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Coherent diffractive imaging (CDI) techniques have gained significant momentum in recent years, and most synchrotrons have dedicated beamlines for CDI techniques, with full-field CDI and ptychography (near-field and far-field) among the most commonly applied. Tomographic ptychography combines a large field of view with the capability to image structures in 3D down to about 10 nm in resolution.

Simulations of CDI experiments can assist in interpretation of data by regularization of 3D reconstruction to help distinguish signal from noise, or to design experiments that minimize X-ray dose. Several factors are however hampering simulations in a ray-tracing framework, and so far only simplified test-cases have been reported.

In this talk, we detail novel enhanced CDI features of the ray-tracing software McXtrace [1], and discuss their ability to produce ptychographical datasets.

1. Bergbäck Knudsen, E. *et al.*, *J. Appl. Crystallogr.* **46,** 679–696 (2013).

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