

*Abstract*— We exhibit a natural generalization of the stabilizer formalism for entanglement-assisted quantum error correction. Conventional stabilizer codes for quantum channels without entanglement assistance are equivalent to isotropic (or “self-orthogonal”) symplectic codes. When entanglement assistance is included, the isotropic condition is no longer necessary. A *catalytic quantum code* is one which borrows the use of a perfect quantum channel and returns it at the end of the protocol. One of the consequences of the above result is that *any* classical code over  $\mathbb{F}_4$  can be made into a catalytic quantum code. In particular, classical codes over  $\mathbb{F}_4$  attaining the Shannon limit correspond to catalytic quantum codes attaining the hashing bound.