

SEMINARIUM Z MAGNETYZMU I NADPRZEWODNICTWA

Uprzejmie zawiadamiamy, że w **środę**

31 stycznia 2024 r., o godz.10:00

odbędzie się seminarium w **sali 203, budynek I**

na którym

dr hab. Maciej Zgirski

(Instytut Fizyki PAN, Warszawa)

wyłosi referat na temat:

“Quantum thermodynamics with a single superconducting vortex”

We introduce the Single Vortex Box (SVB) - a nanodevice that allows to treat a single superconducting vortex as a macroscopic, albeit quantized "particle", which can be created and annihilated with pulses of electrical current. Our pioneering demonstration is a pivotal step towards the development of the vortex electronics i.e. memory cells, superconducting diodes, and logical elements. Using the method of fast time-resolving switching thermometry [1], we measure the temperature rise and the subsequent thermal relaxation of the SVB resulting from the expulsion of just a single magnetic field vortex. Our experiment thus provides a calorimetric estimation of the dissipation in a superconductor due to a single moving vortex. This is a feat of the fundamental importance that has never been accomplished before, which belongs to the emerging field of the experimental quantum thermodynamics.

I. M. Zgirski, M. Foltyn, A. Savin, A. Naumov, K. Norowski, Heat Hunting in a Freezer: Direct Measurement of Quasiparticle Diffusion in Superconducting Nanowire, Phys. Rev. Applied14, 044024(2020)

**Wykład będzie prowadzony w języku angielskim w sali 203,
dostępna będzie również transmisja ZOOM - link podany jest na stronie IF PAN.**

Serdecznie zapraszamy

**Roman Puźniak
Andrzej Szewczyk
Henryk Szymczak**