Stabilizer Codes and Quantum Error-Correcting Codes - Chapters 1 and 2

Introduction and Basics of QEC

Introduction

Introduction-

1. What are tractable and intractable class of problems?
2. Proving the Church-Turing Thesis is incorrect for Quantum computers.
3. Reason for exponential power of Quantum computers.
4. Why no new approach for QEC?

Introduction to Quantum Mechanics

Introduction-

1. What is a qubit and its representation?
2. What are entangled states?
3. Significance of Pauli Matrices and measurement of qubits
4. Inner product

Introduction to Classical Coding Theory

Introduction-

1. What are the three steps in communication?
2. Types of communication channel
3. Channel Capacity definition and error-correcting codes with an example
4. Hamming distance, generator, parity check matrices and syndrome - definitions
5. Hamming bounds - sphere of packing bounds