DEPARTMENT OF PHYSICS AND ASTRONOMY
JOINT CONDENSED MATTER – PURDUE QUANTUM CENTER SEMINAR

Friday, October 5th 2018
3:30 PM, Room 203 Physics
Refreshments 3:00 PM Room 242 Physics

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Topological superconductivity and Majorana bound state in Fe-based superconductors

In this talk I will report our recent discoveries of topological superconductivity and Majorana bound state in Fe-based superconductor Fe(Te, Se). We have obtained convincing ARPES evidence of superconducting topological surface state of Fe(Te, Se) single crystal with Tc ~ 14.5K. By using low-temperature STM on this material, we observe a pristine Majorana bound state inside a vortex core, well separated from non-topological bound states away from the zero energy due to the high ratio between the superconducting gap and the Fermi energy in this material. This observation offers a new, robust platform for realizing and manipulating Majorana bound states at a relatively high temperature.