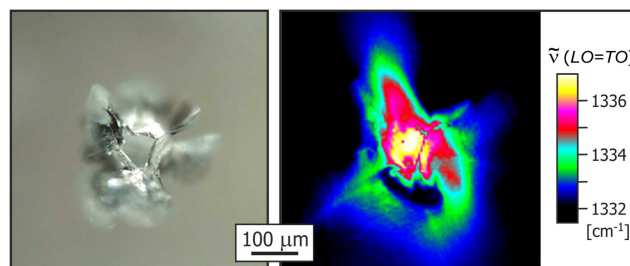
The course's theoretical component will consist of seminars that present the theoretical background of Raman and PL spectroscopy, an introduction to data reduction and interpretation, and some remarks on artefacts in the current literature. An overview of applications in various fields of the Earth Sciences will be given.

The course's practical part will be one afternoon session conducted in a small group (limited spaces, registration required). It will provide practical training in the use of a state-of-the-art spectrometer (Horiba LabRAM Evolution). Participants are encouraged to bring their own specimens (e.g. jewellery containing gems) for analysis. Also, participants may want to bring their own mineral Raman spectra that they were not able to identify. The course instructor will have two comprehensive, up-to-date, spectra libraries available for identification purposes.

Raman mapping applied to study patterns of internal stress around inclusions in diamond.

Left: Larnite inclusion in a diamond from Kankan, Guinea.

Right: Colour-coded Raman map based on the spectral position of the main diamond Raman band, visualising the extension and strength of a halo of compressive strain in the surrounding diamond.



About the instructor Prof. Lutz Nasdala (Vienna, Austria)

Lutz Nasdala is Full Professor for Mineralogy and Spectroscopy at the Institute of Mineralogy and Crystallography, University of Vienna, Austria. He obtained his PhD at the Institute of Theoretical Physics, Freiberg Mining Academy, Germany. After PostDoc projects at the University of Hawai'i, Curtin University of Technology, and University of Mainz, Germany he held the Marie Curie Excellence Chair for Mineral Spectroscopy 2006–2009 at University of Vienna. His research interests lie in the area of mineralogy and mineral physics and include, among others, defects and internal textures of minerals, phenomena of radiation damage, gem materials, and further development and implementation of non-destructive micro-spectroscopy techniques in geoscientific research.

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