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Entanglement Entropy Scaling in the Disordered Golden Chain LUKASZ FIDKOWSKI, GIL REFAEL, Caltech, NICK BONESTEEL, KUN YANG, FSU, JOEL MOORE, Berkeley — For pure critical spin chains, the scaling of the entanglement entropy of a region of size L with its complement is proportional to log L with the constant of proportionality being the central charge of the associated conformal field theory. Certain strongly disordered spin chains exhibit critical points with similar log L scaling. Here we study the disordered golden chain (modeled by fibonacci anyons), and show that the usual random singlet critical point achieved with random antiferromagnetic (AFM) couplings is unstable to ferromagnetic (FM) perturbations. We identify the new mixed FM-AFM fixed point and compute its entanglement entropy scaling.

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