



СОФИЙСКИ УНИВЕРСИТЕТ
ФИЗИЧЕСКИ ФАКУЛТЕТ

ФАКУЛТЕТЕН СЕМИНАР

четвъртък, 29.11.2018 г., 16:30 ч., зала А415

Dr. Ilhom Rahmonov

BLTP-JINR—Dubna

Peculiarities of the dynamics of Josephson nanostructures and their resonance features

The application of Josephson nanostructures, such as stack of coupled Josephson junctions and Josephson junction with ferromagnetic and topologically nontrivial barriers in the superconducting electronics, spintronics and high precision nanodevices is one of the advanced directions of modern nanotechnology. The development of new nanodevices using Josephson nanostructures requires careful theoretical studies of the physical processes in these structures.

We present the results of our recent numerical investigations on the Josephson nanostructures. The IV--curve for the stack of coupled Josephson junctions is calculated. We present the results concerning to manifestation of resonance features of stack of coupled Josephson junctions. The appearance of Majorana states, which leads to the 4π periodic superconducting current is shown. The realization of magnetization reversal in SFS structure by the pulse of current and magnetic field are demonstrated. The ferromagnetic resonance in SFS structure is observed.



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