

Abstract Submitted
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Pressure-Induced Structure Transitions in Europium Metal to 92 GPa¹ W. BI, J. SCHILLING, Department of Physics, Washington University in Saint Louis, Y. MENG, HPCAT, Carnegie Institution of Washington, Argonne National Laboratory, R. KUMAR, A. CORNELIUS, Y. ZHANG, C. CHEN, HiPSEC and Department of Physics, University of Nevada, Las Vegas, R. HENNIG, Department of Materials Science and Engineering, Cornell University — Motivated by the recent discovery of pressure-induced superconductivity in Eu for pressures above 80 GPa [1], we have carried out high pressure angle-dispersive synchrotron x-ray diffraction measurements on Eu metal in a diamond anvil cell to 92 GPa. Our experiments confirm the bcc-to-hcp transition at 12 GPa reported in previous studies and identify two further phase transitions. The predictions of two independent density functional theory calculations are compared to the experimental results.

[1] M. Debessai, T. Matsuoka, J. J. Hamlin, J. S. Schilling, and K. Shimizu, Phys. Rev. Lett. **102**, 197002 (2009).

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