Abstract Submitted
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Searching for anyons in a realistic model of fractional quantum Hall liquids ZI-XIANG HU[1], Dept. Phys, ZheJiang Univ, PR China, XIN WAN, Dept. Phys. ZheJiang Univ. PR China, PETER SCHMITTECKERT, Institute of Condensed Matter Theory, University of — We study quasihole/particle excitations in a microscopic model of fractional quantum Hall liquids with long-range Coulomb interaction and an edge confining potential. We find with a local trapping potential quasihole/particle states can emerge from the Laughlin and the Moore-Read states. The presence of Abelian and non-Abelian quasiholes has a distinct effect on the corresponding edge spectra. The stability of quasiholes/particles depends on the detail of the confining potential and the trapping potential. We discuss the relevance of the calculation to the high-accuracy generation and control of individual anyons in potential experiments, in particular, in the context of topological quantum computing.

[1]Dept. Phys, Florida State Univ. NHMFL

Zi-xiang Hu
Dept. Phys, ZheJiang Univ, PR China

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