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Entanglement across different cuts along the Wilson chain for the pseudogap Anderson model CHRISTOPHER WAGNER, TATHAGATA CHOWDHURY, KEVIN INGERSENT, University of Florida, JEDEDIAH PIXLEY, University of Maryland — Entanglement entropy measures the quantum entanglement of a pure state across the boundary created by partitioning a system into two subsystems. The entanglement entropy between an Anderson impurity and a pseudogapped conduction band displays nonuniversal behavior near the Kondo-destruction quantum critical point (QCP), but in the ordered phase contains a critical component proportional to the square of the order parameter [1]. Here we report calculations of the entanglement entropy for other partitions of the system. Specifically, within the numerical renormalization group formulation of the problem, we consider partitions where one subsystem is composed of the impurity plus the first few sites in the Wilson-chain representation of the conduction band, sites that represent the electronic states spatially localized closest to the impurity. By calculating the reduced density matrix for the subsystem containing the impurity, we study the behavior of the entanglement entropy across the parameter space of the model, with particular focus on the vicinity of the Kondo-destruction QCP. [1] J. H. Pixley, T. Chowdhury, M. T. Miecnikowski, J. Stephens, C. Wagner, and K. Ingersent, Phys. Rev. B 91, 245122 (2015)

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