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Interferometric and Noise Signatures of Majorana Fermion Edge States in Transport Experiments WOLFGANG BELZIG, University of Konstanz, GREGORY STRUEBI, University of Basel, MAHN-SOO CHOI, Korea University, CHRISTOPH BRUDER, University of Basel — Domain walls between superconducting and magnetic regions placed on top of a topological insulator support transport channels for Majorana fermions. We propose to study noise correlations in a Hanbury Brown-Twiss type interferometer and find three signatures of the Majorana nature of the channels. First, the average charge current in the outgoing leads vanishes. Furthermore, we predict an anomalously large shot noise in the output ports for a vanishing average current signal. Adding a quantum point contact to the setup, we find a surprising absence of partition noise which can be traced back to the Majorana nature of the carriers.

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