

PhD Position in Theoretical Chemical Physics

Water is the key compound for our existence on this planet and it is involved in many physical, biological, geological and chemical processes. Although water is the most common molecular substance it is also the most unusual with many peculiar properties, such as an increased density upon melting, increased viscosity under pressure, density maximum at 4°C, high surface tension and many more. Another of the remarkable and invaluable properties of water is its ability to act as strong polar solvent, which makes it possible for ionic salts to be completely dissolved in it. The understanding of the hydrogen bonding (H-bonding) network in water that gives rise to all these unique properties is one of the most intriguing problems in condensed matter and chemical physics.

A PhD student position is open for theoretical research in Chemical Physics related to fundamental studies of the structure and dynamics of water. The research will focus on multi-scale modeling of structure and dynamics of water and solutions as well as the analysis of x-ray data from synchrotron radiation and free electron laser facilities. The thesis work will be carried out in close collaboration with the experimental group at Stanford University where two of the most intense x-ray sources in the world are located within the Stanford Linear Accelerator Center (SLAC). The research will involve both fundamental methods development in multi-scale simulations and application of these techniques to water and solutions, as well as development of simulation techniques related to time-resolved free electron laser studies.

The funding is 4 years, or 5 years if 20 % departmental duties are included. An appropriate undergraduate degree in physics or chemistry (or equivalent) is required before admission, but does not have to be completed by the application deadline.

The application should be marked Dnr SU 617-2193-08 and specify the position sought (theoretical chemical physics). The application should include a letter of intent describing your motivation for applying, a curriculum vitae, extracts of undergraduate studies including grades, copy of undergraduate thesis (or a detailed description of ongoing work on the thesis), two letters of recommendation and other relevant material for our selection process. The application should be received no later than September 28, 2008 at the address:

Stockholms universitet
Registrator/PA
SE-106 91 Stockholm

or registrator@su.se

More information on the research activity can be obtained from Professor Lars GM Pettersson, 08-55378712, email: lgm@physto.se or Professor Anders Nilsson, +1 650 926 2233, e-mail: nilsson@slac.stanford.edu. For general information on the graduate study program and formal admission requirements, see www.physto.se/utbildning/forskarutbildning-eng.html, or contact Director of Graduate Studies Kjell Fransson +46-(0)8-5537 8605, e-mail: kjell.fransson@physto.se.