Computational Materials Science Seminar

Thursday, March 21, 2024
11 a.m. (Msk)

Online

Fermi Arcs Conductivity of Weyl and Dirac Semimetals

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Professional Preparation

- 1994. PhD, P. N. Lebedev Physics Institute, Moscow, Russia.
- 1995-1999. Postdoctoral research, Max-Planck Institute, Stuttgart, Germany.
- 1999-2001. Postdoctoral research, Rutgers University, Piscataway, New Jersey.

Appointments

- 2001-2005. Assistant professor, Department of Physics, New Jersey Institute of Technology, Newark, New Jersey.
- 2005-2008. Associate professor, Department of Physics, University of California, Davis, CA.
- Since 2008. Professor, Department of Physics, University of California, Davis, CA.

Seminar abstract

A new class of topological quantum materials has recently attracted a lot of interest; they behave as an insulator or semimetal in the bulk but whose surface contains conducting states meaning that the electrons can primarily move along the surface of the material. In this talk I will address the conductivity of Weyl and Dirac semimetals carried out by their Fermi arcs surface states whose robustness to the disorder is well established. The scattering mean free path due to impurities or phonons will be discussed in the framework of Boltzmann theory using realistic electronic structures derived from density functional and tight-binding calculations. Recent transport studies of NbAs and Cd3As will be discussed to highlight the opportunities in designing better conductors with nanostructured topological semimetals.

Seminar

Broadcast (BBB)

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