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Heavy fermion fluid in high magnetic fields: an infrared study of $CeRu_4Sb_{12}$ SASA DORDEVIC, Department of Physics, University of California, San Diego, La Jolla, CA 92093, KEVIN BEACH, Department of Physics, Boston University, Boston, MA 02215, NAOYA TAKEDA, Institute for Solid State Physics, University of Tokyo, 5-1-5 Kashiwa, Chiba 277-8581, Japan, YONG-JIE WANG, National High Magnetic Field Laboratory, Tallahassee, FL 32310, M. BRIAN MAPLE, DIMITRI BASOV, Department of Physics, University of California, San Diego, La Jolla, CA 92093 — We will report the first comprehensive infrared spectroscopy study of a heavy fermion state in high magnetic field. Detailed analysis of optical constants will be presented for $CeRu_4Sb_{12}$ in fields up to 17 T. We find that the applied magnetic field strongly affects the low energy excitations by destroying coherence in the system. In particular, the quasiparticle effective mass m^* is suppressed by as much as 25 %. This effect is in quantitative agreement with the mean-field solution of the periodic Anderson model augmented with a Zeeman term.

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