Fermi surface of Ce$_2$RhIn$_8$ studied by angle-resolved photoemission spectroscopy

RUI JIANG, R.S. DHAKA, CHANG LIU, Ames Laboratory and Department of Physics and Astronomy, Iowa State University, Ames, Iowa, 50011, USA, C. PETROVIC, Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, Upton, NY, 11973, USA, ADAM KAMINSKI, Ames Laboratory and Department of Physics and Astronomy, Iowa State University, Ames, Iowa, 50011, USA — The superconductivity in heavy fermion compounds is one of most interesting, outstanding problems in condensed matter physics. In this family of materials, Ce$_2$RhIn$_8$ and related compounds is unique because its electronic properties are believed to be quasi 2D. Here, we use angle-resolved photoemission spectroscopy to measure its electronic properties. The lack of significant $k_z$ dispersion confirms the quasi two dimensionality of the electronic structure. Fermi surface is quite complicated and consists of several hole and electron sheets. There are several extended segments of the Fermi surface which are likely nested. This provides clues to understanding of their unusual transport and thermodynamical properties.

The Ames Laboratory is operated for the US Department of Energy, Basic Energy Sciences, by Iowa State University under contract no. DE-AC02-07CH11358.