

Fizički odsjek Prirodoslovno matematičkog fakulteta Sveučilišta u Zagrebu
Bijenička c. 32, HR-10000 Zagreb

Seminar Fizičkog odsjeka

Vrijeme (s.t.)

Mjesto

srijeda 15. 07. 2015., 14:15 h

predavaonica F201, II.kat

Designing quantum matter with superconducting nanowires

Prof. Nina Marković

Johns Hopkins University, Baltimore, USA

Superconducting nanowires are an experimental realization of a model quantum system that features collective degrees of freedom and exhibits a host of non-equilibrium and non-local phenomena. The nature of superconductivity in nanowires is uniquely sensitive to size and shape quantization, coupling with the environment and proximity effects. In this talk, I will describe how we can utilize these features in order to tailor the superconducting properties of nanowires in desirable ways. Specifically, we have developed novel methods for fabrication of ultranarrow nanowires with precisely controlled normal resistance and consistent superconducting properties. In magnetic field, the superconductivity in nanowires is affected by vortices, topological excitations that look like small whirlpools of supercurrent. I will show how the texture of the superconducting wavefunction can be precisely controlled by the size, shape, magnetic field and tunable interfaces with different materials.

Voditelji seminara FO

Damir Pajić i Ivica Smolić