Contribution ID: **137**   Type: **Talk**

【543】Interference as an information-theoretic game

Thursday, 2 September 2021 17:30 (15 minutes)

The double slit experiment provides a demarcation between classical and quantum theory, while multi-slit experiments demarcate quantum and higher-order interference theories. In this work we show that these experiments pertain to a broader class of processes, which can be formulated as information-processing tasks. We provide a connection between the order of interference and the probabilities of successfully achieving the given tasks. Furthermore, we prove the order of interference to be additive under composition of systems both in classical and quantum theory. Finally, we extend our game formulation within the generalized probabilistic framework and prove that tomographic locality implies the additivity of the order of interference under composition.

Primary author: HORVAT, Sebastian (University of Vienna)

Co-author: Dr DAKIĆ, Borivoje (University of Vienna)

Presenter: HORVAT, Sebastian (University of Vienna)

Session Classification: Quantum Information and Quantum Computing

Track Classification: Quantum Information and Quantum Computing