Quantum capacitance and spin susceptibility of HgTe quantum wells

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Abstract

Our theoretical study of quantum capacitance [1] and spin response [2] for electrons in HgTe quantum wells reveals unconventional properties that distinguish this paradigmatic topological-insulator material from all other currently known 2D electronic systems. It also provides alternative means for experimental identification of the topological regime and extends current knowledge about the fundamentals of many-particle collective behaviour in solids.

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