

EPSRC Industrial Case Studentship

Title: Networks for Distributed QKD based on Single Entangled Photons and Existing Installed Infrastructure

Industrial partner: BT

Supervisors: Professor Mike Payne (TCM), Professor Andrew Lord (BT) & Dr Anas Mohsin Al Rawi (BT)

Project Description:

Current Quantum Key Distribution (QKD) protocols are heavily dependent on Quantum Repeaters imposing numerous challenges on scalability. Hence the essence of this project is to provide alternative methods to enable QKD without requiring extra hardware components in BT's network.

This project will investigate the possibility of creating a low cost, fully secure, local quantum cryptography network using existing dark fibre cost and currently available or emerging optical components. This approach will use transmission of single photons between Alice and Bob (or Source and Receiver) without the need for trusted Quantum Repeaters. If this approach is found to be successful then it would allow BT's network and subsequently all government, financial, legal (and any other) institutions within, any city such as London to use secure quantum cryptography between each other at negligible cost and without the need for continuous single fibre between each pair of institutions and the massive infrastructure cost this would entail.

This studentship is only available to UK/EU nationals.

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