Physical Sciences Seminar

Minimal Kitaev chains: toward coherent experiments with Majorana states

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Topological superconductors, that host Majorana states at the ends, have attracted a significant attention in the last decade. These states are promising for quantum information storage and processing. Artificial Kitaev chains, formed by arrays of quantum dots coupled through narrow superconducting regions, have emerged as a promising platform for realizing Majorana states [1]. In this presentation, I will discuss the recent progress on engineering Majorana states in systems of quantum dots [2], going from transport experiments to the assessment of Majorana quality [3] and introduce a route toward quantum coherent experiments going from qubits [4] to braiding experiments [5]. [1] T. Dvir et al., Nature 614, 445-459 (2023).[2] R. Seoane Souto and R. Aguado, arxiv:2404.06592 (2024).[3] R. Seoane Souto, et al., Phys. Rev. Research 5, 043182 (2023).[4] M. Pino, et al., Phys. Rev. B 109, 075101 (2024).[5] A. Tsintzis et al., Phys. Rev. X Quantum 5 (1), 010323 (2024).

Tuesday, October 29, 2024 11:00am - 12:00pm
Office Bldg West / Ground floor / Heinzel Seminar Room (I21.EG.101)

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