



Physical Sciences Seminar

Topological insulators and superconductors

Yoichi Ando (University of Cologne)

Host: Johannes Fink

Topological insulators and superconductors are new quantum states of matter that are characterized by nontrivial topological structures of the Hilbert space. Recently, they attract a lot of attention because of the appearance of exotic quasiparticles such as spin-momentum-locked Dirac fermions or Majorana fermions on their edge/surface, which hold promise for various novel applications. In particular, localized zero-energy Majorana mode is expected to obey non-Abelian statistics and enable topological quantum computing. In this talk, I will introduce the basics of those materials and present some of the key contributions we have made in this new frontier, such as the synthesis of bulk-insulating topological insulators, discovery of topological crystalline insulator, and the discovery of nematic topological superconductor.

Biography: Dr. Yoichi Ando was born in Tokyo, Japan, in 1964. He obtained B.Sc. (1987), M.Sc. (1989), and Ph.D. (1994) degrees from the University of Tokyo. He was a postdoc at Bell Laboratories in the US (1994-1996), and then led a research group at Central Research Institute of Electric Power Industry in Tokyo (1996-2007), where he eventually became a department head. He was appointed to a full professor in 2007 at Osaka University, and in 2015 he moved to the University of Cologne as a W3 professor of experimental physics. According to the Web of Science, his h-index is currently 64. For his seminal contributions to the fields of high-temperature superconductivity and topological materials, he received Japan Society for the Promotion of Science (JSPS) Prize in 2006, Superconductivity Science and Technology Award in 2003 (for high-T_c cuprates) and in 2013 (for topological superconductors), Inoue Prize for Science in 2014, and Osaka Science Prize in 2014. He is one of the Highly Cited Researchers in Physics in 2014 and 2017, and he obtained the prestigious ERC Advanced Grant in 2017.

Thursday, February 22, 2018 03:00pm - 04:00pm

IST Austria Campus Big Seminar room Ground floor / Office Bldg West (I21.EG.101)



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