Abstract Submitted
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Entanglement Verification from Partial Knowledge in Arbitrary Systems HAUKE HASELER, TOBIAS MORODER, Institute for Quantum Computing, JOHANNES RIGAS, VOLKHER SCHOLZ, University of Erlangen-Nuremberg, NORBERT LUTKENHAUS, Institute for Quantum Computing — Entanglement plays an essential role in quantum information theory. However, many of the known entanglement criteria are difficult to evaluate in practice. We present a method to verify entanglement which can easily be applied to a variety of experimental situations, especially when the measurements only give little information about the density matrix. The method allows to detect entanglement in finite and infinite dimensional settings, as well as hybrid systems. We demonstrate the formalism by applying it to a particular example which occurs naturally in the context of continuous variable quantum key distribution. This examples sheds light onto the question whether a possible eavesdropper could take advantage of the phase reference, which is typically sent with the signal over the channel.

Norbert Lutkenhaus
Institute for Quantum Computing

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