

Imperial College London

Department of Mechanical Engineering

Industrial Case PhD Studentship in 'Modelling the formation and propagation of cracks in products undergoing cooling and reheating'

Applications are invited for a research studentship, leading to the award of a PhD degree. Funding is available for 3.5 years from EPSRC and TATA Steel UK Ltd and covers tuition fees and an annual stipend of around £20,000 per annum. The project must be commenced before March 2016.

The power generation industry has performed significant work on the high-temperature fracture behaviour of metals. Tata Steel however does not currently have much quantitative data in the field of reheat cracking and have conducted few investigations examining the effect of processing conditions, microstructures and composition on the fracture process. Therefore this PhD will address this issue. The work will consist of experimental testing, data gathering and finite element modelling. Externally obtained data will be supplemented by e.g. tensile/creep tests performed by the student under relevant process conditions. A model describing the formation and propagation of cracks will be developed and incorporated into a finite-element analysis to examine and predict the reheat cracking process.

The candidate will need to meet the academic requirements for enrolment for the PhD degree at Imperial College London; an upper second or first (or equivalent) in mechanical engineering or related discipline. Student eligibility criteria for EPSRC Industrial CASE funding require a relevant connection with the UK, usually established by residence. EU students may be eligible for a fees-only award (i.e. no maintenance grant). An interest in materials behaviour, experimental testing and finite element modelling, is required.

To find out more about research at Imperial College London in this area, go to:
<http://www3.imperial.ac.uk/mechanicalengineering>

For information on how to apply, go to:
<http://www3.imperial.ac.uk/mechanicalengineering/research/phdopportunities/>.

Interested applicants should send an up-to-date CV to Dr Catrin Davies at catrin.davies@imperial.ac.uk +44 (0)20 7594 7035. Suitable candidates will be required to complete an electronic application form in order for their qualifications to be addressed by Imperial College Registry.

Closing date: 11th December 2015

Committed to equality and valuing diversity. We are also an Athena SWAN Silver Award winner, a Stonewall Diversity Champion, a Two Ticks Employer, and are working in partnership with GIRES to promote respect for trans people