

Abstract Submitted
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Nonlinear optical probe of interface ferromagnetism of EuS-Bi₂Se₃ heterostructures CHANGMIN LEE, Department of Physics, MIT, FERHAT KATMIS, Francis Bitter Magnet Lab and Department of Physics, MIT, PABLO JARILLO-HERRERO, Department of Physics, MIT, JAGADEESH S. MOODERA, Francis Bitter Magnet Lab and Department of Physics, MIT, NUH GEDIK, Department of Physics, MIT — EuS-Bi₂Se₃ heterostructure is a novel magnetic topological insulator system with canted ferromagnetism induced at the interface between EuS and Bi₂Se₃. Here we use magnetic second harmonic generation (MSHG) to probe interface ferromagnetism of EuS-Bi₂Se₃ heterostructures. MSHG is a powerful nonlinear optical technique that selectively probes magnetism at the surfaces and interfaces of a centrosymmetric material. In order to study how the thickness of the magnetic EuS layer affects interface ferromagnetism, we have grown EuS-Bi₂Se₃ heterostructures with varying EuS thicknesses. We have also grown heterostructures in which the EuS thickness increases linearly across a single sample. We discuss how the magnetic layer thickness affects the strength and canting angle of interface magnetism.

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