Abstract Submitted
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Off-Hugoniot shock compression of Zirconium probed at the microstructural and nanosecond scales with in situ x-ray diffraction.[1] PATRICIA KALITA, JUSTIN BROWN, PAUL SPECHT, SETH ROOT, Sandia National Laboratories , MELANIE WHITE, ANDREW CORNELIUS, HiPSEC, University of Nevada Las Vegas, JESSE SMITH, HPCAT, Argonne National Laboratory — Zirconium, a group-IV transition metal, has fascinated the extreme pressure community since 1952, when Bridgman first inferred a phase transition while measuring resistance under pressure [1]. We present results of off-Hugoniot shock compression of Zirconium probed at the microstructural and nanosecond scales with in situ x-ray diffraction. We also demonstrate how x-ray diffraction combined with static compression in the same pressure and temperature space can help to create an integrated picture of behavior of Zirconium under extreme conditions. [1] P. W. Bridgman, Proc. Am. Acad. Arts Sci. 81, 165 (1952).

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