

Introduction to Quantum Information Theory

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Abstract:

I will define the Von Neumann Entropy of a density matrix. I will define the Holevo Mutual information of a channel given an ensemble. I will define the Holevo capacity of a channel. I will define a pure matrix. I will show that a density matrix may be decomposed into a superposition of pure matrices. I will discuss the kronecker product of two density matrices. I will discuss the spectrum of the resulting density matrix. I will discuss the tensor product of two channels. I will discuss the Holevo additivity conjecture. I will discuss numerical attempts. I will discuss closed formulas.