



Seminar

Zeros of Green functions in topological insulators

Dr. Takahiro Misawa

University of Tokyo

Time: 1:30pm, Dec. 8, 2020 (Tuesday)

时间: 2020年12月8日 (周二) 下午1:30

Venue: Room W563, Physics building, Peking University

地点: 北京大学物理楼, 西563会议室

摘要

In this talk, we show that zeros of diagonal components of the Green functions are useful quantities for detecting topological insulators. First, we demonstrate that crosses of the zeros of Green functions universally appear in the band gap for all six classes of the conventional topological insulators. We prove that the crosses of zeros in the bulk systems are guaranteed by the existence of the gapless edge/surface states. The relevance of the crosses of the zeros for detecting the exotic topological insulators such as the higher-order topological insulators is also discussed.

个人简介

Dr. Takahiro Misawa is a theoretical physicist working in the field of strongly correlated electron systems. He has studied high-temperature superconductivities in iron-based superconductors and cuprates superconductors, quantum transport phenomena in topological materials, exotic quantum phases in frustrated magnets. He has also developed open-source software packages for strongly correlated electron systems. He is an associate researcher (principal investigator) of Beijing Academy of Quantum Information Sciences (BAQIS, 北京量子信息科学研究院) since October 2020.

He earned a Ph.D. in Engineering from Department of Applied Physics, University of Tokyo in 2008. He worked as a postdoctoral fellow (2008-2009) and later as a research associate (2009-2016) in Professor Masatoshi Imada's Group at Department of Applied Physics, University of Tokyo. He worked as a principal investigator at Institute for Solid State Physics, University of Tokyo (2016-2020), and Waseda Research Institute for Science and Engineering (2020).