



Contribution ID : 9

Type : **not specified**

The ID21 beamline at the European Synchrotron Radiation Facility: an ideal tool for sub-micrometric 2D speciation analyses

Wednesday, 4 May 2011 17:30 (0:20)

Abstract content

The ID21 at ESRF is a beamline dedicated to X-ray and FTIR micro-spectroscopy. Localization and speciation of trace elements is primarily done using micro-X-ray fluorescence (μ XRF) and micro X-ray absorption spectroscopy (μ -XANES) in the tender X-ray domain (2-9.2 keV). Typical scientific questions concern the co-localization and/or speciation of trace elements in heterogeneous matrices at the submicron scale, with applications in the fields of Environmental Sciences, Earth and Planetary Sciences, Life Sciences and Cultural Heritage. ID-21 has sensitivity in the low ppm range and allows localization with a sub-micron beam of various elements.

The SXM offers a very high versatility in terms of focusing optics, detection and sample environment. The X-ray beam spot size can be tuned from macro (200 μ m) to sub-micro (\sim 500 nm), which then allows localization of trace elements at subcellular level. A large panel of complementary detectors is available and provides: high sensitivity, high throughput, or high spectral resolution, which enables the collection of μ -XRF and μ -XANES spectra on a large variety of samples. The samples can be studied in various conditions (room temperature, cryo, wet cells). Additionally, ID21 has a SR-based FTIR end-station that can provide complementary molecular mapping, with a \sim 5 μ m lateral resolution.

Summary

Primary author(s) : Dr. HIRAM, Castillo-Michel (European Synchrotron Radiation facility)

Co-author(s) : Dr. COTTE, Marine (European Synchrotron Radiation Facility); Dr. SALOME, Murielle (European Synchrotron Radiation Facility); Dr. FAYARD, Barbara (European Synchrotron Radiation Facility); Dr. DI CHIARO, Franck (European Synchrotron Radiation Facility); Dr. GAGLIARDINI, Erick (European Synchrotron Radiation Facility); Dr. BERRUYER, Gilles (European Synchrotron Radiation Facility); Dr. JEAN, Susini (European Synchrotron Radiation Facility)

Presenter(s) : Dr. HIRAM, Castillo-Michel (European Synchrotron Radiation facility)