



4D tomography of complex dynamic processes

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Abstract

The experimental efforts to characterize at the micron-scale and in 3D the rapid changes in the structure of materials meet numerous difficulties. I will present the latest development and remaining challenges in fast tomographic microscopy. Beside the technical advances I will also explain what is the role of phase retrieval based on Fresnel diffraction in achieving a better image quality. Time resolved studies in three dimensions come with a large amount of data. This requires clever quantification tools to extract the relevant science from the images. The last part of the lecture will therefore aim to provide an introduction to currently available quantitative analysis approaches.