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Topological non-Fermi liquids and continuous transitions to Fermi liquids in fractional Chern states JOHN MCGREEVY, MIT, MAISSAM BARKESHLI, Stanford University — We develop a slave-particle formulation of the Halperin-Lee-Read (HLR) non-Fermi liquid state and extend it to situations without an external magnetic field. We use this formulation to develop a theory of a continuous transition to a Fermi liquid, producing an example in which we can understand how a Fermi surface is continuously destroyed to obtain a fractionalized Fermi liquid. We discuss senses in which the HLR state should be viewed as a topological non-Fermi liquid, and finally we discuss experimental possibilities for inducing such transitions by tuning the bandwidth of a topologically non-trivial bandstructure.

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