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# Various quantum divergences and the reversibility of quantum operations

## Abstract

We give a survey of recent developments on various quantum divergences, including standard  $f$ -divergences, maximal  $f$ -divergences, sandwiched Rényi divergences, and  $\alpha$ - $z$ -Rényi relative entropies in the finite-dimensional setting as well as in the von Neumann algebra setting, focusing on the reversibility problem for those divergences in connection with the equality case in the monotonicity inequality under quantum operations.