Dowthwaite MScR Scholarship 2023/24 entry

DEPARTMENT OF PHYSICS

Principal Supervisor: Prof Kevin Weatherill

Other Supervisors: Dr Lucy Downes.

Project Title/Theme: Rydberg-atom-based Quantum Technologies

Project Description

This is an experimental project. The Dowthwaite scholar will join a team of researchers (currently 2 Post Docs and 4 Ph.D. students) to work on Rydberg-atom-based RF/microwave/THz sensors. Durham University pioneered this technology and are world leading in this field (1). During the project the student will make experimental measurements to compare the sensitivity of terahertz electric-field measurements made using coherent spectroscopy (2) and fluorescent emission (3) detection schemes.

References:

(1) Rydberg atom quantum technologies. C. S. Adams *et al*., J. Phys. B: At. Mol. Opt. Phys. 53, 012002 (2020)

(2) Terahertz electrometry via infrared spectroscopy of atomic vapor. S. Chen *et al.* Optica 9, 485 (2022)

(3) Full-Field Terahertz Imaging at Kilohertz Frame Rates Using Atomic Vapor. L.A. Downes *et al.* Phys. Rev. X 10, 011027 (2020)

How to apply

You must apply through the University's applicant portal

You will need to:

- State 'QLM and Rydberg-atom-based Quantum Technologies in the 'Field of Study' section.
- On the funding tab select 'yes' you are applying for a scholarship, select 'Other' write DOW237 in the name of the scholarship, and select 1st October 2023 as the start date
- attach a covering letter and CV
- attach degree transcripts and certificates and, if English is not your first language, a copy of your English language qualifications.
- provide 2 referee contact details (specifically email addresses) who we will contact directly.

Contact

For enquiries please contact Prof Kevin Weatherill k.j.weatherill@durham.ac.uk