9.7 cm

INTERFACE MAGNETISM IN 3d/5d MULTILAYERS PROBED BY X-RAY MAGNETIC CIRCULAR DICHROISM.

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Interface magnetism is a fascinating subject from both experimental and theoretical points of view since it governs mostly the new magnetic properties observed in multilayers. The 3d/5d multilayers represent one of the attractive systems for magneto-optic recording. In fact, it possesses interesting magneto-optic properties and relatively large remanent Kerr rotation for perpendicularly magnetized films at room temperature. The magnetic properties are rather well understood in the case of thick ferromagnetic layers, while the results for thinner layers are scarce and puzzling. A further advance requires detailed knowledge of the magnetic behavior of both 3d and 5d elements at the interface. The X-ray Magnetic Circular Dichroism is the technique that provides accurate quantitative information on spin and orbital magnetic moments of the absorbing atom in both amplitude and direction. XMCD results obtained at the L2,3-edges of 5d transition metals show unambiguously that 5d electrons are magnetically polarized at the interfaces and carry sizeable magnetic moment. We have shown that the sign of the induced magnetic moments depends not only on intra-atomic interactions but also on the inter-atomic coupling. Moreover, in some cases we were able to measure a detailed magnetic profile of 3d/5d multilayers. The whole picture emerged from these findings supported by theoretical calculations will be presented.

13.4 cm

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