Thema: Hauptthema

Posterpräsentation

Soft x-ray ptychography of biological samples

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Imaging with soft X-rays is especially suited for biological samples due to their high contrast in the water window and the possibility to obtain elemental contrast in unstained specimens [1,2]. For high-resolution imaging with traditional digital in-line holography, small pinholes are required, resulting in low flux and hence reduced image quality. To achieve high resolution with a relatively big pinhole, we used a method of iterative phase retrieval called ptychography [3-5]. By laterally shifting the sample, adjacent parts of the object are illuminated which creates a redundancy in the data and resolves ambiguities in the reconstruction. Combining the experimental advantages of a simple, lensless scattering geometry with only aperture, specimen and detector and the fast convergence of the ptychographic iterative engine, we produced high resolution images of biological samples in the water window.

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