

Abstract Submitted  
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**Scaling of entanglement entropy in the 2D Heisenberg ground state** ANN KALLIN, University of Waterloo, HYEJIN JU, University of California, Santa Barbara, PAUL FENDLEY, University of Virginia, Microsoft Station Q, MATTHEW HASTINGS, Duke University, Microsoft Station Q, ROGER MELKO, University of Waterloo — We use a Loop-Ratio Valence Bond quantum Monte Carlo algorithm to study the scaling of the bipartite Renyi entanglement entropy in the 2D Heisenberg ground state. We uncover the surprising result that finite-size scaling supports a logarithmic correction to the entropic area law even with the absence of corners in the entangled region. In addition, examining the scaling within a single system, we observe an aspect-ratio dependent scaling term resembling the “conformal distance” term that appears in one-dimensional systems with conformal symmetry.

Ann Kallin  
University of Waterloo

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