CIMComp EPSRC Future Composites Manufacturing Research Hub

PhD Studentship:
EPSRC Future Composites Manufacturing Research Hub

University of Nottingham
UK | CHINA | MALAYSIA

PhD Studentship: EPSRC Future Composites Manufacturing Research Hub: New manufacturing techniques for optimised fibre architectures

Reference	ENG1064
Closing Date	Open until filled
Department	Engineering

Project Description:

This project aims to discover new 3D textile preform architectures for high performance composite structures. Computational modelling will evaluate the utility of different textile designs within an optimisation framework, based on processing and mechanical properties, to determine the best solution for a particular application. This framework will not be constrained to architectures that can be produced using existing manufacturing technologies, such as weaving or braiding. Optimum textile preforms will be realised either by modifying existing textile processes or, where potential benefits justify, by developing entirely bespoke manufacturing technologies. Nottingham's proprietary textile modelling software, TexGen, will be developed to produce unit cell models of non-conventional textile forms, relaxing constraints to enable groups of fibres to follow an arbitrary path in 3D space. A multi-objective optimisation framework will be developed to achieve optimum processing and mechanical properties, which will be applied to a number of case studies to identify optimum material forms.

Supervisor: Prof. Andrew Long

Applications are invited for fully funded PhD studentships in the Composites Research Group at the University of Nottingham. There are currently 2 available positions, which are being funded by the EPSRC Future Composites Manufacturing Research Hub. http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/P006701/1

Start Date: Available now

Eligibility: UK, EU, International

Duration of award: 3 years

Successful applicants will be based at Nottingham and will:

- Work directly with leading academics and industrial partners from the composites supply chain
- Have the opportunity to undertake a 3 month secondment with an industrial partner
- Have the opportunity to spend up to 3 months visiting one of 20 international research institutions
- Have access to taught elements of the Industrial Doctorate Centre (IDC) in Composites Manufacture
- Receive a travel and consumables allowance to support the research project

Entry Requirements:

Applicants should hold or expect to obtain a first-class or upper second-class Honours degree or equivalent in a relevant discipline, such as engineering or physics. Students with a materials background are particularly encouraged to apply. Candidates should be self-motivated and capable of studying under pressure to meet deliverables. They should also have good communication skills for regular interaction with other stakeholders. Previous experience in numerical modelling (FEA, Matlab, Maple etc.) and strong programming skills would be advantageous.

Funding:

Successful applicants will receive a tax free bursary of up to £14,296 p.a. and tuition fees for three years, subject to satisfactory research progress. This level of funding is for UK and EU applicants, although international students are eligible to apply with their own funding. Tuition fees (£19,120 p.a.) for international students will be paid, but no stipend is offered. Candidates should be available to start as soon as possible.

For further information please contact Dr Lee Harper, T: +44 (0) 115 9513823, E: lee.harper@nottingham.ac.uk

Online application can be submitted via web http://www.nottingham.ac.uk/pgstudy/how-to-apply/apply-online.aspx