

Abstract Submitted
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Using Bragg Coherent Diffraction Imaging to See Strain in a Tensile Loaded Copper Film¹ TIMOTHY S. O'LEARY, SARYU J. FENSIN, REEJU POKHAREL, Los Alamos National Laboratory, MATTHEW J. CHERUKARA, JORG MASER, ROSS J. HARDER, Argonne National Laboratory, RICHARD L. SANDBERG, sandberg@lanl.gov, LABORATORY FOR ULTRAFAST MATERIALS AND OPTICAL SCIENCE TEAM, ADVANCED PHOTON SOURCE TEAM — Coherent Diffraction Imaging (CDI) is a novel imaging technique using coherent light sources and iterative phase retrieval (IPR) algorithms instead of lenses to form high resolution images. Bragg coherent diffraction imaging (BCDI) is a variation of CDI that measures coherent diffraction near a Bragg peak of a crystalline sample. Since the Bragg peak contains information about lattice strain, the IPR retrieves nanometer scale images of crystalline strain. We present three dimensional BCDI reconstructions of the strain in a single grain in polycrystalline copper thin films under tensile loading measured at sector 34 of the Advanced Photon Source.

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