

# Quantum Technologies PhD Opportunities with External Partners

**A number of PhD positions are available for UK applicants with two of our external collaborative partners:**

## The National Physical Laboratory:



- SI-TRACEABLE THERMOMETRY

You will be part of a new research area for the UK, namely making absolute and traceable measurements of temperature using optical measurements of the Doppler broadening of an atomic transition. The aim is to scale to practical (~mm sized) sensors using miniature optical cells filled with appropriate atomic/molecular species.

- OPTICAL FREQUENCY METROLOGY

The project aims develop the scientific base and expertise necessary to establish new remote optical frequency metrology capability, e.g. linking Scotland to the national frequency standards at NPL. Initially you will work on NPL's research programme towards a future redefinition of the SI second, participating in clock comparisons campaigns involving state-of-the-art optical atomic clocks.

- QUANTUM INFORMATION WITH TRAPPED IONS

Microfabricated ion traps will be essential components in a range of quantum-enabled devices during the coming years such as atomic clocks and sensors, for use in precision positioning, navigation and timing. The studentship will focus on coherent control and quantum entanglement of ions in chip-scale microtraps.

## Alter Technology:



- COMPACT LASER SYSTEMS FOR QUANTUM TECHNOLOGY (2 POSITIONS)

As part of Alter UK's Photonics Design Centre based on the Strathclyde Campus projects are available to develop lasers with integrated frequency and amplitude control. Focus will be on technical assessment of requirements and integration of internal atomic reference in order to realise robust, miniaturised devices for use in e.g. quantum-enabled position, navigation and timing systems.

## For further information and applications contact:

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