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Logarithmic entanglement growth in two-dimensional disordered fermionic systems JESKO SIRKER, Univ of Manitoba, YANG ZHAO, Northwestern Polytechnical University — We investigate the growth of the entanglement entropy $S_{\rm ent}$ following global quenches in two-dimensional free fermion models with potential and bond disorder. For the potential disorder case, we show that an intermediate weak localization regime exists in which $S_{\rm ent}(t)$ grows logarithmically in time t before Anderson localization sets in. For the case of binary bond disorder near the percolation transition, we find additive logarithmic corrections to area and volume laws as well as a scaling at long times, which is consistent with an infinite randomness fixed point.

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