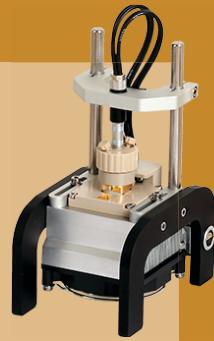


## Training Course for Newcomers

06<sup>th</sup> - 07<sup>th</sup> December 2018

Darmstadt, Germany

# Introduction to Applied Impedance Spectroscopy

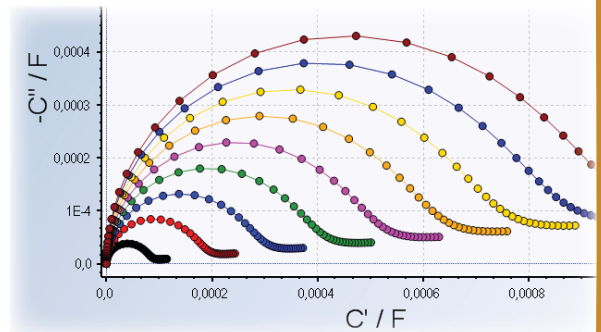


## Theory and Lab Practice

**Electrochemical Impedance spectroscopy, EIS:** Why not expand your analysis portfolio with this powerful technique?

This course helps you discover the secrets of EIS. From basic theory, explained with illustrative examples, over best practices to avoid measurement artifacts, to data analysis for reliable quantitative results.

Let impedance spectroscopy become a transparent, valuable and very helpful tool during your every day working life and in research!



### Course content

#### Theory

- Basic concepts and equations of impedance spectroscopy
- Common representations of EIS data and what can be learned from them
- The concept of equivalent circuits - which one solves my measurement problem?

#### Best Practice

- Artifacts and pitfalls in impedance spectroscopy and how to avoid them

#### From theory to practice - Expand your gained knowledge in real lab experiments

- Determination of the temperature dependent dc-ion conductivity, MacMullin number
- Investigation of a commercial lithium ion battery (single cell)
- Impedance study of electrochemical kinetics

#### Data Analysis

- What information can be gained from my data, and how can I get it quickly?
- Introduction to the RelaxIS analysis software

**Special for participants:** You receive a 3-month free version of the EIS data analysis software RelaxIS!



Please visit our website <https://www.rhd-instruments.de/training> for additional information!

Our lectures and presentations are held in English and are therefore open to an international audience. The course is explicitly designed for newcomers in impedance spectroscopy.

**No prior knowledge of EIS is required. Basic knowledge of general electrochemistry is recommended.**

#### Interested in participation?

Please contact us via [info@rhd-instruments.de](mailto:info@rhd-instruments.de)

Registration deadline: **30.11.2018**. The number of participants is limited.

Participation fee: 950.00 € p.p + VAT for industrial attendees, 750.00 € p.p + VAT for academics, including course documents, participation certificate, lunch and coffee break catering

