Joint CQSE & CASTS Seminar

May 29, 2020 (Friday)

- Time: 14:30~15:30
- Place: Rm716, New Physics Building
- Speaker: Prof. Chung-Hsien Chou 周忠憲
  Dept. of Physics, NCKU 國立成功大學物理學系
- Title: Entangling Capacities and the Geometry of Quantum Operations

▲ Open for members of National Taiwan University
▲ Please wearing a mask whenever social distancing is impractical. Social distance: 1.5m indoors.

**Sponsored by Center for Quantum Science and Engineering (CQSE) 量子科學與工程研究中心 and Center for Advanced Study in Theoretical Sciences (CASTS) 理論科學高等研究中心, NTU**
**Joint CQSE and CASTS Seminar**

**2020**  
**May 29, Friday**

**TIME** May 29, 2020, 2:30~3:30pm  
**TITLE** Entangling Capacities and the Geometry of Quantum Operations  
**SPEAKER** Prof. Chung-Hsien Chou  
(Dept. of Physics, National Cheng Kung University)  
**PLACE** Rm716, CCMS & New Physics Building, NTU

**Abstract**

Quantum entanglement is the characteristic trait of quantum mechanics and is a useful resource for quantum information processing. How much entanglement can be generated by a quantum operation, namely entangling capacities, becomes an important issue. In this talk, I will first discuss the existence and exact value of the supremum of logarithmic negativity (and negativity likewise) between any two blocks for a system composed of permutationally symmetric Gaussian modes. I will then introduce the relation between entangling capacities of operations, geometry of operations, and positive partial transposition (PPT) states, which are an important class of states in quantum information. A length that quantifies both entangling capacity/entanglement and PPT-ness of an operation or state can be defined, establishing a geometry characterized by PPT-ness. The distance derived from the length bounds the relative entangling capability, endowing the geometry with more physical significance.

▲防疫期間僅限本校人員參與 Open for members of National Taiwan University.  
▲拒絕有發燒或呼吸道症狀者入場 Individuals with fever or respiratory symptoms are prohibited from participating in the event.  
▲無法保持社交距離時（室內1.5公尺）請戴口罩 Please wearing a mask whenever social distancing (1.5m indoors) is impractical.  
▲場地備有酒精供雙手消毒使用 We provide alcohol sanitizer to keep your hands clean.