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Disordered Interactions and Fractional Quantum Hall States WADE DEGOTTARDI, MOHAMMAD HAFEZI, Joint Quantum Institute, University of Maryland — The possibility that topological ordered states may be realized in photonic systems has recently attracted a great deal of attention. Given the rich phenomenology of the fractional quantum Hall effect, the bosonic Laughlin states have been of particular focus in this context. These states are known to arise in strongly nonlinear photonic lattices with artificial gauge fields, where nonlinearities associated with the resonators mimic on-site interactions. These effective interaction strengths are not universal and are subject to spatial disorder. We present a detailed study of the stability of these states and what implications they have for experiments.

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