北京大学 Peking University

量子材料科学中心
International Center for Quantum Materials

Seminar

Majorana zero modes in semiconductor quatum wires

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- **Time: 16:00, Dec. 21, 2012 (Friday)**
  时间： 2012.12.21周五，下午4:00
- **Venue: Conference Room A (607), No. 5 Science Building**
  地点：理科5号楼607

Abstract

Although known theoretically for decades, Majorana fermions have never been observed as fundamental particles. But there is now growing excitement among condensed matter theorists and experimentalists that Majorana fermions could be realized and observed as quasiparticles in the solid state. This excitement is fueled by the remarkable properties of Majorana fermions: They are not only their own antiparticle, but zero-energy Majorana fermions also obey an exotic (and yet unobserved) form of quantum statistics called non-Abelian statistics which differs fundamentally from conventional bosonic or fermionic statistics. These properties make Majorana fermions the simplest platform for realizing topological quantum information processing which could go a long way towards alleviating the problem of decoherence in conventional quantum computation. In this talk, I will discuss hybrid structures of semiconductor quantum wires proximity coupled to conventional superconductors as a route towards realizing and manipulating Majorana zero modes.

About the speaker

PhD 1993: University of Washington, Seattle
Postdocs 1993-1998: Max-Planck-Institute for Nuclear Physics, Heidelberg, and Weizmann Institute of Science, Israel
University Lecturer 1998-2000: University of Cologne
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