Workshop on basics impedance spectroscopy and the application of compensation methods

Moritz Gerber, Martin Bulst, and Konstantin Weise

This workshop is designed to introduce participants to fundamental compensation methods used in impedance spectroscopy. Attendees will gain both theoretical knowledge and practical experience.

The theoretical component will be presented in a lecture by Konstantin Weise. This session will provide a basic understanding of impedance spectroscopy, including the mathematical foundations of common compensation methods.

In the second part of the workshop, the theory will be put into practice during a hands-on lab session conducted in collaboration with Sciospec Scientific Instruments GmbH (Bennewitz 04828, Germany). Participants will collect their own measurement data using the provided equipment and independently explore various compensation methods.

This practical phase includes a collaborative programming session, during which participants will:

1. Import measuring data in Python.
2. Implement compensation methods by programming Python scripts.
3. Apply different compensation methods to measurement data during the course.

Finally, the results of the different compensation methods will be compared, and conclusions about their applicability and effectiveness will be discussed.

time	form	media	topics
60 min.	Presentation (Martin Bulst)	Beamer	- Introduction to measurement equipment
30 min.	Lecture (Konstantin Weise)	Beamer script	- general about impedance spectroscopy - compensation methods
10 min.	Seminar (Moritz Gerber)	Beamer script	- calculation example
30 min.	Coffee break		
120 min.	Practical course incl. Python programming	Lab equipment Laptops	- measurement of basic circuits and setups incl. parasitic effects - implementation and application of compensation methods
10 min	Closing remarks Martin Bulst	Beamer	- practical considerations on the application of compensation methods