Newcastle University PhD Studentship award

Title
Metamaterial-based sensors and imaging devices for millimetre, Terahertz and optical applications

Value of award
100% of International tuition fees paid

Number of awards
1

Start date and duration
September 2019 for 3 years

Application closing date
8th February 2019

Overview
Wave propagation can be manipulated by spatially engineering the properties of the material and/or geometries of the medium where the wave is traveling. Within this realm, metamaterials (or artificial electromagnetic, EM, materials) have been demonstrated to be able to obtain an arbitrary control of the EM response of media achieving responses not available in natural materials. They have been successfully applied to devices like antennas, invisibility cloaking and circuits. Lenses and sensors have also greatly benefited from the introduction of metamaterials and different techniques have been proposed. However, they are mainly designed to work at a specific frequency and within a certain spatial region which make them unsuitable for reconfigurable systems.

The PhD studentship project will embark on the design, evaluation and experimental demonstration of metamaterial-based devices for sensing and imaging systems for low-cost, ultra-compact and high resolution applications. They will be developed at different frequency ranges with a major emphasis in Terahertz frequencies. Technologies such as 2D metasurfaces, all dielectric devices and graphene metamaterials will be explored. Moreover, real-time tuning and manipulation of the properties of metamaterials will be pursued in order to develop reconfigurable sensors and lenses with the ability to be manipulated in situ.

Further project details can be found here

Sponsor
Faculty of Science Agriculture and Engineering and Chinese Scholarship Council (CSC)

Name of supervisor(s)
Dr. Victor Pacheco-Peña
Dr. Toby Hallam
Dr. Charalampos Tsimenidis

Eligibility Criteria
- You must be a citizen and permanent resident of the People's Republic of China at the time of application.
- The PhD scholarship will be awarded on the basis of academic merit with candidates requiring the equivalent of a Distinction in a UK Master’s degree from a prestigious university (typically an average of 85% or above from a Chinese Higher Education Institution).
- You will have at least a 2:1 honours degree (or international equivalent) in Electrical and Electronic Engineering, Physics or a related subject.
- You are expected to conduct work with industrial partners, you will have good interpersonal skills.
- You will meet the English Language proficiency requirements for entry into a PhD programme set out by Newcastle University. You are expected to have a score of IELTS 6.5 – 7 or equivalent with a minimum 5.5 in all sub-skills.

**How to apply**

You must apply through the University’s online postgraduate application system. [Apply here](AppNoRef.). To do this please ‘Create a new account’. All relevant fields marked with a red asterisk must to be completed.

The following information will help us to process your application. You will need to:

- Insert the programme code **8060F** in the programme of study section
- Select ‘PhD Electrical and Electronic Engineering (full time) - Electrical & Electronic Engineering** as the programme of study
- Insert the studentship code **CSC1813** in the studentship/partnership reference field
- Attach a covering letter and CV. The covering letter must state the title of the studentship, quote reference code **CSC1813** and state how your interests and experience relate to the project
- Attach degree transcripts and certificates and, if English is not your first language, a copy of your English language qualifications

**Contact**

For more information, please contact Dr. Victor Pacheco-Pena: victor.pacheco-pena@newcastle.ac.uk