

Joint Seminar: CQSE, CTP, & CASTS

「Nov. 1, 2019 (Friday)」

- Time : 2:30 ~ 3:30pm
- Place : Rm716, New Physics Building
- Speaker: **Prof. Ching-Yi Lai** 賴青沂教授
Institute of communications engineering,
National Chiao Tung University
國立交通大學電信工程研究所
- Title : **Interactive Leakage Chain Rule for
Quantum Min-entropy and its applications**

**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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SPEAKER Prof. Ching-Yi Lai
Institute of communications engineering,
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PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

The leakage chain rule for quantum min-entropy quantifies the change of min-entropy when one party gets additional leakage about the information source. Herein we provide an interactive version that quantifies the change of min-entropy between two parties, who share an initial classical-quantum state and are allowed to run a two-party protocol. As an application, we prove new versions of lower bounds on the complexity of quantum communication of classical information. In the task of quantum private information retrieval, we also prove a lower bound on the communication complexity, saying that it is impossible to achieve security in the standard specious model with sub-linear communication even with preshared entanglement.

