

Abstract Submitted
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Majorana Correlation as a Signature of a Topological Phase Transition¹ AMIT NAG, JAY D. SAU, Condensed matter theory center, University of Maryland- College Park — Spin orbit coupled semiconductor nanowires in proximity to ordinary S wave superconductor exhibit a topological phase which supports Majorana fermions at the two ends of the nanowire. A signature of Majorana fermions would be a zero bias conductance peak. Indeed such a peak has been observed in recent experiments but at the same time alternate non topological mechanisms have been suggested to explain appearance of the zero bias peak. Here we demonstrate that the zero bias conductance peak from Majorana fermions must appear in a correlated way between the two ends. We analyze how this peculiarity can be used as a signature of the topological phase transition linked to the appearance of Majorana modes and thus can be used to experimentally distinguish between competing theoretical mechanisms.

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