

Experimental PhD Positions in Atomic & Quantum Physics

Details of PhD positions

- 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. (Position initially be based with NPL in London)

- COMPACT LASER SYSTEMS FOR QUANTUM TECHNOLOGIES

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. (Position jointly with Alter UK and Strathclyde)

- MICROWAVE ATOMIC CLOCKS

Experimental position to develop compact and robust laser-cooled atomic clocks with fractional accuracy on the level of 10^{-15} for research, industry, and space applications. Collaborations with groups in USA, Switzerland, and with the National Physical Laboratory

- OPTICALLY-PUMPED ATOMIC MAGNETOMETRY

Experimental positions to design, build, and use atomic magnetometers for applications in geophysics, non-contact measurement of human cardiac and brain function, battery development, and materials science.

- VORTEX DYNAMICS IN ULTRACOLD QUANTUM MIXTURES

You will work closely with the supervisor to develop a state-of-the-art ultracold atom apparatus to explore vortex dynamics in binary superfluids. A key aim of this research project is to advance our fundamental understanding of superfluidity as a collective quantum phenomenon by exploring regimes where the vortex dynamics depend on the inherent quantum nature of the superfluid. There will be a particular emphasis on reduced dimensionality where quantum effects are enhanced.

For further information and applications contact:

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The Experimental Quantum Optics & Photonics Group is situated at the heart of Glasgow, a thriving cultural city on the west coast of Scotland and only a short distance from the Scottish Highlands. The city has excellent international transport links.

<https://eqop.phys.strath.ac.uk/>

