

## **(statistical) Complexity of continuous-variable quantum states and operations**

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We introduce and discuss a quantifier of complexity of continuous-variable states, e.g. quantum optical states, based on the Husimi quasiprobability distribution. This quantity is built upon two functions of the state: the Wehrl entropy, capturing the spread of the distribution, and the Fisher information with respect to location parameters, which captures the opposite behaviour, i.e. localization in phase space. We analyze the basic properties of the quantifier and illustrate its features by evaluating complexity of Gaussian states and some relevant non-Gaussian states. The resulting notion of complexity of quantum states is quite different from uncertainty or information contents, and involves the tradeoff between its classical and quantum features. We further generalize the quantifier in terms of  $s$ -ordered phase-space distributions and discuss the measure of complexity for CV quantum operations that may be built from our complexity of CV states.