

Abstract Submitted  
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**Interpreting quantum discord through quantum state merging<sup>1</sup>**

VAIBHAV MADHOK, University of New Mexico, ANIMESH DATTA, Clarendon Laboratory, University of Oxford — We present an operational interpretation of quantum discord based on the quantum state merging protocol. Quantum discord is the markup in the cost of quantum communication in the process of quantum state merging, if one discards relevant prior information. Our interpretation has an intuitive explanation based on the strong subadditivity of von Neumann entropy. We use our result to provide operational interpretations of other quantities like the local purity and quantum deficit. Finally, we discuss in brief some instances where our interpretation is valid in the single copy scenario.

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