

Abstract Submitted
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Quantum Noise as an Entanglement Entropy Meter. ISRAEL KLICH, University of Virginia, LEONID LEVITOV, MIT — Entanglement entropy, which is a measure of quantum correlations between separate parts of many-body system, is defined solely in terms of the many-body density matrix, with no relation to any particular observables. Because of that, it has not been clear how to access this quantity experimentally. Here we unveil a universal relation between entanglement entropy of fermions and statistics of current flowing through a quantum point contact. This relation provides a way to experimentally measure entanglement entropy, and test seminal results of conformal field theory such as the prediction of Holzhey, Larsen and Wilczek for entanglement entropy of fermions.

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