Majorana Fermions in Semiconductor Nanowires
By
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Host: Asst. Prof. Xiong Qihua

Abstract

The search for Majorana fermions is one of the most prominent fundamental research tasks in physics today. Majorana fermions are an elusive class of fermions that act as their own antiparticles. Although an extensive effort has been made worldwide in particle physics, Majorana fermions have so far not been convincingly discovered in free space. In this talk, I report on the realization and observation of Majorana fermions in topological superconducting nanowire quantum systems constructed using high crystalline-quality semiconductor InSb nanowires and superconductor Nb contacts.

Short Biography

Hongqi Xu is currently a Professor at Lund University and a Professor at Peking University. He received the PhD degree in condensed matter physics from Lund University, Lund, Sweden, in 1991. From 1991 to 1993, he was a Postdoctoral Fellow at Linköping University. Then, he rejoined Lund University, where he was a Research Associate in 1993-1995 and became Assistant Professor in 1995, Associate Professor in 2001, and Full Professor in 2003. He was also appointed Chair Professor at Peking University in 2010.

His current research interests include electronic structures and photonic properties of semiconductors nanostructures, electron transport in low-dimensional systems, mesoscopic physics and devices, nanoelectronics, optoelectronic and solar-cell devices, quantum transport phenomena in nanostructures, and many-body strong correlated quantum systems. He has authored or co-authored more than 150 refereed papers in scientific journals and has made about 300 contributions in scientific conferences and workshops.

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