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Superconductor disorder and strong proximity coupling effects in Majorana nanowires[1] WILLIAM COLE, JAY SAU, CMTC and JQI, University of Maryland, College Park — Topological superconductivity induced by proximity to a conventional superconductor is only robust against moderate disorder in the parent superconductor, and only when the energy scale of the interface coupling is much smaller than the parent gap. I present detailed calculations of proximity-induced superconductivity in one-dimensional, spin-orbit coupled, semiconductor nanowires when the parent superconductor disorder and interface coupling exceed this limit. This parameter regime is characterized by unique spectroscopic signatures on both sides of the external field tuned topological phase transition.

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