Joint CQSE and CASTS Seminar

Weekly Seminar
Jan. 6, 2017 (Friday)

TIME Jan. 6, 2017, 14:30 ~ 15:30
TITLE Quantifying quantum steerability and measurement incompatibility using uncharacterized devices
SPEAKER Prof. Yeong-Cherng Liang
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Abstract

We introduce the concept of assemblage moment matrices, i.e., a collection of matrices of expectation values, each associated with a conditional quantum state obtained in a steering experiment. We demonstrate how it can be used for quantum state and measurement characterization in a device-independent manner, i.e., without invoking any assumption about the measurement nor the preparation device. Specifically, we show how the method can be used to lower bound the steerability of an underlying quantum state directly from the observed correlation between measurement outcomes. In addition, by proving a quantitative relationship between steering robustness and the recently introduced incompatibility robustness, our approach also allows for a device-independent quantification of the incompatibility (i.e., non-joint-mesurability) between various measurements performed in a Bell-type experiment.