**Experimental Quantification of Photonic Quantum Information Processing**

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Quantifying the genuine ability of an experimental process using untrusted devices to perform a nonclassical task is crucial to showing the true power of quantum information. Here we experimentally demonstrate how to measure such a capability of photonic quantum information processing, such as the remote state preparation, the measurement-based quantum computation, and the photonic quantum tomography with untrusted apparatuses. We also show that the experimental quantification ideas motivate new quantum communication protocols, such as the device-independent "prepare-and-measure" quantum key distribution.