

Advanced Methods in Electroanalytical Chemistry I (181701)

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1. General Principles in Electrochemistry

- Electrochemical thermodynamics, electrodeposition, Nernst equation
- Electrochemical kinetics, voltammetry, Butler-Volmer-Formalism
- Transport in solution, diffusion, convection, migration

2. Surface-confined Electrochemical Phenomena and Thereon Based Analytical Methods

- Electric double layer models and voltammetric capacitance determination
- Electrocapillarity: Thermodynamics of adsorption and surface excess charge, surface tension, and measurement methods
- Adsorption pseudocapacitance and respective voltammetric approaches to characterize surface-adsorbed species
- Underpotential deposition and surface area determination

3. Forced Convection Methods

- Theoretical background and transport regimes
- Rotating disc electrodes: Theory and application in electrocatalysis
- Gas diffusion electrodes and flow cells

4. Electrochemical Impedance Spectroscopy

- Introduction to Electrochemical Impedance Spectroscopy
- Data Acquisition and Practical Considerations
- Data analysis and Interpretation

**Lecture will be held online via zoom every tuesday 10 a.m.
first lecture: 27.10.2020**

Please, make a registration in [Moodle](#).

Die Dozenten der
Analytischen Chemie

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