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Time Resolved X-ray Magnetic Circular Dichroism at the Linac Coherent Light Source[1] W. SCHLOTTER, D. HIGLEY, E. JAL, G. DAKOVSKI, E. YUAN, J. MACARTHUR, A. LUTMAN, K. HIRSCH, P. GRANITZKA , Z. CHEN, G. COSLOVICH, M. HOFFMAN, A. MITRA, A. REID, P. HART, H.-D. NUHN, H. DUERR, SLAC - Natl Accelerator Lab, E. ARENHOLZ, P. SHAFER, P. DENNES, J. JOSEPH, Lawrence Berkeley Natl Lab, L. GUYADER, Helmholtz-Zentrum Berlin, Germany, A. TSUKAMOTO , Nihon University, Chiba, Japan — We demonstrate ultrafast time resolved X-ray Magnetic Circular Dichroism on optically switchable GdFeCo thin film samples. This method extends the element specificity of time resolved x-ray absorption spectroscopy to characterize the evolution of electron spin and orbital angular momenta. These measurements were enabled by a recent upgrade at the Linac Coherent Light Source (LCLS) to generate circularly polarized x-rays. Additionally these measurements were enhanced by new detection systems that benefit all x-ray absorption spectroscopy experiments performed in transmission. Consequently static XMCD data are in excellent agreement with similar measurements at synchrotron light sources. The LCLS is an x-ray free electron laser user facility accessible via a peer-reviewed proposal process.

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