Fast scanning multi-technique spectro-microscopy possibilities at the Nanoscopium beamline of Synchrotron Soleil

A. SOMOGYI[1], K. MEDJOUBI[1], G. BARANTON[1], V. LE ROUX[1], A. BERGAMASCHI[1], M. SANCHO-TOMÁS[1,2] AND J.P. SAMAMA[1]

[1] Synchrotron Soleil, Gif-sur-Yvette, France (andrea.somogyi@synchrotron-soleil.fr)
[2] Institut de Physique du Globe de Paris, Paris, France

The Nanoscopium[1] 155 m long beamline of Synchrotron Soleil is dedicated to scanning hard X-ray nanoprobe techniques in the 5-20 keV energy range. For the first user experiments Nanoscopium offers hierarchical length-scale X-ray Fluorescence imaging providing information about the main sample composition and trace element content for elements having Z>13. Fast sample scanning[2] provides the possibility of large overview scans of up to mm^2 sample areas with micrometer spatial resolution in some minutes. Then high, ~200 nm, spatial resolution maps can be obtained of sample regions chosen from the overview maps.

As next step, multi-technique scanning imaging and tomography including X-ray fluorescence spectrometry and spectro-microscopy (X-ray absorption spectrometry), absorption, differential phase and dark field contrasts is being implemented at the beamline in order to provide simultaneous information about the elemental distribution, speciation and sample morphology. A dedicated freeware[3] developed for the treatment of such scanning multi-technique data-sets provides easy to use data exploitation for the user community.

This poster presents the Nanoscopium beamline through proof of principle multi-technique fast scanning X-ray imaging and tomography experiments.

[1] Somogyi A., Medjoubi K., Baranton G., Le Roux V., Ribbens M., Polack F., Philippot P. & Samama J.P. (2015), *Journal of Synchrotron Radiation* 22, 1118–29 [2] Medjoubi K., Leclercq N., Langlois F., Buteau A., Lé S., Poirier S., Mercère P., Sforna M.C., Kewish C.M., Somogyi A. (2013) *Journal of Synchrotron Radiation* 20, 293–299 [3] Bergamaschi A., Medjoubi K., Messaoudib C., Marco S., Somogyi A. (2016), *Journal of Synchrotron Radiation*, *in press*.