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Edge excitations of bosonic fractional quantum Hall phases in optical lattices JONAS KJALL, JOEL MOORE, University of California, Berkeley
— With the rapid development in ultracold gases, the realization of a fractional quantum Hall state on a lattice draws nearer. We investigate the impact of finite size effects in these kind of systems including different trapping potentials. A good understanding of finite size effects is essential for designing experiments and the edge excitations will likely be the best way to experimentally determine the topological order of the bulk. We find different fractional quantum Hall phases for bosons in a circular harmonic trap as the flux of the synthetic gauge field is varied, including phases like $\nu = 1/2$ and $\nu = 2/3$ with different edge spectra.

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