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Hassle-free Extra Randomness from quantum state's identicalness with untrusted components

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This paper investigates a semi-device-independent protocol for quantum randomness generation constructed on the prepare-and-measure scenario based on the on-off-keying encoding scheme and with various detection methods, i.e., homodyne, heterodyne, and single photon detection schemes. The security estimation is based on lower bounding the guessing probability for a general case and is numerically optimized by utilizing semi-definite programming. Additionally, a practical, easy-to-implement optical setup is presented, which can be implemented via commercial off-the-shelf components.

Abstract category

Numerical Methods

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