

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: 13:30-15:00, Wednesday, 18 July 2012

Experimental study of three-dimensional topological insulators

Speaker: **Prof. Kouji Segawa**

(Institute of Scientific and Industrial Research, Osaka University)

Abstract:

The three-dimensional topological insulators (TI) are known to realize a new state of quantum matter, where the insulating bulk states and the metallic surface states coexist. In this talk, the following topics will be addressed: A) physical properties of TlBiSe_2 and its related systems, where an unexpected mass acquisition is observed in the topological phase transition [1], and B) ionic-liquid gating effect on the transport properties of highly bulk-insulating TI [2].

[1] T. Sato, KS, K. Kosaka, S. Souma, K. Nakayama, K. Eto, T. Minami, Y. Ando and T. Takahashi, *Nature Physics* 7, 840 (2011).

[2] KS, Z. Ren, S. Sasaki, T. Tsuda, S. Kuwabata, and Y. Ando, arXiv:1203.2047.