

Abstract Submitted
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Mapping the topological phase diagram of multiband semiconductors with supercurrents¹ ELSA PRADA, Univ Autonoma de Madrid, PABLO SAN-JOSE, RAMON AGUADO, CSIC — We show that Josephson junctions made of multiband semiconductors with strong spin-orbit coupling carry a critical supercurrent I_c that contains information about the non-trivial topology of the system. In particular, we find that the emergence and annihilation of Majorana bound states in the junction is reflected in strong even-odd effects in I_c under specific conditions. This effect allows for a mapping between I_c and the topological phase diagram of the junction, thus providing a dc measurement of its topology.

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