

## Practical Courses Wednesday, March 19<sup>th</sup>

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### Parallel Session 1: Photoelectrochemistry/Photovoltaics

(Dr. M. Multerer)

- 08:30 Understanding Alternative Solar Cell Concepts – The Application of Intensity Modulated Photo Current (Voltage) Spectroscopy in Combination with EIS + Fitting
- 09:30 Photo Current Spectroscopy (CIMPS-pcs) Applied on Perovskite, Monolithic-, Organic- and Dye-Sensitized Solar Cells

### Parallel Session 2: Batteries/Fuel Cells/Electrolyzers (rotating through the courses in groups)

Course 1: EIS-Measurements and Data Processing Applied on a Fuel Cell Model  
*Dr. N. Wagner*

Course 2: Parallel Measurements on Individual Cells in Battery and Fuel Cell Stacks  
*Dr. J. Odrobina*

Course 3: Non-linear Frequency Response Analysis  
*Dr. C. A. Schiller*

Course 4: Discussing the Evaluation of Impedance Spectra (Practice Session: Laptop with Zahner Analysis Software required)  
*Dr. A. Krimalowski*

Course 5: Combination & Automation of Measurements: Script + Sequencer Software  
*Dr. W. Saddique*

Course 6: Integration and Remote Control of Zahner Products  
*M. Eng. M. Krapp*

08:30 First Course

09:15 Changing Course

10:00 *Coffee Break*

10:30 Changing Course

11:15 Changing Course

12:00 *Lunch*

13:30 Changing Course

14:15 Changing Course

15:00 *Final Coffee Break + Farewell*

15:30 End

# 34<sup>th</sup> Kronacher Impedanztage

(Kronach Impedance School)

2025

Preliminary Program

March 17<sup>th</sup> – 19<sup>th</sup>, 2025

#### Management

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#### Seminar Location

Bildungszentrum Kloster Banz  
96231 Bad Staffelstein, Germany  
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## Theory Monday, March 17<sup>th</sup>

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08:30 *Registration + Morning Coffee Break*

09:00 **Welcome**

09:30 **Voltage, Current, Time**

Mathematical and Physicochemical Basics of EIS  
*Dr. C. A. Schiller*

10:30 *Coffee Break*

11:00 **The Connection between Structure, Processes, and Impedance of Electrochemical Objects**

*Dr. C. A. Schiller*

**The Contributions of Electrochemical Processes I:**

Discrete and Distributive Impedance Models  
*Dr. C. A. Schiller*

12:30 *Lunch*

14:00 **Validation of Impedance Spectra**

Comparison between Measurement Model and Z-HIT Algorithm  
*Dr. W. Saddique*

14:30 **Impedance Spectroscopy: A System-Theoretical Approach**

Analysis of Impedance Spectra of Electrochemical Systems using a Data-Driven and Systems-Theoretical Approach  
*Prof. Dr.-Ing. M. Danzer*

15:30 *Coffee Break*

16:00 **Impedance Spectroscopy: A Practical Study**

Impedance-based Analysis of Fuel Cells and Electrolyzers  
*PD Dr.-Ing. A. Weber*

17:00 **Photo-Electrochemical Techniques:**

Dynamic and Spectral Resolved Measurements on DSSC, OSC, OLED, and Electrochromic Devices  
*Dr. M. Multerer*

19:00 *Dinner & Social Evening*

## Practical Courses Tuesday, March 18<sup>th</sup>

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Practical Courses (rotating through the courses in groups)

Course 1: **Handling Changing States during EIS Measurements**  
*Dr. M. Multerer*

Course 2: **Artefacts in EIS Measurements of Low Impedance Samples**  
*Dipl. Ing. S. Fröba*

Course 3: **Artefacts in Measurements of High Impedance Samples**  
*M. Eng. M. Krapp*

Course 4: **From Measurements to Physical Parameters - Interpretation and Modelling of Electrochemical Impedance Spectra**  
*Dr. W. Saddique*

Course 5: **Multi-Sine and Series EIS**  
*Dr. J. Odrobina*

Course 6: **Corrosion Studies using KMZ / Coating and Laminate Testing (COLT)**  
*Prof. Dr. R. Kaus + Dr. A. Kralowski*

09:00 **Organizing Groups**

09:20 **First Course**

10:10 **Changing Course**

11:00 *Coffee Break*

11:30 **Changing Course**

12:20 *Lunch*

13:50 **Changing Course**

14:40 **Changing Course**

15:30 *Coffee Break*

16:00 **Changing Course**

19:00 *Dinner*