



AARHUS
UNIVERSITY

SENTINEL

European Training Network in Single-Entity NanoElectrochemistry

Early stage researcher opportunity based at

Aarhus University

Interdisciplinary Nanoscience Centre (iNANO)

Project Description

ESR9: Surface Charge of Lipid Rafts in Neuron Signalling Investigated by SICM

This post will be co-supervised by the Pollard Institute at the University of Leeds.

Objectives: SICM will be used to investigate the distribution of surface charge on live cell membranes.

Expected Results: Lipid rafts will be analysed by SICM to establish a precise knowledge of the surface charges. This information will then be used for in vivo comparison between regions of characteristic charge density and relation on neurological function.

Planned Secondments:

- University of Leeds - single cell and single molecule analysis using nanopipettes. The ESR will be trained on nanoelectrochemical methods for the manipulation of single-cells with single molecule resolution.
- Ruhr-University Bochum - assessing electrocatalysts with nanoimpacts. The ESR will be exposed to the chemical analysis of single nanoparticles and will be trained on electrocatalytic measurement at the single nanoparticle level, with applications to fuel cells.
- Bio-Logic Science Instruments. This secondment will expose the ESR to state-of-the-art electrochemical imaging techniques to study of electrochemical interfaces with nanoscale resolution. Special emphasis will be put on the control of the nanometric displacement (step by step vs continuous displacements) and on the low current measurements (noise, amplification, etc).

About the Employer

Aarhus University was founded in 1928. It has 42,500 students - about 1,900 PhD students, of which one in four are foreign nationality, and close to 850 postdoctoral scholars together with 11,500 employees. The university has four faculties which cover the entire research spectrum ranging from basic research, applied research, through to strategic research and research based advice to the authorities. In recent years it has been moving up the most important university ranking lists. In 2015 the university was number 97 at the Leiden Ranking and number 98 of 17.000 universities on the Times Higher Education World University Ranking (2016).

iNANO is a collaboration between research groups at the Department of Physics and Astronomy, Department of Chemistry, Department of Molecular Biology and Genetics, and Department of Bioscience at Aarhus University, several departments at the Faculty of Health at the Aarhus University, as well as groups from the Faculty of Engineering and Science, Aalborg University.



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