

Condensed Matter Seminar (Online)

Superconductivity in magnetic field

-- Review and Recent issues --

Speaker: Ryusuke Ikeda

Date: 13:30~, Wednesday, 19 May 2021

This seminar begins with giving a historical review on researches on the superconductivity in magnetic field, and, in its last half, recent topics on this research field will be discussed. The talk will be organized as follows:

- 1) Introduction: Vortices in a type II superconductor and Mean field phase diagram (Abrikosov theory)
- 2) Thermal fluctuation in 2D superconducting film -- KT transition, Vortex lattice melting
- 3) 3D Vortex states created by thermal fluctuation: True 3D phase diagram uncovered through the thorough researches on the copper-oxide superconductors
- 4) Quantum superconducting fluctuation in vortex states
- 5) Superconductor - Insulator quantum phase transition in 2D superconducting film
- 6) Paramagnetic pair-breaking effect (FFLO, higher LL vortex states) in fluctuating superconductor -- Relevance to FeSe
- 7) Controversy on Quantum metal in thin film
- 8) Superconductivity in hydrides