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Equilibrium phase boundary between hcp-cobalt and fcc-cobalt HYUNCHAE CYNN, MAGNUS J. LIPP, WILLIAM J. EVANS, BRUCE J. BAER, Lawrence Livermore Natl Lab — In 2000 (Yoo et al., PRL), fcc-cobalt was reported as a new high pressure phase transforming from ambient hcp-cobalt starting at around 105 GPa and 300 K. Both cobalts coexist up to 150 GPa and thereafter only fcc-cobalt was found to be the only stable phase to 200 GPa. Our recent synchrotron x-ray diffraction data on cobalt are at odds with the previous interpretation. We will present our new finding and elaborate on our understanding in terms of the equilibrium phase boundary of cobalt. We will also compare our previous work on xenon (Cynn et al., 2001, PRL) with our new results on cobalt. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344. Portions of this work were performed at HPCAT (Sector 16), APS, Argonne National Laboratory. HPCAT operations are supported by DOE-NNSA under Award No. DENA0001974 and DOE-BES under Award No. DE-FG02-99ER45775. The Advanced Photon Source is a U.S. Department of Energy (DOE) Office of Science User Facility operated for the DOE Office of Science by Argonne National Laboratory under Contract No. DE-AC02-06CH11357.

Hyunchae Cynn
Lawrence Livermore Natl Lab

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