

SEMINAR III

Thursday, 25.1.2024, 13:00, Kolar's Lecture Hall

Time- and Frequency-Domain Analyses of Electrochemical Sensors

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Considering the increasing prominence of electrochemical sensing and sensors, a deeper look beyond the commonly used methods such as voltammetry and amperometry provides a new perspective into the physical characterization of the sensing element. While the aforementioned methods are fine for the application of a given platform as a sensor, they show only one part of the story since they are measuring any parameter as a function of time. Measuring and analysing the frequency response, where parameters are defined/measured as a function of frequency gives access to new information that complements the time domain measurements.

Electrochemical Impedance Spectroscopy is one variation of frequency response analysis, where the electrical impedance of a given system is measured as a function of frequency. Using EIS, the change in the behaviour of the sensing element can be seen as it undergoes enhancement or degradation with use. Screen Printed Electrodes, both unmodified and modified with carbon-supported platinum electrocatalyst were subjected to EIS before and after measurements to check the change in the impedance as a corresponding indication of enhancement/degradation and consequent information about optimal life cycles were inferred.

Kindly invited.