4 PhD Studentships in Contact Fatigue Damage Mechanisms in Machine Elements

Applications are invited for research studentships in the field of rolling contact fatigue mechanisms leading to the award of a PhD degree. All posts are fully-funded with a generous tax-free bursary of up to £20k pa and fees (at the UK/EU student rate only) provided by our industrial partner, SKF, the world's largest rolling bearing manufacturer.

The 4 available PhD studentships form part of a large research programme into fundamentals of rolling contact fatigue damage in rolling-sliding contacts, such as those found in gears, rolling bearings and cam-follower systems. The research programme involves both experimental and numerical aspects of contact fatigue and we will be glad to discuss with you which specific PhD project is most suited to your professional background and interests. Please submit only one application and we will consider you for all 4 available studentships. The studentships will be based in the Tribology Group, which is internationally recognised for its excellence in contact fatigue research.

The experimental part of the programme will utilise several rigs available in our research group, such as the triple-disc contact fatigue rig, to initiate and propagate fatigue cracks under controlled conditions. The generated surface damage, from small cracks that are 10s of microns in length, to larger pits, and microstructure will subsequently be analysed using various techniques such as SEM, TEM and others. Novel in-situ crack detection techniques will also be employed. The numerical modelling aspects of the programme will aim to model crack initiation and propagation, including the relevant effects of material microstructure. Several in-house modelling tools, including crystal plasticity algorithms and contact mechanics solvers, will be utilised for this purpose in addition to selected commercial packages. Hence, the candidates suitable for this part of the programme will have some previous experience of numerical modelling, although the exact numerical tools used are less important as all relevant training will be provided.

PhD studentships involve regular contact with industry including visits to SKF's research facilities in Europe and giving presentations to industrial experts. In addition, you will have opportunities to attend and present your research at major international conferences, including in the US and Japan, as well as publish scientific papers in the relevant journals.

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 first degree in mechanical engineering, materials, physics or a related subject, and an enquiring and rigorous approach to research. Good written and oral 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 (a.kadiric@imperial.ac.uk) or Prof Dini (d.dini@imperial.ac.uk). Suitable candidates will also 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.