

# Quantum Computation

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### 1.1 Quantum Logic Gates

### 1.2 Quantum Turing Machine

## 2 Quantum Complexity Theory

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### 2.2 Relationship between classical and quantum complexity classes

#### 2.2.1 Simulating a quantum computer

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### 2.3 The BQP class

### 2.4 Query complexity

## 3 An example of Quantum Algorithm: Shor's Algorithm

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### 3.2 Classical part

### 3.3 Quantum part

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## Conclusion