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Superconducting Pairing Correlations near a Kondo-destruction Quantum Critical Point in Cluster Impurity Models ANG CAI, Rice University, JEDEDIAH PIXLEY, University of Maryland, QIMIAO SI, Rice University — Heavy fermion metals represent a canonical system to study superconductivity driven by quantum criticality. We are particularly motivated by the properties of $CeRhIn_5$, which shows the characteristic features of a Kondo destruction quantum critical point (QCP) in its normal state, and has one of the highest T_c's among the heavy fermion superconductors. As a first step to study this problem within a cluster-EDMFT approach [1], we analyze a four-site Anderson impurity model with the antiferromagnetic spin component of the cluster coupled to a sub-Ohmic bosonic bath. We find a QCP that belongs to the same universality class as the single-site Bose-Fermi Anderson model. Together with previous work on a two-site model [2], our result suggests that the Kondo destruction QCP is robust as cluster size increases. More importantly, we are able to calculate the d-wave pairing susceptibility, which we find to be enhanced near the QCP. Using this model as the effective cluster model of the periodic Anderson model, we are also able to study the superconducting pairing near the Kondo-destruction QCP of the lattice model; preliminary results will be presented. [1] J. H. Pixley, A. Cai, Q. Si, Phys. Rev. B 91, 125127 [2] J. H. Pixley, L. Deng, K. Ingersent, Q. Si, Phys. Rev. B 91, 201109

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