



Seminar

Comparisons between the Anderson transition and Dirac/Weyl semi-metal to metal transitions

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University of Tokyo

Time: 4:00pm, April 15, 2016 (Friday)

时间: 2016年4月15日 (周五) 下午4:00

Venue: Room W563, Physics Building, Peking University

地点: 北京大学物理楼 西563

Abstract

More than 50 years have passed since the Anderson transition, a metal-insulator transition due to randomness, was predicted by P. W. Anderson. The single parameter finite size scaling theory was developed to quantify this transition, and now the critical properties are quantitatively clarified. The idea of the classifying systems according to the presence/absence of time reversal and spin rotation symmetries has been tested. The critical exponents are estimated both numerically and experimentally, and the agreement is satisfactory.

In this seminar, we first review the recent progress of the study of Anderson localization and transitions, and then compare this transition with the semimetal to metal transition of Dirac/Weyl semimetals, which is analyzed by the single parameter scaling of the density of states.

References:

K. Slevin, T. Ohtsuki: *New J. Phys.* 16, 015012 (2014)

K. Kobayashi, T. Ohtsuki, K.-I. Imura, I. Herbut: *Phys. Rev. Lett.* 112, 016402 (2014)

S. Liu, T. Ohtsuki, R. Shindou: *Phys. Rev. Lett.* 116, 066401 (2016)

About the Speaker

Tomi Ohtsuki, Doctor of Science (University of Tokyo, 1989), is Professor of physics at Sophia University, Tokyo, where he conducts theoretical and computational researches in condensed matter physics. His recent research focuses on quantum transport phenomena such as the Anderson transition, conductance fluctuations, Hall and spin Hall effects in nanoscale systems. He has taught physics for more than 15 years in several universities and graduate schools. His research has been published by *Physical Review Letters*, *Physical Review B*, *Physics Reports*, and others.