

Seminar

Monday 15 March 2010

11.00 am - Room 531

Professor Wolfgang Schuhmann

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Modified carbon nanotubes as materials for biosensors and biofuel cells

Carefully designed electron-transfer pathways between enzymes and electrode surfaces are of crucial importance for the development of reagentless biosensors and membrane-less biofuel cells. In order to successfully immobilise the biological recognition element and to achieve high sensitivity the electrode surface area has to be significantly increased still remaining accessible for the immobilised enzymes. The modification of electrode surfaces with carbon nanotubes and hierarchically structured carbon nanotubes will be demonstrated as a means for increasing the electrode surface and simultaneously the signal in biosensors and biofuel cells. Moreover, the electron transfer pathways between the active site of an immobilized enzyme and the electrode surface have to be designed to allow highest sensitivity at low overpotential. The design of Os-complex modified electrodeposition paints will be presented and the adaptation of the redox potential of the polymer-bound redox relays will be discussed. Examples for the design of electrode surfaces and the impact of nanostructured materials on the sensor and biofuel cell properties will be discussed.

ALL WELCOME

Contact Details

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