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HoloPipe: Streamlining Phase Retrieval and Tomographic Reconstruction for X-ray Near-Field Holography Experiments at P05

X-ray near-field holography (NFH) is an advanced imaging technique that reveals the nanoscale internal structures of materials, making it particularly useful for studying a plethora of materials. Moreover, the specimens can be imaged using a single exposure, in a scalable field of view. However, the analysis of NFH data is complex, requiring sophisticated phase retrieval and tomographic reconstruction processes. At the P05 beamline at PETRA III (DESY, Hamburg, Germany), these challenges are heightened by the large volumes of data generated during experiments. To tackle this, we have developed a specialized toolkit to improve the efficiency and scalability of NFH data analysis. This toolkit streamlines critical processes like phase retrieval and tomographic reconstruction. Supported by the SmartPhase project and funded by Helmholtz Imaging, our work aims to significantly enhance experimental workflows, enabling more precise and efficient analysis of NFH data.

I want to give a Lightning Talk

no

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