北京大学量子材料科学中心

International Center for Quantum Materials, PKU

ICQM Weekly Seminar

Theories of Spin-Orbit Coupled Systems

-From Topological Band Insulators to Magnonics Engineerings-

Ryuichi Shindou (進藤 龍一)

Assistant Professor in Physics Department at Tokyo Institute of Technology

Time: 4:00pm, Jun. 27, 2012 (Wednesday)

时间：2012年6月27日 （周三）下午4:00

Venue: Room 607, Conference Room A , Science Building 5

地点：理科五号楼607会议室

Abstract

Topological phases in condensed matters have been attracting much attention because of their fascinating physical properties. Among others, discoveries of topological band insulators open up emerging research paradigm on spin-orbit interaction physics. In this talk, I will give two topics on the strongly coupled spin-orbit systems. One is the topological band insulator with the relativistic spin-orbit interaction, while the other is about a (what we call) topological magnonic crystal with the magnetic dipole-dipole interaction. Both of these systems have novel boundary (either edge or surface) modes, whose existence originate from topological characters of Bloch wavefunctions in their bulks.

Articles:

R. Shindou and S. Murakami, Phys. Rev. B {\bf 79}, 045321 (2009).

R. Shindou, R. Nakai, and S. Murakami, New J. Phys. {\bf 12} 065008 (2010)

R. Shindou, R. Matsumoto and S. Murakami, submitted, arXiv:1204.3349

About the Speaker

Ryuichi Shindou (進藤 龍一) is Assistant Professor in Physics Department at Tokyo Institute of Technology. He received his B.S. (1999) and Ph.D. (2004) from University of Tokyo. He obtained JSPS postdoctoral fellowship (2004-2007) and RIKEN special postdoctoral fellowship (2008-2011). He was also a postdoc associate in the condensed matter theory group at University of California at Santa Barbara (2005-2007), at Osaka University (2007-2008), and at RIKEN (2008-2010). From October in 2010, He moved to condensed matter theory group in Tokyo Institute of Technology.