

The Gateway to the Future of Cybersecurity

Quantum Communication

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CS7349 Class Presentation, Jan 2024



Introduction to Quantum Communication

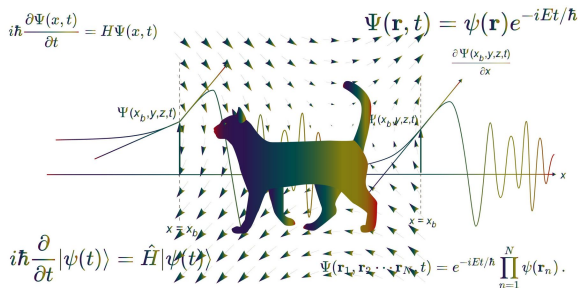


- The driving force of the quantum internet
- Offers mathematically perfect security

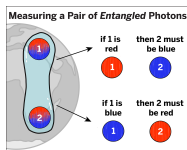


Principles: Superposition, Entanglement, QKD

- Superposition



- Entanglement



- Quantum Key Distribution (QKD)



Advantages, Applications, Challenges, Future Potential

- Detect any eavesdropping attempts (Advantages)
- Quantum Satellite (Current Applications)
- Challenges:
 - Limitations in long distance
 - High cost and complexity
- Explore the possibility of a quantum internet, which would revolutionize data transmission and processing. (Future Potential)



Reference

- [1] 'Space Quantum Communication', Nature. Accessed: Jan. 26, 2024. [Online]. Available: <https://www.nature.com/collections/fgjjjhhicbd>
- [2] K. Kwon, 'China Reaches New Milestone in Space-Based Quantum Communications', Scientific American. Accessed: Jan. 26, 2024. [Online]. Available: <https://www.scientificamerican.com/article/china-reaches-new-milestone-in-space-based-quantum-communications/>
- [3] 'Explained Simply: Superposition, Entanglement, and Quantum Computing', Nick Yoder. Accessed: Jan. 26, 2024. [Online]. Available: <https://nickyoder.com/the-multiverse/>
- [4] 'Explained Simply: Superposition, Entanglement, and Quantum Computing', Nick Yoder. Accessed: Jan. 26, 2024. [Online]. Available: <https://nickyoder.com/the-multiverse/>

