Newcastle University PhD Studentship award

Title
Long-cycle fatigue life and non-destructive characterization of Multi-Jet fusion (Additive Manufacturing) components for high performance 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
Additive Manufacturing or 3D printing, is a family of digital technologies to manufacture objects layer by layer via different enabling technologies such as: powder bed fusion, binder jetting, filament extrusion or vat photo polymerization. This project will explore a novel ‘powder bed’ technology developed by HP called Multi-Jet fusion. The process is based on ‘thermal inkjet technology’ where multiple jetting nozzles deposit a precise dose of binding agents to a flat bed of polymer powder, typically Nylon 12. The objective of this project is to build a full understanding of the Multi-jet fusion process at the micro-particle phase and build a base of knowledge that describes the long cycle behaviour of complex components built by this process from several lab tests including bending and uniaxial fatigue tests, surface characterization, microstructural and fracture analysis as well as mechanical characterization. The candidate is expected to acquire advanced Finite Element Modelling skills through the project for the development of a fatigue-life tool.

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

Name of supervisor(s)
- Dr Javier Munguia, School of Engineering, Newcastle Campus https://www.ncl.ac.uk/engineering/staff/profile/javiermunguia
- Dr Eugene Wong, Mechanical Engineering, Singapore campus https://www.ncl.ac.uk/singapore/about/staff/profile/eugenewong

Eligibility Criteria
You must be a citizen and permanent resident of the People’s Republic of China at the time of application.

How to apply
You must apply through the University’s online postgraduate application system. [Apply here.](#) 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 **8090F** in the programme of study section
- Select **PhD Mechanical Engineering (full time) - Mechanical and Systems Engineering** as the programme of study
- Insert the studentship code **CSC1811** 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 **CSC1811** 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**

James Armston  
[School of Engineering](#)  
Telephone: +44 (0) 191 208 5672  
Email: [SoE.PGR.MechEng@ncl.ac.uk](mailto:SoE.PGR.MechEng@ncl.ac.uk)