

凝縮系物理学ゼミナール

Condensed Matter Seminar

Location: Room 413, School of Science Bldg. 5 (理学 5 号館 413 号室)

Date: 13:30-14:15, Wednesday, 9 November 2011

“Angular dependence of magnetic field of antiferromagnetic order in heavy fermion superconductor CeCoIn5”

Speaker: **Mr. Kenichi Hosoya** (Condensed Matter Theory Group)

Abstract:

CeCoIn5 is a heavy fermion superconductor which exhibits a second order transition at high magnetic fields inside the superconducting state, when the field is applied either parallel to or perpendicular to the c axis. The phase separated from the ordinary Abrikosov vortex lattice state is considered to be a spatially modulated Fulde-Ferrell-Larkin-Ovchinnikov (FFLO) phase.

On the other hand, it is reported antiferromagnetic (AFM) order exists only inside the FFLO phase when the field is applied perpendicular to the c axis. Recent neutron scattering experiments on CeCoIn5 have shown that as the field is rotated out of the basal plane, the AFM order eventually disappeared above 17° [1].

Motivated by this experiment, we examine the angular dependence of the field. In this talk, we discuss the behavior of AFM order in the field of arbitrary angle.

Reference:

[1] E. Blackburn, et. al, Phys. Rev. Lett. 105, 187001 (2010).