

GRADUATE SCHOOL EES



EIS Workshop

Goal

Aim of the lectures is to supply the researchers with knowledge about the physical principles and practical analysis of impedance spectra applied to electrochemical systems. The researchers will learn about the fundamentals of frequency response analysis and system identification theory, how to acquire impedance spectra with minimized artefacts, how to analyse impedance spectra and extract significant physical parameters. The researchers will also acquire knowledge on state-of-the-art impedance methods for analysis of non-linear and non-stationary systems.

Schedule

The workshop will be held online. It consists of two blocks.

Block 1: Lectures

Block 2: Practical aspects of EIS analysis will be addressed by processing example spectra of lithium-ion batteries in home assignments. The results of these practical exercises will be discussed in a seminar. Participation in block 2 is optional.

Block	Session	Format	Date	Time
1 0.5 CP	Introduction to system identification theory	Online lecture	15/03/21	08:30-10:30
	Electrochemical impedance spectroscopy	Online lecture		14:30-16:30
	Validation of impedance spectra	Online lecture	16/03/21	08:30-10:30
	Analysis of impedance spectra	Online lecture		14:30-16:30
	Dynamic impedance	Online lecture	17/03/21	08:30-10:30
	Models for analysis of impedance spectra on batteries	Online lecture		14:30-16:30
2 1 CP	Analysis of impedance spectra of a lithium-ion battery	Homework		ca. 20 h
	Discussion on homework	Online seminar	31/03/21	08:30-10:30
	Conclusions	Online lecture		10:30-11:30

Workshop Instructor

[Prof. Fabio La Mantia](#), Universität Bremen

Registration

Please register [online](#) until 17/02/2021.

The number of participants for block 2 is restricted to 30.

The workshop is open for GS-EES members, POLiS affiliates and CELEST members. GS-EES members will be admitted preferentially and will gain CPs within „Scientific Training“: 0.5 CP for block 1 and 1.5 CP for both blocks combined.