

Joint Seminar – CQSE, CTP, & CASTS

2019
Nov. 22, Friday

TIME Nov. 22, 2019, 2:30~3:30pm
TITLE Quantum decoherence mechanisms in a ballistic quantum interferometer
SPEAKER Prof. Jeng-Chung Chen
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PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

To understand the mechanism of quantum decoherence lies on the central theme in the studies of quantum electronics. It is general believed that dephasing rate Γ_ϕ is strongly correlated to the noise spectrum $S(f)$ surrounding the devices, but due to the elusive nature of $S(f)$ it is difficult to investigate the role of $S(f)$ on Γ_ϕ . In this talk, I will present and review our efforts on exploring various factors induced dephasing process over years. The device consists of a ballistic Aharonov-Bohm (AB) ring made on GaAs/AlGaAs heterostructure, operated at low temperature down to 10 mK. Our works have strong implications in the development of semiconductor quantum electronics, e.g. quantum bits used for quantum information process.

