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Quantum Position Verification and Time-Constrained Nonlocal Computation

Tuesday, 14 November 2023 11:30 (1 hour)

Quantum position verification (QPV) is a cryptographic task in which the spatial location of an untrusted agent is certified using the principles of quantum mechanics and special relativity. The problem of QPV has deep connections to computational complexity and the AdS/CFT correspondence. In this talk I will introduce the general task of QPV and review some results. I will then turn to recent theoretical work analyzing the structure of QPV protocols in which the distribution of product states is used to certify a spatial location, and an honest prover must perform a joint measurement on the signals. This particular class of QPV protocols reveals separations in security based on whether the adversaries are restricted to classical versus quantum communication.

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