

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: 14:15-15:00, Wednesday, 17 October 2012

"Phase diagram of superfluid ^3He in aerogel with strong anisotropy"

Speaker: Mr. Ryosuke Oishi (Condensed Matter Theory Group)

Abstract: Superfluid ^3He in aerogel has been studied, and it is well known aerogel suppresses superfluidity of ^3He as a consequence of impurity scattering effects. Recently, some experiments of superfluid ^3He in aerogel with global anisotropy has been performed, and an experiment[1] shows there exists a 2nd order phase transition from BW phase to pure polar phase at low pressure, while a 1st order phase transition from BW phase to ABM phase at high pressure is seen.

We discuss the possibility of the observed 2nd order phase transition by means of GL free energy functional in the case of uniaxially anisotropic aerogel[2][3].

References:

[1] R. Sh. Askhadullin *et al.*, JETP Lett. **95**, 326(2012).

[2] Kazushi Aoyama and Ryusuke Ikeda, Phys. Rev. B **73**, 060504(R) (2006).

[3] Kazushi Aoyama and Ryusuke Ikeda, arXiv:0707.0954v2(2007).