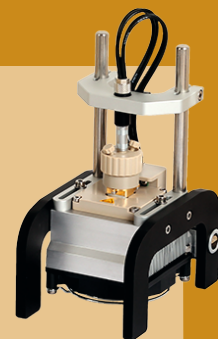




## Training Course for Newcomers

Darmstadt, Germany

# Introduction to Applied Impedance Spectroscopy

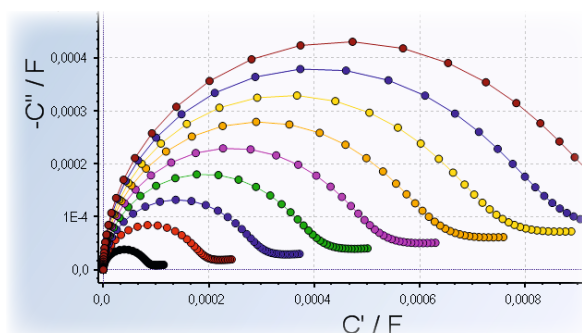


## Theory and Lab Practice

**Impedance spectroscopy?** Have you ever thought about expanding your analysis portfolio with this powerful technique?

This course helps you discover the secrets of impedance spectroscopy. From basic theory, explained with illustrative examples, over best practices to avoid measurement artifacts, to data evaluation for getting the best results out of your data.

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



### Course content

#### Theory

- Basic concepts and equations of impedance spectroscopy.
- Why are there so many different representations of impedance data and what can be learned from them?
- The concept of equivalent circuits - which one fits to my measurement problem?

#### Best Practice

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

#### Hands on - expand your gained knowledge in real lab experiments

- Determination of a temperature dependent dc-ion conductivity, and 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 them quickly?
- Introduction into the RelaxIS analysis software

**Exclusively for participants:** Get an extended free test version of the impedance data evaluation software RelaxIS!



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

Our lectures and presentations are held in English on demand and are therefore open to an international audience. The course is explicitly designed for newcomers in impedance spectroscopy. No prior knowledge on this topic is required. Basic knowledge of general electrochemistry is helpful but not a must-have.

#### Interested in participation?

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

Registration deadline: **4 weeks before the course begins.** The number of participants is limited to 7-8 persons.

Participation fee: 1,050.00 € p.p + VAT for industrial attendees, 850.00 € p.p + VAT for academics, including course documents, participation certificate, lunch and coffee break catering.

