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Quantum oscillations in heavy fermion CeRhIn5[1] HUIQIU YUAN, TUSON PARK, ERIC BAUER, JOE THOMPSON, JOHN SINGLETON, Los Alamos National Laboratory — Construction of Fermi surface is the key to understand the physical properties of variant materials. In correlated electron systems, the heavy carrier mass strongly attenuates the amplitude of quantum oscillations, and, therefore, the Fermi surface sheets from the heavy electrons are usually not observable at low fields. High magnet fields are an indispensable tool to uncover these important features of electronic structure. Furthermore, strong magnetic field above the Neel critical field may lead to the reconstruction or a volume change of Fermi surface in f-electron antiferromagnets (N. Harrison et al, PRL 99, 056401, 2007). Using the unique facilities in the national high magnetic field lab at LANL, in this presentation we will study the quantum oscillations in the heavy fermion compound $CeRhIn_5$ with a field up to 65T.

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