Imperial College London
Department of Mechanical Engineering

PhD Studentship in Polymer Tribology (High Performance Polymers)

Applications are invited for a research studentship in the field of Tribology of High Performance Polymers, leading to the award of a PhD degree. The post is supported by a bursary and fees (at the UK/EU student rate) provided by the CASE award. Potential candidates should fulfill the eligibility criteria for the award. Please check your suitability at the following web site: http://www.epsrc.ac.uk/skills/students/help/Pages/eligibility.aspx

Conventional polymers, compare to metal, are light weight, chemical inert, low in friction and easily fabricated. They are however low strength. Specifically, their mechanical properties deteriorate substantially with relatively modest increase in temperature. High performance polymers (HPPs) are designed to overcome this weakness. They can maintain their integrity at temperature up to 400°C. They have the potential of replacing metal components in tribological applications, which can lead to increase in energy efficiency. The successful use of these HPPs requires fundamental understanding on how polymer and metal rubbing pairs interact. The proposed research project will involve fundamental studies of interactions between polymer and metal rubbing surfaces under various high temperature operating conditions. We aim to obtain an in-depth, molecular understanding on the formation and the properties of transfer films. We are interested in the effect of mechanical energy and details on material transfer processes. The project is experimental and multidisciplinary, combining engineering, chemistry and materials science.

The project will involve close collaboration with an industrial sponsor who specialized in the design and fabrication of HPP components. You will work closely with the sponsor and will be part of the Tribology Group at Imperial College London. The Tribology Group has an international reputation for research excellence and comprises more than 30 PhD students as well as many post-doctoral researchers and academic staff. It offers a vibrant and multicultural working environment. It has well equipped recently refurbished laboratories with an extensive range of advanced testing, measurement and analytical equipment as well as extensive computer facilities.

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 minimum of 2:1 honours degree in Chemical or Mechanical Engineering, Materials, Chemistry, Physics or a related field, and an enquiring and rigorous approach to research, together with a strong intellect and disciplined work habits. You are passionate about searching for the truth and have a strong interest in experimental work and methodology development. Good team-working, observational and communication skills are essential. Training will be given in tribology, and the relevant investigative techniques.

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/

For further details of the post contact Dr Janet Wong j.wong@imperial.ac.uk. Interested applicants should send an up-to-date curriculum vitae to Dr Janet Wong. Suitable candidates will be required to complete an electronic application form at Imperial College London in order for their qualifications to be addressed 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.