

Quantum Computing and Quantum Cryptography

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Quantum Computing

A quantum computer uses **quantum bits** and relies on of **quantum-mechanical phenomena** to perform computation

1. Brute-forcing n-bits key with Grover's algorithm would take **$2^{n/2}$**
 - ➡ Using symmetric encryption is still doable
2. Factoring prime numbers with Shor's algorithm would be done in polynomial time
 - ➡ Using asymmetric encryption is at risk
 - ➡ Problem for key exchange