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Passive Quantum Error Correction

In this talk, I will discuss some of my recent work on error correction problems in quantum computing. I'll focus on the fundamental passive technique, which involves "decoherence-free subspaces" and "noiseless subsystems". In this method, symmetries within the noise of quantum channels are used to encode initial states in sectors of the system Hilbert space that are immune to the errors of the channel. The underlying mathematics involves completely positive maps and operator algebras.