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# Poor man's Majorana modes in interacting hybrid superconductor-semiconductor devices

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Recent experiments in hybrid semiconductor-superconductor devices demonstrated the possibility of realizing the so called "Poor man's Majorana modes" (PMMs). These are zero-energy modes that fulfill most of the properties of standard Majorana modes in topological superconductors, despite not being topologically protected. PMMs are indeed realized in fine-tuned devices composed by quantum dots and superconducting elements, which mimic minimal Kitaev chains with two sites only. The exquisite control granted by these hybrid systems, however, allow for tuning the cotunneling and Andreev processes between quantum dots, thus enabling a remarkable control over the emerging PMMs. In this talk, I will introduce the platforms used to realize PMMs and present the design of devices with floating superconducting islands which combine PMMs with electrostatic interactions. These devices enable the integration of PMMs with transmons and other superconducting systems, they can be integrated with state-of-the-art sensors for charge and fermionic parity, and allow for the design of two-state systems for the exploration of exotic Kondo problems, including the topological Kondo effect which is considered a hallmark for the non-locality of Majorana modes.

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