

# Preparation of Heavy Fermion Superconductor CeRu<sub>2</sub>

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## **Abstract:**

The heavy Fermion system presented different electronic ground states at low temperature due to the competition of Kondo effect and RKKY (Ruderman-Kittel-Kasuya-Yosida) interaction, such as superconductors, paramagnets, HF band magnets and local moment magnets. Among these different electronic ground states, many researchers believe that the study of heavy fermion superconductors can help to understand the mechanism of unconventional superconductors. Most heavy fermion superconductors are Ce-based or U-based. In this paper, we are trying to prepare single crystal samples of CeRu<sub>2</sub> and provide more experimental basis for the magnetic and superconductivity of this material.

We used traditional arc-melting methods to prepare CeRu<sub>2</sub> polycrystalline samples, and explored the best preparation conditions for CeRu<sub>2</sub> single crystal samples which were grown in four arc draw-up single crystal furnace using Czochralski method. The purity of these samples was verified by powder X-ray diffraction and DC magnetic susceptibility.