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Critical exponent in a projected lattice model for integer quantum Hall plateau transitions QIONG ZHU, XIN WAN, Zhejiang University, R.N. BHATT, Princeton University — Motivated by the recent numerical studies on the Chalker-Coddington network model with a larger-than-expected localization length critical exponent, we revisited the exponent calculation in the disordered Hofstadter model. We project the Hamiltonian into the lowest subband, which is the lattice analog of the lowest Landau level, and calculate the Chern number for individual eigenstates to analyze their localization properties. We compare the finite-size scaling of the total number of the conducting states, the width of the distribution of the conducting states, and the Hall conductance. We confirm that earlier calculations on the lattice model have also underestimated the localization length critical exponent and discuss the manifestation of the leading irrelevant scaling field.

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