

ΣΕΜΙΝΑΡΙΟ ΚΕΝΤΡΟΥ ΚΒΑΝΤΙΚΗΣ ΠΟΛΥΠΛΟΚΟΤΗΤΑΣ &
ΝΑΝΟΤΕΧΝΟΛΟΓΙΑΣ/ CCQCN SEMINAR

Wednesday, 26 August 2015

11:00-12:30

3rd Floor Seminar Room

***Flux-Dependent Crossover between Quantum and Classical Behavior in a dc
SQUID***

Prof. A. V. Ustinov

Karlsruhe Institute of Technology

Abstract

In a coupled system of one classical and one quantum mechanical degree of freedom, the quantum degree of freedom can facilitate the escape of the whole system. Such unusual escape characteristics have been theoretically predicted as the “Münchhausen effect.” We implement such a system by shunting one of the two junctions of a dc SQUID with an additional capacitance. In our experiments, we detect a crossover between quantum and classical escape processes related to the direction of escape. We find that, under varying external magnetic flux, macroscopic quantum tunneling periodically alternates with thermally activated escape, a hallmark of the “Münchhausen effect”.

