

## **PhD Studentship: Design the next generation of electromagnetic systems for 3D printing applications**

Applications are invited for a collaborative 3 year PhD studentship with CSIRO Australia and the University of Nottingham to address key challenges in manufacturing engineering. The project will seek an understanding of integrating a compact microwave system into a 3D additive manufacturing system. This will involve the design of novel microwave systems, high speed heating systems and microwave sensors complemented with advanced material characterisation techniques.

The successful candidate will be based in the Advanced Materials Research Group (AMRG) at the University of Nottingham, UK and also at CSIRO's Metal Industries Research Program in Melbourne Australia. We are seeking applicants to start on this exciting project in January 2019.

The AMRG at the University of Nottingham, having state-of-the-art, purpose built facilities, offers a world-class environment for the realisation of high-impact research projects. The Metal Industries Research Program at CSIRO is industry focused and through its 'Lab 22 Innovation Centre' offers a range of state-of-the-art metal 3D printing and robotic platforms for the implementation of the microwave approach.

This project will also involve analytical/numerical modelling of the material during the deposition process with the aim of understanding and predicting the heating process and limitations. Internationally recognised CSIRO specialists in the field of 3D additive manufacturing will be available throughout the project to supervise and provide the PhD student with support and guidance.

This is an exciting PhD project that has a combination of academic and industrial challenges which will enhance the student's ability to tackle complex intellectual and practical aspects of electric engineering, manufacturing and materials science.

We are seeking talented candidates with:

- First or upper second class degree in electrical/electronic/mechatronics/materials science or related scientific discipline;
- Demonstrated ability to develop precision electrical devices and sensors;
- Ability to use finite element modelling to simulate complex electrical systems;
- Background or knowledge of metallurgical processes and additive manufacturing;
- A driven, professional and self-dependent work attitude is essential; and
- Previous experience of working within industry will be an advantage

This is an excellent opportunity to work on a novel microwave heating system with strong links to industrial applications and key skills and knowledge in preparation for a high-impact, high-technology research or industrial career.

**Eligibility: due to the limitation of the funding, only UK and EU students are eligible. The studentship covers both tuition fees and a tax-free student stipend at RCUK rates.**

Research will be conducted under the supervision of Dr. Juliano Katrib, Dr. Chris Dodds and Prof. Samuel Kingman at the Faculty of Engineering, University of Nottingham and Dr Robert Wilson, Mr Geoff de Looze and Dr Nazmul Alam from CSIRO.

Applications with a CV, a brief statement of research interests, and the names and email addresses of two referees should be sent to Dr Juliano Katrib, Faculty of Engineering, University of Nottingham, Email: [juliano.katrib@nottingham.ac.uk](mailto:juliano.katrib@nottingham.ac.uk), Tel: 011595 14104

This studentship is open until filled. Early application is strongly encouraged.