

Quantum Stabilizer Codes with Optimal Parameters

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Quantum error-correcting codes are important and essential for quantum information and quantum computation both in the binary and non-binary cases. In the last few years, a lot of research has been done for finding good quantum codes. As a class of quantum error-correcting codes, the quantum stabilizer codes play an important role in coding theory. As we know, the construction of new quantum stabilizer codes which have good parameters is a difficult problem. Different methods have been proposed by researchers to construct a quantum stabilizer code. A new method of quantum stabilizer code construction is based on symmetric association schemes. By employing this method, quantum stabilizer codes with optimal parameters are obtained. For this purpose, the book "Quantum Computation and Quantum Information" by M. A. Nielsen and I. L. Chuang, which covers most of these topics, can be introduced to those interested.