

Post-doctoral Fellowship in Interfaces of Ionic Liquids

KTH in Stockholm is the largest and oldest technical university in Sweden. No less than one-third of Sweden's technical research and engineering education capacity at university level is provided by KTH. Education and research spans from natural sciences to all the branches of engineering and includes architecture, industrial management and urban planning. There are a total of more than 12,500 undergraduate students and close to 2,000 active postgraduate students. KTH has just over 4,800 employees.

The School of KTH Chemical Sciences embraces the areas Chemistry, Chemical Engineering, Fibre and Polymer technology. The principles for design, analysis and understanding of molecular systems plus their application on, for example, bioorganic materials, energy transformation processes, the environment and production of chemicals and pharmaceuticals are in focus both within education and research. KTH Chemical Science and Engineering is one of the most active in research among technical faculties in Sweden and lies in the frontline within the research areas. The School also offers education at PhD, Master and Bachelor levels.

Research and education activities at the Department of Chemistry cover many aspects of fundamental chemistry involving synthesis, materials, analysis and characterization.

PROJECT DESCRIPTION

The research project is a part of an international program and a national research network (I-LEAP) aimed at the development of the environmentally friendly lubricants for the next generation of vehicles and industrial machinery. The research project includes both fundamental and applied aspects. New families of lubricants, in particular based on designed ionic liquids, will be synthesized and characterized. Lubricant performance will then be studied using various tribometers and component level test rigs. A range of lubricant properties essential for superlow friction will also be characterized. Unlike conventional lubricants, novel lubricants possess unusual properties that can significantly improve machine performance. The intention is to incorporate these properties into machine design. The present project will mainly be aimed at the employment of synchrotron and neutron scattering techniques in order to generate fundamental insight into the interfaces of lubricants based on ionic liquids.

ELIGIBILITY AND ASSESSMENT CRITERIA

A PhD in chemistry or physics is a fundamental requirement for eligibility with respect to the above noted post-doctoral fellowship. In addition, extensive experience from synchrotron and/or neutron scattering, including instrument construction, as well as the chemistry and physics of ionic liquids also represent compulsory requirements.

You should have a strong motivation for conducting scientific research and working with complex questions. It's natural for you to solve problems in a structured and thorough way and you often come up with ideas and new ways of working. You possess good analytical skills and take responsibility for the development of your work, solving problems independently.

You have excellent communication skills and work well independently as well as in a team.

Deadline for application is Dec 31, 2014.

The application must consist of a letter of application, a CV and a complete list of publications.

The application must be sent to Prof. Lars Kloo, e-mail address 'Lakloo@kth.se'.

CONTACT

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