Imperial College London
DEPARTMENT OF AERONAUTICS

PhD Studentship in
“Advanced lightweight metal nanocomposites for the energy transition: interface design and manufacture”

Applications are invited for a fully funded Ph.D. studentship in the field of fabrication and characterisation of lightweight metal composites reinforced by nanocarbon within the Department of Aeronautics at Imperial College London. The project will be led by Dr Qianqian Li (https://www.imperial.ac.uk/people/qianqian.li), an expert in nano-reinforced lightweight metals, and co-supervised by Prof Milo Shaffer (www.imperial.ac.uk/nanostructures-and-composites), an international leader in the chemistry of nanocarbons.

Nanoparticle reinforced lightweight materials with improved physical and mechanical properties have attracted great attention due to their potential for saving energy by reducing the weight of vehicles and aircraft. This PhD project will focus on developing new methods to produce nanocarbon reinforced composite materials and on characterising their properties. The candidate will develop methods to disperse nanocarbon particles homogenously in lightweight metal materials, and will measure mechanical properties and physical properties including electrical and thermal properties of the resulting composite structures. The microstructure of the composites will also be studied. Additionally, the reinforcing mechanisms acting in nanoparticle composites will be investigated by relating the experimental investigation to modelling approaches.

The project will directly benefit from the outstanding synthesis and computational facilities at the Department of Aeronautics, as well as advanced microscopy facilities in the department of Materials Science and nanomaterials chemistry facilities in the newly built £150M Molecular Sciences Research Hub. The project will also benefit from international collaborations with Universities in e.g. Germany and Switzerland. The main work location will be the central London South Kensington campus next to Hyde Park offering an excellent setting for the project and for personal development in a variety of areas.

Applicants should have a strong background in materials science and engineering especially in metal materials, good knowledge in chemistry and engineering design. Experience with dispersion of nanoparticles is preferred. Demonstrated ability of autonomous experimental research and contribution to scientific publications is a plus. Applications are invited from candidates with (or who expect to gain) a first-class MEng/MSc degree (or equivalent) in Engineering.

Funding is available for UK citizens and EU citizens who have resided in the UK for the past three years. The studentship is for 3.5 years and will provide full coverage of tuition fees and an annual tax-free stipend of approximately £17,609

Informal enquiries and requests for additional information for this post can be made to: Dr. Qianqian Li via e-mail: Qianqian.Li@imperial.ac.uk

Should you have any queries regarding the application process please contact: Ms. Lisa Kelly by e-mail: l.kelly@imperial.ac.uk
To apply, please go to [http://www.imperial.ac.uk/study/pg/apply/how-to-apply/](http://www.imperial.ac.uk/study/pg/apply/how-to-apply/) Meanwhile please also send your cover letter and CV in one pdf document to Dr. Qianqian Li via e-mail: Qianqian.Li@imperial.ac.uk

**Start Date: Asap**

*Committed to equality and valuing diversity. We are also an Athena Bronze SWAN Award winner, a Stonewall Diversity Champion and a Two Ticks Employer.*