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Topological Entanglement Entropy of Fractional Quantum Hall States CLARE ABREU, California State University, Los Angeles, RAUL HERRERA, University of California, San Diego, EDWARD REZAYI, California State University, Los Angeles — Quantum information theoretic concepts have been widely used to study topological phases of condensed matter.In particular, quantum entanglement has proven to be a useful tool to probe the topological order of fractional quantum Hall states. We present studies of topological entanglement entropy for some model fractional Hall states in spherical and toroidal geometries. We implement bipartitioning of the system with both orbital and real space cuts for small size systems. We extend these studies to generic Hamiltonians and discuss the prospect of obtaining the topological entanglement entropy from finite size calculations in these systems.

Clare Abreu
California State University, Los Angeles

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