

# Constructions of quantum codes

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We review methods for constructing quantum codes from classical additive and linear codes that are self-orthogonal with respect to the symplectic inner product on the ambient vector space. We generalize these constructions to codes that are nearly self-orthogonal. The families of codes considered include additive cyclic codes, twisted codes, linear cyclic and constacyclic codes and duadic codes. We review the known techniques for bounding the minimum distance of cyclic codes and we show new applications of these techniques to twisted codes. We illustrate the applicability of our methods by presenting many new examples of quantum codes that have higher minimum distance than the previously known codes. Some parts of the talk are joint work with Reza Dastbasteh.