

Abstract Submitted  
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**Investigations into uniaxial deformation of textured polycrystalline targets using X-ray diffraction** DAVID MCGONEGLE, University of Oxford, UK, DESPINA MILATHIANAKI, SLAC National Accelerator Laboratory, BRUCE REMINGTON, Lawrence Livermore National Laboratory, JUSTIN WARK, University of Oxford, UK, ANDREW HIGGINBOTHAM, University of York, UK — Most dynamic compression experiments make use of targets with some degree of texture, however, little attention has been paid to how this affects *in situ* diffraction patterns. This preferred grain orientation results in variation in intensity around the Debye-Scherrer ring, and is often ignored by integrating data azimuthally. However, we demonstrate that this variation provides important information about reorientation of the crystal lattice, which is unobtainable with traditional powder diffraction. In particular we describe how to obtain the orientational relationship between two phases within a phase transition, as well as how to distinguish between competing plasticity mechanisms, such as slip and twinning. The geometries we propose are ideal for study by 4th generation sources such as LCLS.

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