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Magnetism in High Pressure Cobalt from X-ray Spectroscopy VALENTIN IOTA, Lawrence Livermore National Laboratory, JAE-HYUN PARK, CHOONG-SHIK YOO, Lawrence Livermore National Laboratory, JONATHAN LANG, DANIEL HASKEL, GEORGE SRAJER, XOR, Advanced Photon Source — We investigate the electronic and magnetic properties of high pressure cobalt using X-ray emission spectroscopy (XES) and magnetic circular dichroism (MCD) measurements in a diamond anvil cell. We ascribe the changes in the line-shape of the K β emission as signature of an electronic (spin) transition, similar to those reported in iron and manganese compounds. We further interpret the observed pressure-induced decrease in the MCD signal as evidence of a gradual loss of magnetic order in high-density cobalt. Experiments were conducted at the Advanced Photon Source in Argonne, IL. The work at LLNL was performed under the auspices of the U.S. Department of Energy by University of California, under Contract W-7405-Eng-48.

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