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Quantum Signal + Noise Models: Beyond I.I.D.

Prof. Alexander Holevo
Steklov Mathematical Institute, Moscow, Russia

Date and Time: Friday, 6 May 2016, 6:30pm – 7:30pm
Venue: Room **B**6605, City University of Hong Kong
Reception starts at 6:15pm
(Language: **English**)

Abstract

Recently, the Gaussian optimizer conjecture in quantum information theory was confirmed for bosonic Gaussian gauge-covariant or contravariant channels including phase-insensitive channels such as attenuators, amplifiers and additive classical noise channels (Giovannetti, A.H., Garcia-Patrón, arXiv:1312.2251). It is shown that the classical capacity of these channels under the input energy constraint is additive and achieved by Gaussian encodings. These results use the i.i.d. model of the quantum noise. In this talk we consider quantum Gaussian signal + noise models with stationary coloured noise.

About the Speaker

Prof. Alexander S. Holevo is a member of Steklov Mathematical Institute, Moscow, since 1969. He graduated from Moscow Institute of Physics and Technology in 1966, defended a PhD Thesis in 1969 and a Doctor Science Thesis in 1975. Since 1986, A.S. Holevo is Professor (Moscow State University and Moscow Institute of Physics and Technology). A.S. Holevo made substantial contribution in mathematical foundations of quantum theory, quantum statistics and quantum information theory. In 1973 he obtained an upper bound for amount of classical information which can be extracted from ensemble of quantum states by quantum measurements (this result is known as Holevo's theorem). A.S. Holevo received several honors and awards including the Andrey Markov Prize of Russian Academy of Sciences (1997), Prizes for the best scientific achievements of Russian Academy of Sciences (1992, 1995, 2008), the Quantum Communication Award (1996), the Alexander von Humboldt Research Award (1999), and the Claude E. Shannon Award (2016).

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