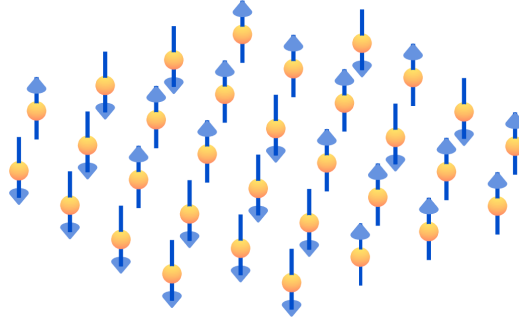


Fractional quantum Hall models in lattices

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Systems displaying the fractional quantum Hall effect can host different types of anyons. The effect was first observed in semiconductor materials in strong magnetic fields and low temperature, but there is currently much interest in investigating possibilities for realizing the effect under new conditions. One focus area is to realize the effect in ultracold atoms in optical lattices, which will give new possibilities for detailed studies of the effect. I will give an introduction to two different approaches to obtain lattice fractional quantum Hall models. The first is to construct lattice Hamiltonians that mimic the fractional quantum Hall Hamiltonian. The second is to construct lattice states similar to the trial fractional quantum Hall states and then derive Hamiltonians for which these states are exact ground states. I also briefly discuss ideas for implementing these models in ultracold atoms.