

CS 530: High-Performance Computing

Seminar 2: Quantum Computing

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1 History of Quantum Computation & Information

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2 Quantum Bits

3 Quantum Computation

3.1 Quantum Gates

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3.3 Examples

3.3.1 Bell States

3.3.2 Quantum Teleportation

4 Quantum Algorithms

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4.1.1 The Quantum Fourier Transform

4.1.2 The Quantum Search Algorithm

5 Quantum Information

5.1 Quantum Cryptography

References

- [1] Michael A Nielsen and Isaac L Chuang. *Quantum computation and quantum information*. Cambridge university press, 2010.