

Patrick Hayden. *Decoupling: a building block for quantum information theory.*

The basic task of eliminating all correlations between a pair of quantum systems, when supplemented with superdense coding and teleportation, forms a remarkably powerful toolkit for building communications protocols for quantum information. The operational relationships between tasks like entanglement-assisted classical communication, entanglement distillation and channel simulation are elementary and structural. Unfortunately, they are usually presented in the context of quantum Shannon theory where the technical details of typical projector estimates can obscure the connections between the tasks. I'll present decoupling and this web of connections. Time permitting, I'll introduce a generalization of decoupling known as the fidelity alternative.