

Joint Seminar: CQSE, CTP, & CASTS

「Nov. 22, 2019 (Friday)」

- Time : 2:30 ~ 3:30pm
- Place : Rm716, New Physics Building
- Speaker: **Prof. Jeng-Chung Chen 陳正中教授**
Department of Physics,
National Tsing Hua University
國立清華大學物理學系
- Title : **Quantum decoherence mechanisms in a ballistic quantum interferometer**

**Sponsored by Center for Quantum Science and Engineering (CQSE) 量子科學與工程研究中心, Center for Theoretical Physics at National Taiwan University (NTU-CTP) 臺大理論物理研究中心, and Center for Advanced Study in Theoretical Sciences (CASTS) 理論科學高等研究中心, National Taiwan University

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TITLE Quantum decoherence mechanisms in a ballistic quantum interferometer
SPEAKER Prof. Jeng-Chung Chen
Department of Physics, National Tsing-Hua University
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.

