

Abstract Submitted
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Simulated diffraction of laser compressed textured polycrystals from Crystal Plasticity FEM. PHILIP AVRAAM, JOHN FOSTER, EMMA FLOYD, ANDY COMLEY, STEVE ROTHMAN, SIMON CASE, JAMES TURNER, AWE plc — Dynamically compressed polycrystalline material can exhibit grain-level strain heterogeneity, and grain-rotation leading to texture evolution. These features are, in principle, measurable using in-situ X-ray diffraction techniques, and contain valuable information about the lattice-level mechanisms involved in dynamic plasticity. The interpretation of these patterns can be difficult except in cases of highly idealised texture. Simulated diffraction from crystal plasticity finite element (CP-FEM) modeling is utilised here to interpret complex features seen in experimental diffraction patterns on laser compressed polycrystalline metals of general texture.

Philip Avraam
AWE plc

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