Ph.D. fellows in Environmental Analytical Chemistry and Toxicology

Faculty of Life Sciences, **University of Copenhagen (LIFE-UC)** and Department of Environmental, Social and Spatial Change, **Roskilde University (RU)**

Department of Basic Sciences and Environment (LIFE-UC) and Department of Environmental, Social and Spatial Change (RU) offers two joint Ph.D. scholarships in *Environmental Analytical Chemistry and Toxicology*. The scholarships are for a period of 3 years with start December 31, 2009, or as soon as possible thereafter.

The scholarships are financed by Roskilde University and University of Copenhagen in collaboration. One of the Ph.D. projects will be affiliated with the Graduate Programme in Environmental Stress Studies (GESS) at RU, and the other project with the Graduate Programme Environmental Chemistry, Microbiology and Toxicology (RECETO) at LIFE-UC.

Job description

The purposes of the PhD projects are to identify and profile complex mixtures of polar and semi-polar petroleum hydrocarbons (PSPHs) in the marine and terrestrial environment, and to assess the toxicity of these mixtures and their degradation products.

Oil and tar contaminated soil and sediment often contain hundreds of individual hydrocarbons with different physicochemical properties. It is well documented that microorganisms, fungi and invertebrates are able to break down PAHs into polar metabolites, that in addition to being more mobile and resistant to further degradation, also generally are more toxic than the parent compounds. However, environmental risk assessment and EU's chemical legislation, REACH, have primarily focused on single parent compounds and not on mixtures or break down products when assessing chemicals. The PhD projects will add to our understanding of the fate and effects of complex mixtures of *PSPHs* by use of advanced analytical and statistical methods.

PhD1 (enrolled at RU) will focus on the identification, and chemical profiling of degradation products of alkylated PAHs produced by benthic organisms as well as effects of these degradation products to benthic organisms; while PhD2 (enrolled at LIFE-UC) will focus on *PSPHs* originating from the polar fraction of crude oil. The students will mainly work in the interface of analytical chemistry, ecotoxicology, and multivariate data analysis using a number of advanced analytical instrumentations: GC-MS, GC×GC-TOF, UPLC and qTOF for comprehensive profiling of *PSPHs* in contaminated soils and sediments, and in invertebrates. The two Ph.D. projects are intended to be conducted in close collaboration with 2 other Ph.D. students within the research area and will be supported by a team of supervisors and co-advisors.

The following tasks and questions will be addressed:

- Development of analytical methods for identification and profiling of *PSPHs*
- Investigations of the environmental fate of *PSPHs* (transport, degradation, dissolution etc)
- Investigations of ecotoxicology of simple and complex mixtures of *PSPHs*
- Linking chemical profiles of *PSPHs* to ecotoxicity

The appointee should have qualifications within one or several of the following areas:

- Analytical chemistry (mass spectrometry, chromatography)
- Ecotoxicology (theory, design, analyses)
- Environmental chemistry
- Chemometrics

Qualification requirements
In connection with the appointment to the posts special importance will be attached to the applicant having the professional and personal qualifications stated below:

- Passed Master's degree in relation to the above subject area*(s)*. PhD2 can also be enrolled in a dual MD/PhD programme (4+4).
- Good laboratory skills
- Good personal skills and ability to work as part of an interdisciplinary team

Terms of employment
The posts will be filled according to the Agreement between the Danish Ministry of Finance and the Danish Confederation of Professional Associations. The posts are covered by the Protocol on Job Structure.

The position as Ph.D. fellow requires the applicants to be approved for admission to the Ph.D. programme at LIFE-UC and RU, respectively when accepted for the post.

Questions
For further information about the posts, please contact Jan H Christensen (Associated professor in Environmental Analytical Chemistry) at tel. (+45) 35 33 2456, jch@life.ku.dk or Henriette Selck (Associate professor in ecotoxicology) at tel. (+45) 46 74 23 29, selck@ruc.dk

Application
All interested applicants, regardless of age, sex, religious or ethnic background are encouraged to apply.

The application should include a project description and a time plan of 2-4 pages, candidate certificate, and curriculum vitae. Letters of recommendation may also be submitted.

The application should be submitted in 4 (sorted) copies; it is not possible to receive applications by e-mail. The application must include a reply e-mail address.

In addition to the material the applicant wishes to be included in the assessment, the Assessment Committee may include further material in their assessment of the applicant. In such circumstances, it is the responsibility of the applicant, on request, to send the material to the Committee. Following processing of the application, any application material sent will be destroyed.

Receipt of the application will not be acknowledged. The applicant will be assessed according to the Ministry of Science Technology and Innovation Executive Order no 284 of 25. April 2008.

The applications, marked 625/05008-191 should be sent to **The Faculty of Life Sciences, Department of Basic Sciences and Environment, Thorvaldsensvej 40, 1871 Frederiksberg C**, where they must be received no later than **1 December 2009 at 12.00 noon**. Applications received after the closing date for applications will not be considered.