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CHARACTERIZATION OF SEVERAL KINDS OF QUANTUM ANALOGUES OF RELATIVE ENTROPY

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Quantum relative entropy $D(\rho | \sigma) \stackrel{\text{def}}{=} \text{Tr} \rho (\log \rho - \log \sigma)$ plays an important role in quantum information and related fields. However, there are many quantum analogues of relative entropy. In this paper, we characterize these analogues from information geometrical viewpoint. We also consider the naturalness of quantum relative entropy among these analogues.