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**Topological  $\pi$  Josephson effect and Majorana states in Rashba wires** TEEMU OJANEN, Aalto University — Rashba-based topological superconductor nanowires, where the spin-orbit coupling may change its sign, support three topological phases protected by chiral symmetry. When a superconducting phase gradient is applied over the interface of the two nontrivial phases, the Andreev spectrum is qualitatively phase shifted by  $\pi$  compared to usual Majorana weak links. The topological  $\pi$ -junction has the striking property of exhibiting maximum supercurrent in the vicinity of vanishing phase difference. The studied system could be realized by local gating of the wire or by an appropriate stacking of permanent magnets in synthetic Rashba systems.

Teemu Ojanen  
Aalto University

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