

# SYNCHROTRON LIGHT FOR SPECTRAL IMAGING

**F. Jamme<sup>1</sup>, M. Hanafi<sup>2</sup>, K. Medjoubi<sup>1</sup>, F. Guillon<sup>3</sup>, M.F Devaux<sup>3</sup>**

<sup>1</sup>*Synchrotron SOLEIL, L'Orme des Merisiers Saint-Aubin - BP 48 91192 GIF-sur-YVETTE, France*

<sup>2</sup>*ONIRIS, site de la Géraudière. Unité Mixte de recherche Sensométrie et Chimiométrie, 44322 Nantes, France*

<sup>3</sup>*UR1268 Biopolymères Interactions Assemblages, INRA, F-44300 Nantes, France.*

Synchrotron radiation is a source of light that offers a wide spectral “white” source ranging from infrared to hard X-rays. In the last decade, drastic improvements have been achieved in term of stability, brightness, low beam divergence and coherence. Therefore, numerous synchrotron beamlines are now dedicated to imaging. Imaging techniques using synchrotron radiation will be presented, both scanning imaging and full-field microscopies offers information and permit the mapping and free labeling of samples at high spatial resolution. At the SOLEIL synchrotron facility, particular attention is paid on coupling spectroscopies and imaging techniques. Indeed, it provides an efficient approach to study and characterize complex material. Coupling of multimodal, multi-resolution, and multivariate hyperspectral images by means of multiblock methods will be presented [1-2].

**Acknowledgement:** SOLEIL synchrotron beamlines, in particular DISCO, LUCIA, SMIS, HERMES, DIFFABS, SEXTANTS and NANOSCOPIUM.

## **References:**

[1] K. Medjoubi et al. Development of fast, simultaneous and multi-technique scanning hard X-ray microscopy at Synchrotron Soleil. *J. Synchrotron Rad.*, 20, 293-299 (2013).

[2] F. Allouche et al. Coupling hyperspectral image data having different spatial resolutions using Multiple Co-inertia Analysis. *Chemometrics and Intelligent Laboratory Systems*, 117, 200-212 (2012).