

Coherent X-ray Imaging: CDI, Ptychography and GPU-accelerated data analysis with PyNX

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Amphithéâtre SOLEIL

For the last 20 years synchrotron sources have produced brighter and more coherent X-ray beams. This has allowed the development of Coherent X-ray Imaging techniques which yield a resolution which is neither limited by the X-ray beam size, nor by the pixel size on the detector.

In this presentation, after introducing the different techniques, I will present the PyNX software currently developed at ESRF (<http://ftp.esrf.fr/pub/scisoft/PyNX/doc/>), which uses Graphical Processing Units (GPU) to provide 1 to 2 orders of magnitude acceleration in data analysis throughput. I will show:

- the tools already available with the choices in algorithms
- how the python library can be easily extended to new algorithms using an Operator-based approach (without any knowledge in GPU programming)

Examples will include Coherent Diffraction Imaging (in the small-angle and Bragg regimes), Ptychography (near field and far field, small angle and Bragg).



Ce séminaire sera suivi d'une pause café

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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