

## Fermi Surface Properties in the Hidden Order State and in the Antiferromagnetic State on URu<sub>2</sub>Si<sub>2</sub>

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We present our recent advances on the heavy fermion compound URu<sub>2</sub>Si<sub>2</sub>, using a ultra-pure single crystal. Focus is given on the Fermi surface properties both in the hidden order state and in the antiferromagnetic state by the Shubnikov-de Haas experiments. The Fermi surfaces in the hidden order state are well identified by the band structure calculation based on the 5f-itinerant model with the simple tetragonal Brillouin zone. However, there is a still undetected orbit, which amounts approximately a half of the total Sommerfeld coefficient. Unusual split of branch  $\alpha$  is detected for the field along the basal plane, which disappears when the antiferromagnetic state is realized, although all the other branches remains the almost same value in frequency. New experimental results of uniaxial stress by neutron scattering is also presented.

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