

Abstract Submitted
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Quantized steps and topological nature of universal conductance fluctuation in $\text{Bi}_2\text{Te}_2\text{Se}$ FENGQI SONG, Nanjing Univ — Here we report the experimental observation of universal conductance fluctuations (UCF) in $\text{Bi}_2\text{Te}_2\text{Se}$. Four aspects were addressed to support the UCF's topological nature of the electronic state. i) The irregular fluctuations are repeatable in different temperature and reversal magnetic fields. ii) All the UCF features coincide after the field is normalized to the perpendicular direction. This points to a two-dimensional electronic state. iii) A parallel field is applied to suppress the bulk coherent paths, while the UCF features stays similar. This excludes a quasi-2D bulk state. iv). The intrinsic UCF magnitude is extracted, which is close to the predicted values of a topological surface state. v). Quantized steps of the UCF magnitudes are observed when the magnetic field is modulated. (*Sci.Rep.* 2012, 2,595; *Appl. Phys. Expre.* 2014,7,065202; arxiv 2015)

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