

Abstract Submitted
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Quantum geometry and stability of the fractional quantum Hall effect in the Hofstadter model DAVID BAUER, THOMAS JACKSON, RAHUL ROY, University of California, Los Angeles — We study the correlation between the band geometry of the Hofstadter model in the limit of small flux and the stability of fractional quantum Hall states in this system. We develop a perturbative calculation of the quantum metric that agrees well with numerical calculations. In contrast to most models studied so far where the fluctuations of the Berry curvature seem to dictate the stability of any fractionalized topological phases, we find that in the Hofstadter model, the trace of the quantum metric seems to be the predominant factor.

Thomas Jackson
University of California, Los Angeles

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