

Abstract Submitted
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Ultrafast Magnetization Dynamics Probed at Elemental M-edges of Ni and Fe Using Tabletop High-Order Harmonic EUV Light CHAN LA-O-VORAKIAT, STEFAN MATHIAS, Department of Physics and JILA, University of Colorado at Boulder, PATRIK GRZYCHTOL, ROMAN ADAM, Institute of Solid State Research, IFF-9, Research Center Jülich, MARK SIEMENS, Department of Physics and JILA, University of Colorado at Boulder, JUSTIN SHAW, HANS NEMBACH, Electromagnetics Division, National Institute of Standards and Technology, CLAUS SCHNEIDER, Institute of Solid State Research, IFF-9, Research Center Jülich, MARTIN AESCHLIMANN, University of Kaiserslautern and Research Center OPTIMAS, THOMAS SILVA, Electromagnetics Division, National Institute of Standards and Technology, MARGARET MURNANE, HENRY KAPTEYN, Department of Physics and JILA, University of Colorado at Boulder — We show for the first time that EUV light generated from the high-harmonic generation process can be used to observe element-selective femtosecond-to-attosecond magnetization dynamics of magnetic materials. Using the transverse magneto-optic Kerr effect, we measured an asymmetry of reflectivity in a Permalloy film of up to 6% around the M absorption edges of Fe (54eV) and Ni (67eV). Furthermore, we observed an ultrafast demagnetization of the permalloy film within 250 fs after heating up by a femtosecond pulse.

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