

Inducing topological order in dirty wires: Majorana fermions from scattering

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We focus on inducing topological state from regular, or irregular scattering in (i) p-wave superconducting and (ii) proximity coupled Rashba wires [1]. We find that while disorder is detrimental to topological state in p-wave wires, we find that it can induce topological state in Rashba wires contrary to common expectations. We find that the total phase space area of the topological state is conserved for long disordered wires, and can be even increased in an appropriately engineered superlattice potential.

[1] I. Adagideli, M. Wimmer, A. Teker arXiv:1302.2612 (2013).

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