

Abstract Submitted
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Conditions for Non-Abelian Braiding in Time-Reversal Invariant Topological Superconductors PIN GAO, VIC KAM TUEN LAW, Hong Kong Univ of Sci & Tech, XIONG-JUN LIU, International Center for Quantum Materials, School of Physics, Peking University, Beijing 100871, China — We study the validity of the non-Abelian braiding in 1D time-reversal invariant (DIII class) topological superconductors which host Majorana Kramer's pairs in the ends. It has been shown that braiding two Majorana Kramer's pairs can generically be reduced to two independent braiding processes of two different time-reversed copies, while the local noise or perturbations may lead to decoherence in the braiding operations. Here we examine in detail the braiding of Majorana Kramer's pairs in the presence of disordered local couplings and noises, and show the generic conditions under which the decoherence effects are negligible and the non-Abelian braiding can be validated.

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