3.5 Years PhD Studentship available for September 2019 although an earlier start date may be possible.

Department: Engineering

Supervisors: Prof. Bo Chen, Prof. Hongbiao Dong

Eligibility: UK/EU/International graduates with the required entry requirements

Project Title: In situ study of high-temperature deformation and damage process in steels by using large-scale experimental facilities

Project Description:

The recent development of large-scale experimental facilities (both neutron and synchrotron X-ray based techniques) offers unique opportunities to study the deformation and damage process in situ. The aim of this PhD work is to develop and perform transient creep tests as well as detailed creep-fatigue study to unravel the fundamental mechanism for high-temperature deformation and damage process. When these above-mentioned cutting-edge experiments are combined with post-mortem microstructural characterisations, we are in a good position to develop mechanistic-based creep-fatigue models to predict the lifetime of advanced creep-resistant steels. Two candidate materials are considered for this work: one is Type 316LN austenitic stainless steels and the other is P91 type martensitic steels.

This project is partly funded by EPSRC through the SYNERgy programme. You will need to engage with all the project partners that particularly include Universities of Oxford and Manchester. The PhD candidates will have full access to all high-end microstructural characterisation facilities, high-temperature creep-fatigue testing facilities, and the UK’s word-leading neutron and synchrotron X-ray large-scale facilities. This project also comes with financial supports for attending international meetings/workshops.
**Funding details:** This PhD studentship comes with a stipend and fee waiver for 3.5 years. The fee waiver also cover a full overseas fee. The stipend is a standard RCUK rate at which for 2018/9 is £14,777 per year.

**Entry requirements:**

Applicants are required to hold/or expect to obtain at least a UK Bachelor Degree 2:1 or overseas equivalent in materials, mechanical engineering or relevant subject area. The University of Leicester English language requirements apply where applicable.

In addition, successful applicants should meet the following

- Familiar with mechanics of materials, preferably with a strong capability in designing experimental rigs
- Or familiar with the physical metallurgy of materials and have a good knowledge in crystal diffraction
- A basic computer programming/coding skill

**How to apply:**

You should submit your application using our online application system. Apply for a PhD in Engineering

In the funding section of the application please indicate you wish to be considered for Dr Bo Chen’s Studentship

In the proposal section please provide the name of the supervisor and project title.

**Project / Funding Enquiries:** engineeringpgr@le.ac.uk

Application enquiries to pgradmissions@le.ac.uk