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Haldane Statistics in the Finite Size Entanglement Spectra of Laughlin States MARIA HERMANNNS, ANUSHYA CHANDRAN, Princeton University, NICOLAS REGNAULT, ENS Paris, BOGDAN ANDREI BERNEVIG, Princeton University — We conjecture that the counting of the levels in the orbital entanglement spectra (OES) of finite-sized Laughlin Fractional Quantum Hall (FQH) droplets at filling $1/m$ is described by the Haldane statistics of particles in a box of finite size. This principle explains the observed deviations of the OES counting from the edge-mode conformal field theory counting and directly provides us with a topological number of the FQH states inaccessible in the thermodynamic limit- the boson compactification radius. It also suggests that the entanglement gap in the Coulomb spectrum in the conformal limit protects a universal quantity- the statistics of the state.

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