

Engineering Doctorate (EngD) Research Opportunity

Project Title: “Understanding the radiative performance of urban trees”

Based within Forest Research, Centre for Sustainable Forestry and Climate Change, Farnham, Surrey and at the TSBE Centre, University of Reading

Closing Date for Applications: Monday 16 September 2013 at 12 noon.

The focus on the radiative and biological response of trees to solar near infrared (NIR) and long-wave (LW) radiation in an urban context fits with the uptake of urban greening as an engineering solution to climate change. The interactions between trees/vegetation and buildings can significantly influence the urban thermal environment, but their radiative exchanges are insufficiently understood (especially in the NIR or LW ranges). This research will enable a step change in the understanding of this important aspect of urban trees and provide quantitative and systematic information, which facilitates tree species selection and built environment design.

The main research objectives of this project over the 4 year period are to systematically quantify the interactions between trees with solar radiation and the urban thermal environment, so as to assess their passive cooling performances. The knowledge will improve understanding of the benefits and potential issues of trees (e.g. subsidence, VOC emissions) in an urban context, leading to a database of the measured performances and related insights, for example, due to the effects of soil moisture and tree management, to aid decision making about trees in the urban environment.

We are seeking self-motivated, pro-active and ambitious applicants with an interest within physics, biological sciences and urban design. Applicants must possess a good relevant degree (2:1 or higher) or MSc in a related area.

This 4 year collaboration will add to Forest Research’s programme to understand the contribution that trees make to urban environments and will be embedded within their Land Regeneration and Urban Greenspace Research Team.

The research will be supervised at the University by Prof. Li Shao, Professor of Sustainable Technologies in the Built Environment and Dr Stefan Smith within the School of Construction Management and Engineering, and at Forest Research by Dr Kieron Doick. Their collective expertise span people-centred technologies for energy demand reduction, urban climate adaptation of buildings for the future climate and the appropriate integration of urban greenspaces.

4 Year Package

- Stipend of £18,000 - £20,000p.a (typically tax-free)
- All tuition fees are included
- Expenses package included

- EngD awarded by the University of Reading

Collaboration between the University of Reading and Forest Research, Centre for Sustainable Forestry and Climate Change

Eligibility

Please note there are eligibility requirements, for more details refer to the EPSRC web site <http://www.epsrc.ac.uk/skills/students/help/Pages/eligibility.aspx>

Further details

Supervisors from the School of Construction Management and Engineering:

Professor Li Shao (l.shao@reading.ac.uk)

Dr Stefan Smith (s.t.smith@reading.ac.uk)

Supervisor from Forest Research: Dr Kieron Doick (kieron.doick@forestry.gsi.gov.uk)

Further information on the TSBE Centre can be found at: <http://www.reading.ac.uk/tsbe>

Applications

Applications should be made online through our website at:

<http://www.reading.ac.uk/Study/apply/pg-applicationform.aspx>

You also need to submit a full CV and Personal Statement to tsbe@reading.ac.uk

Vacancy Reference No: P37-2013

Proposed start date in October/November 2013.