PhD position in Applied Mathematics at the Department of Mathematical Sciences

Mathematics

Reference number 2009/8

Application deadline 2009-03-10

**A PhD position in Applied Mathematics is related to a particular project
in area between mathematical modelling and nano biophysics.**
Two PhD students, one in mathematics and one in biophysics, will work in close collaboration on an interdisciplinary project on fundamental problems concerning dynamics of cell membranes and artificial lipid membranes in a liquid carried out by [Alexei Heintz](#) at the Department of Mathematics and by [Orwar Group](#) at the Department of Physical Chemistry.

There are many objects in mathematics called *geometric flows* that are surfaces deforming to minimise some functional of the local geometry. They constitute an area of intensive research with most well known examples as curvature flows, Willmore flows and Ricci flows with applications to PDE, geometry, cosmology, image processing and biophysics. In particular Willmore flows are closely related to models of lipid membranes in cells.
The aim of the present PhD project is to develop mathematical and numerical models for lipid bi-layer structures in liquid environments and to produce an effective numerical package for modelling deformations of such structures together with liquid flows around them.

You will be part of an international research environment for up to five years while you expand your knowledge of the field and write your dissertation. This gives opportunities for many inspiring conversations, a lot of autonomous work and some travel.

The position is limited to at most five years. Usually, a PhD student will spend about 80 percent of his or her time on graduate studies, and about 20 percent on teaching.

Qualifications
Applicants to this position must have obtained a M.Sc. degree in Mathematics, or in a related subject with a strong mathematical modelling component, or expect to complete that degree by September 1, 2009. Applicants must also have good abilities in programming.

We particularly encourage applicants with interests in:
- non-linear PDE, differential geometry, continuum mechanics, cell biology, statistical physics.

It is important that the application includes all relevant work such as theses and articles that you have authored or co-authored. You should also mention your specific research interests.
The copies of degrees and certificates do not need to be attested, if the application is submitted electronically.

The deadline for your full application to arrive is March 10, 2009. A decision about the PhD position will be taken before May 10, 2009.

For further information contact contact
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