Imperial College London

Department of Mechanical Engineering

PhD Studentship in Tribology of Mechanical Transmissions

Applications are invited for a research studentship in the field of tribology, leading to the award of a PhD degree. The studentship is fully funded with a tax free bursary of circa £20k pa and fees (at the UK/EU student rate only) provided by the industrial sponsor, Mitsubishi Heavy Industries.

The PhD will be based in The Tribology Group, which is a multidisciplinary research group based in the Mechanical Engineering Department. It is one of the largest academic tribology groups in the world and carries out world-leading research in both fundamental and applied aspects of tribology.

The research involves experimental and numerical studies into the phenomenon of micro-pitting damage (rolling contact fatigue on roughness asperity level) in lubricated, non-conformal contacts under conditions pertinent to gear applications. Micro-pitting tests will be performed with gear steels and under controlled contact conditions using a triple-disc rolling contact fatigue machine. The aim is to establish the relative influence of a range of factors, including surface roughness characteristics, contact pressure and kinematics, lubricant composition and material properties. Using the findings from these experiments and extensive contact mechanics modelling tools available in the Tribology Group at Imperial College, the student will then devise a model for prediction of micropitting damage extent in gear teeth contacts under conditions typical of industrial gearing.

The project will involve close collaboration with the sponsors including regular meetings and progress reports. Some travel to Japan, USA and Europe will be required for sponsor meetings and conference presentations. Student will be expected to prepare written reports and journal papers for publication.

You will be an enthusiastic and self-motivated person who meets the academic requirements for enrolment for the PhD degree at Imperial College London. You will have a 1st or a 2:1 class degree in mechanical engineering, materials, physics or a related subject, and an enquiring and rigorous approach to research together with a strong intellect and disciplined work habits. Previous experience in tribology and in implementing engineering models in Matlab is desirable but not essential. Good command of English language and team-working, observational and communication skills are essential.

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://www.imperial.ac.uk/mechanical-engineering/study/phd/how-to-apply/

Interested applicants should send an up-to-date curriculum vitae to Dr Kadiric at a.kadiric@imperial.ac.uk. Suitable candidates will be required to complete an electronic application form at Imperial College London in order for their qualifications to be assessed by College Registry.

Closing date: until post filled

Imperial Managers lead by example.
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.