**Sequential Quantum Maximum Confidence Discrimination**

Joonwoo Bae

School of Electrical Engineering, Korea Advanced Institute of Science and Technology, South Korea

Sequential quantum information processing may lie in the peaceful coexistence of no-go theorems on quantum operations, such as the no-cloning theorem, the monogamy of correlations, and the nosignalling principle. In this work, we investigate a sequential scenario of quantum state discrimination with maximum confidence, called maximum-confidence discrimination, which generalizes other strategies including minimum-error and unambiguous state discrimination. We show that sequential state discrimination with equally high confidence can be realized only when positive-operator-valued measure elements for a maximum-confidence measurement are linearly independent; otherwise, a party will have strictly less confidence in measurement outcomes than the previous one. We establish a tradeoff between the disturbance of states and information gain in sequential state discrimination, namely, that the less a party learn in state discrimination in terms of a guessing probability, the more parties can participate in the sequential scenario.