

Séminaire SOLEIL

Scanning X-ray Phase Contrast and Fluorescence Microscopy - Considerations and Applications -

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Invité par Stéphanie HUSTACHE et la section MMI

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Grand Amphi SOLEIL

Hard x-ray fluorescence microprobes excel at mapping and quantification of elements in biological specimens. However, there are difficulties of this technique with respect to sensitivity of soft tissue, absolute structural element quantification, as well as obtaining full three dimensional information. Scanning phase contrast microscopy posses a way to overcome these shortcomings. Phase is the dominant contrast mechanism at the x-ray energies necessary for fluorescence microscopy. In a scanning microprobe phase contrast images can be obtained at no cost to the fluorescence by measuring the transmission signal of the specimen. A segmented detector capable of phase contrast imaging has been developed and implemented in XRF beamlines at the Advanced Photon Source.

We will review the theory of phase imaging in scanning microscopy and the segmented detector that enables phase sensitivity with a small number of segments. The two existing methods for quantitative reconstruction of the refractive index from images obtained with a limited number of segments are discussed. Furthermore, we will report on progress towards nanotomography in x-ray fluorescence microprobes.

Formalités d'entrée : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi Soleil du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

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