



RAUL GARCIA-PATRON SANCHEZ 'A New Approach Towards Proving the Minimum Output Entropy Conjecture for Gaussian Bosonic Channels'

RAUL GARCIA-PATRON SANCHEZ

July 05, 2011

Seminar, July 5, 2011, 12:00. Seminar Room

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One of the oldest open problems in quantum information theory is calculating the classical information capacity of an optical communication channel. It has been conjectured that capacity is achieved by random coding of coherent states using an isotropic Gaussian distribution. We show that proving the conjecture for an ideal (quantum-limited) amplifier is sufficient. The unitary dilation of an ideal amplifier being a two-mode squeezer, we rephrase the original conjecture in terms of the entanglement shared by its output modes. Finally, we

use the connection between majorization and entanglement to prove the conjecture for a reduced class of states, and to perform a systematic numerical analysis. Apart from reinforcing the conjecture, we believe that our analysis offers a new possible approach to its proof.

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Hosted by Prof. Antonio Acin