

Abstract Submitted
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Lensless x-ray imaging in reflection geometry DANIEL PARKS, University of Oregon, SUJOY ROY, Lawrence Berkeley National Lab, KEOKI SEU, RUN SU, University of Oregon, JOSHUA TURNER, SLAC National Accelerator Laboratory, WEILUN CHAO, ERIK ANDERSON, Center for X-ray Optics Lawrence Berkeley National Laboratory, STEFANO CABRINI, Molecular Foundry Lawrence Berkeley National Laboratory, STEPHEN KEVAN, University of Oregon — We report on the development of a technique for lensless x-ray imaging in reflection geometry. In an approach similar to Fourier transform holography, we use a set of apertures to define object and reference waves from light which has already scattered from the sample. Back propagation from the apertures gives the image at the sample plane. This technique can be used with extended objects without additional masking, and can be used in reflection and transmission geometries. The extension of lensless x-ray imaging into reflection geometry opens the possibility of imaging surfaces in thin films, buried interfaces in multilayers, or Bragg planes in single crystals.

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