Abstract Submitted
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Magnetoresistance and Hall Effect in cubic FeGe[1] C. CAPAN, J.F. DITUSA, Louisiana State University, H. LEE, L. PHAM, Z. FISK, UC Davis, G. AEPPLI, University College London, A. BANSKTON, E. THOMAS, J. CHAN, Louisiana State University — An anomalous contribution to Hall Effect is observed in a variety of ferromagnetic systems ranging from simple metals and oxides to manganites, ruthenates and spinel compounds. Its nature (intrinsic or extrinsic) and microscopic mechanism is still an open issue and is being heavily investigated. It was originally attributed to skew or side jump scattering, which corresponds to an asymmetric scattering of conduction electrons by magnetic moments. More recent developments in the field seem to favor a scenario where an electron orbiting around the Fermi Surface at a finite field acquires a Berry phase when the direction of its moment is locked in presence of a strong spin-orbit interaction. FeGe is an itinerant helimagnet with a high Curie temperature of 280K. The lack of inversion symmetry of the crystal structure leads to helimagnetic order via Dzyaloshinskii-Moriya interaction, signature of a strong spin-orbit coupling in an otherwise cubic lattice. We will present new results of magnetoresistance, Hall Effect and magnetization in a single crystal of cubic FeGe and discuss the origin of the Anomalous Hall effect in this system.

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Cigdem Capan
Louisiana State University

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