

Séminaire SOLEIL

“ Multimodal imaging : STXM, SXDM, scanning SAXS and interferometric phase contrast imaging on tissue samples ”

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Invité par Jean-Pierre SAMAMA

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The complementarity and overlap of four X-ray imaging techniques is described and illustrated with tissue samples like brain, teeth and bone. The techniques are :

1. Scanning X-ray transmission microscopy (STXM) with a pixelated detector for obtaining both absorption and differential phase contrast.
2. Scanning X-ray diffraction microscopy (SXDM, CDI, Ptychography) for high resolution imaging.
3. Small-angle X-ray scattering (scanning SAXS) in scanning mode for recovering the density, degree of orientation and orientation of structures in the nanometer range spatially resolved over extended samples of several square millimeters or even centimeters.
4. Absorption, differential phase contrast and dark field imaging with a grating interferometer for X-ray computed tomography (CT) measurements.

The focus will be on scanning SAXS as a bridge between high resolution small field-of-view techniques like electron microscopy and SXDM and low resolution large field-of-view techniques like (micro) X-ray CT.

While the biomedical examples in this presentation touch on fields like cancer, osteoporosis and carious research, the combination of techniques discussed here is well suited for materials science applications as well.

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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