Applications are invited for a research studentship in the field of tribology, 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 EPSRC. The studentship is for 3.5 years from October 2017 and is available for UK and EU candidates meeting the Research Council criterion of having been resident in the UK for the previous 3 years. Please check your suitability at the following web site:

http://www.epsrc.ac.uk/skills/students/help/Pages/eligibility.aspx

High performance polymers (HPPs) are polymers that have high glass transition temperatures (up to 400°C!) and unique properties. In certain conditions, they may replace components that are traditionally made of metal. The energy sector is particularly interested in this possibility due to reasons of cost, durability, conformability to dynamic seal surfaces and resistance to chemical attack. HPPs frequently rub against metal components and materials transfer may occur, giving rise to an evolving rubbing contact. The tribology for these polymeric components governs the efficiency and durability of the systems that are involved. Yet, the tribology of HPPs and, more importantly, how HPPs interact with metals in engineering conditions remains little known.

This project concerns the tribological performance of HPPs in conditions relevant to the energy sector. We aim to obtain an in-depth, molecular understanding on the formation and the properties of transfer films. We are interested in the effects of mechanical energy and the nature of the metal counterface on material transfer processes. The project is experimental and multidisciplinary, combining engineering, chemistry and materials science. You will work closely with an industrial sponsor who specialised in the design and fabrication of HPP components.

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 have a background in Engineering (Mechanical, Chemical or Aeronautical), Physics, Chemistry, Materials Science, or a related field. You have a 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. Training will be given in tribology and investigative techniques including fluorescence imaging and spectroscopy, electron microscopy and surface analysis. You will become a skilled communicator, comfortable in an international situation. Good 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/

For further details of the post contact Dr Janet Wong j.wong@imperial.ac.uk +44 (0)20 7594 8991. Interested applicants should send an up-to-date curriculum vitae to Dr 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.