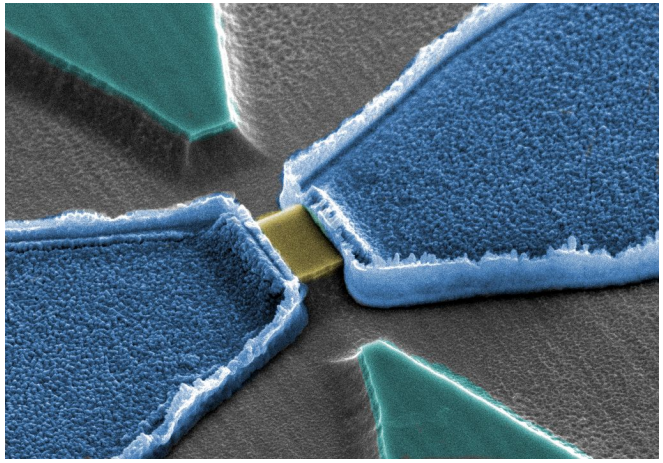
Hybrid systems for topological quantum computation

The study of novel topological states of matter revolves around the possibility to implement fault-tolerant quantum computing. A suitable platform to achieve this goal relies on a new class of excitations, called parafermions. We employ complementary tools such as quantum transport and scanning probe microscopy to detect, characterize, and subsequently exploit the rich physics of parafermions, at the interface between fractional quantum Hall (FQH) edge states and s-wave superconductors (SCs).



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