

International Conference on

Quantum Physics and Nuclear Engineering

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Quantum computing and cryptography

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We are in a new age of powerful computing technology, taking the steps from classical to quantum and even combining the two into one computer. Some of the significant contributors to the foundations and developments in the field are Albert Einstein, David Hilbert, Paul Dirac and Richard Feynman. In my talk, I will be outlining the key principles of quantum mechanics that allow for quantum computation to operate. This provides a basis for my interest in quantum cryptography in which I will explore how systems retain their security while communicating information. There will be particular focus on the BB84 protocol, highlighting the use of polarisation of states and quantum channels. I also aim to investigate topics such as quantum entanglement, quantum teleportation and quantum circuits in order to be able to formulate my own conclusion on the exciting future of quantum computation and information.

Biography

Sophie Still is a final year undergraduate mathematics student at Nottingham Trent University. Her interests extend to mathematical aspects of quantum mechanics and cryptography, and she hopes to pursue a career as a professional mathematician working in applied cryptography.

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