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The Search For Exotic Quantum Statistics

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In 1982 Bert Halperin explained that the quasiparticles of fractional quantum Hall states are neither bosons nor fermions but have a more exotic variety of quantum statistics. Although the theory community accepted the possibility of exotic quasiparticles immediately, obtaining direct experimental evidence has remained a challenge. After a brief (but necessarily incomplete) review of different experimental efforts to observe exotic statistics in low dimensions, I will discuss a novel approach that might be pursued in future cold atom experiments.