Quantum states and quantum channels

Chi-Kwong Li The College of William and Mary, Virginia

In the Hilbert space formulation, quantum states are density matrices, i.e., positive semidefinite matrices with trace one, and quantum channels are trace preserving completely positive linear maps on matrices.

In this talk, we will present some results on the existence of quantum channels with some special properties. Open problems in constructing special types of quantum channel will be mentioned.