OPEN TALK ANNOUNCEMENT

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Speaker:

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(VASP short term visitor to Prof. A.S Majumdar)

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Title:

On witnessing arbitrary bipartite entanglement in a measurement device independent way

Abstract:

Experimental detection of entanglement of an arbitrary state of a given bipartite system is crucial for exploring many areas of quantum information, and even to judge the quality of the entanglement producing source. We combine here the ideas of Branciard et al.'s measurement device independent entanglement witness protocol [Phys. Rev. Lett. vol. 110, pp. 060405 (2013)] and Augusiak et al.'s universal entanglement witness scheme for two-qubit case [Phys. Rev. A. 77, 030301 (2008)], and thereby provide a universal entanglement witnessing scheme for any two-qubit state in a measurement device independent way. We then provide a set of universal witness operators to check NPT-ness (negative under partial transpose) of two-qudit states in a measurement device independent way. We conjecture that no such entanglement witness exists for PPT (positive under partial transpose) entangled states. As a verification of measurement device independence of entanglement witnessing process, We also analyse the robustness of the concerned entanglement witnessing process in the presence of noise in the inputs as well as in the measurement operators.