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Electronic correlations in LaRu2P2 superconductor studied by Angle Resolved Photoemission Spectroscopy

Friday, 16 September 2011 12:59 (2 minutes)

The details of the electronic structure are important for understanding how superconductivity emerges in iron-based superconductors. The presence of long parts of Fermi surface (FS) connected by a fixed wave vector Q, the so-called FS nesting, has been proposed to be the driving force for the formation of the Spin Density Wave (SDW), and it may also produce the pairing interaction for superconductivity in pnictides. To examine this idea we made a comprehensive study of the electronic structure of LaRu2P2. This compound has the same crystal structure as the mostly studied 122-type pnictides, but its superconducting transition temperature is 4 K that is much lower than the optimally doped 122 pnictides (e.g. Ba1-xKxFe2As2). In this contribution we shall first report the electronic structure of LaRu2P2 measured in ARPES experiments, as well as the detailed comparison to the band structure calculation. Then we shall outline the similarity and quantitative difference in the electronic states of LaRu2P2 and Ba1-xKxFe2As2, and discuss the relevance of correlation effects and of Fermi surface nesting.

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