



第 68 回トポロジカル物質科学セミナー  
Topological Materials Science Seminar (68)

**Strain-tuning of the unconventional superconductor  $\text{Sr}_2\text{RuO}_4$**

**Dr. Clifford Hicks**

*Max Planck Institute for Chemical Physics for Solids*

**Place: Room 525, Graduate School of Science Bldg. 5,  
North Campus, Kyoto Univ.**

(京都大学 北部キャンパス 理学研究科 5 号館 525 号室)

**Date: July 30 (Monday), 2018**

**Time: 10:30-12:00**

**Abstract:**

In this talk I will discuss the response of the unconventional superconductor  $\text{Sr}_2\text{RuO}_4$  to uniaxial stress. By using piezoelectric actuators to apply the stress in situ, we have been able to apply uniaxial stresses of up to nearly 2 GPa with the sample deformation remaining elastic, corresponding to a strain of over 1%. Such large strains almost certainly drive one of the Fermi surfaces through a Lifshitz transition, and associated Van Hove singularity in the density of states. Corresponding to this transition, there are prominent anomalies in resistivity,  $T_c$ ,  $H_{c2}$ , and magnetic susceptibility. The strong enhancement in  $H_{c2}$  suggests an even-parity superconducting order parameter at the Van Hove singularity, however there remains compelling experimental evidence that the order parameter is odd-parity at low strains.