

PhD studentship in 3D Printing, Microstructure and In-situ Mechanical Testing

We are inviting motivated candidates for an EPSRC PhD studentship in the exciting fields of 3D printing, microstructural investigation and in-situ mechanical testing of metallic alloys. The studentship includes fees and a bursary for suitable UK/EU nationals for the duration of 3 years. The expected start date is 1st October 2016.

Additive manufacture (AM) via 3D printing of metallic alloys holds great potential for manufacturing high-end bespoke products in aerospace, automobile and medical applications. However, there are challenges in making high performance and reliable metallic products by AM. The challenges result from complex microstructure formed during AM. In particular, thermal cycles that result from the repetition of the deposition of new melted layers upon built layers can cause significant changes in microstructure during printing. The project involves carrying out in-situ thermal cyclic tests in a scanning electron microscope (SEM) and ex-situ microstructural investigation by SEM/TEM and/or X-ray diffraction of 3D-printed parts in order to better understand how microstructure evolves during AM. The knowledge gained from this project will provide important feedback to optimise the build process and help develop appropriate post treatment procedures to relieve the residual stress in order to make reliable and high performance products.

The qualified candidate will join a dynamic research team focusing on microstructural and constitutive response in novel manufacturing of high performance alloys in the department of Materials at Imperial College London. Interested candidates should have solid knowledge in microstructure of metallic alloys, and experience in electron microscopy and mechanical testing. Good teamwork and communication skills are essential. In addition, interested candidates must be considered to be UK home students in order to qualify for full EPSRC funding, which usually requires UK citizenship. For EU candidates, you need to have resided in the UK for the previous 3 years to be considered as a UK home student. EU residents may be eligible for a fees only award (i.e. no bursary). International students who are self-funded are welcome to apply for the position.

For further details of the post, please contact Dr. Minh-Son (Son) Pham at son.pham@imperial.ac.uk, phone: +44 (0)20 7594 9529. Interested applicants need to send a cover letter, up-to-date CV with the list of reference to Dr. Pham. Shortlisted candidates will be contacted for further interviews.