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Measures of non classical correlations MATTHIAS LANG, Center for Quantum Information and Control, University of New Mexico, ANIL SHAJI, School of Physics, Indian Institute of Science Education and Research, CARLTON CAVES, Center for Quantum Information and Control, University of New Mexico — To quantify non classical correlations in a quantum state, much effort has been put into the investigation of entanglement and its properties. It is known, however, that entanglement does not capture all quantum correlations. Several entropic measures of non-classical correlations beyond entanglement have been proposed, quantum discord being the most popular amongst them. We have developed an entropic framework for formulating such measures. We discuss new measures that emerge from this framework, and relations among the various measures, and we present numerical results for the measures for two-qubit states.

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