

Abstract Submitted
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Fano q reversal in topological insulator Bi_2Se_3 S.V. DORDEVIC, G.M. FOSTER, M.S. WOLF, The University of Akron, N. STOJILOVIC, University of Wisconsin Oshkosh, H. LEI, C. PETROVIC, Brookhaven National Lab, Z. CHEN, Z.Q. LI, National High Magnetic Field Lab, L.C. TUNG, University of North Dakota — We studied magneto-optical response of a canonical topological insulator Bi_2Se_3 with the goal of addressing a controversial issue of electron-phonon coupling. Magnetic-field induced modifications of reflectance are very pronounced in the infrared part of the spectrum, indicating strong electron-phonon coupling. This coupling causes an asymmetric line-shape of the 60 cm^{-1} phonon mode, and is analyzed within the Fano formalism. The analysis reveals that the Fano asymmetry parameter (q) changes sign when the cyclotron resonance is degenerate with the phonon mode. To the best of our knowledge this is the first example of magnetic field driven q -reversal.

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