

Abstract Submitted
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Conditional Mutual Information and Quantum Steering ENEET

KAUR, XIAOTING WANG, MARK WILDE, Louisiana state university — Quantum steering has recently been formalized in the framework of a resource theory of steering, and several quantifiers have already been introduced. We propose the intrinsic steerability as an information-theoretic quantifier of steering that uses conditional mutual information to measure the deviation of a given assemblage from an assemblage having a local hidden-state model. We prove that this quantifier is a steering monotone (i.e., it is faithful, convex, and non-increasing under one-way local operations and classical communication). This suggests that the intrinsic steerability should find applications in protocols where steering is relevant. We then consider a restricted version of intrinsic steerability, which is a steering monotone under a restricted set of free operations. The restricted intrinsic steerability is additive with respect to tensor-product assemblages, and it is also monogamous.

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