



Photo: Si Chun Lam

Bath EIS Summer School 2022

Theory and Practice of Electrochemical Impedance Spectroscopy

5th - 8th July 2022

A hands-on, intensive course given by leading experts from Bath, Bristol, and Imperial College in collaboration with Solartron Analytical.

This highly popular course has run for more than twenty years. It provides a sound foundation in both the theory and applications of Electrochemical Impedance Spectroscopy (EIS).

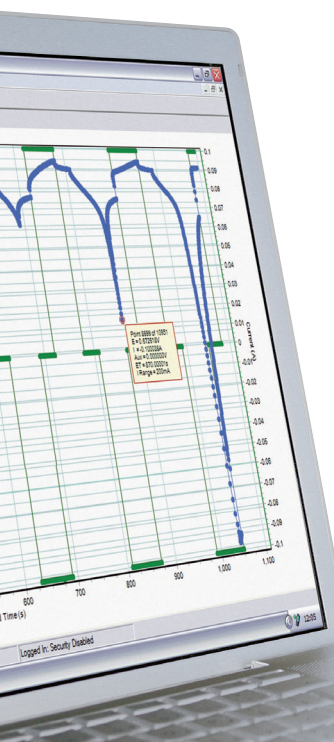
Teaching is in small groups, with a strong emphasis on hands-on, practical exercises. A unique feature of the course is that 70% of the time is spent in the lab using Solartron instrumentation, under the guidance of course demonstrators. This establishes a strong link between theory and experiment.

Lectures

- Network analysis
- Impedance of electrochemical systems
- Frequency response analysis
- Solartron systems and software
- Electrical properties of materials
- Invited guest lecture 2022:
Prof. Oliver Curnick, Coventry University, UK

Experiments

- Getting to know the equipment
- Impedance of model circuits
- Impedance of a simple redox system
- Impedance of corroding metals - inhibitors
- Impedance of corrosion - polymer coatings
- Impedance of batteries
- Impedance of indirect fuel cells
- Impedance of solid oxide fuel cell materials
- Measurement of dielectric properties
- Measurement of membrane properties



Register Online

Book your place on the University of Bath's website:
www.bath.ac.uk/campaigns/study-at-our-electrochemistry-summer-and-winter-schools/

Course Content

Lectures introduce the principle underlying EIS methods. Full details of the lectures and experiments are included in the comprehensive course materials.

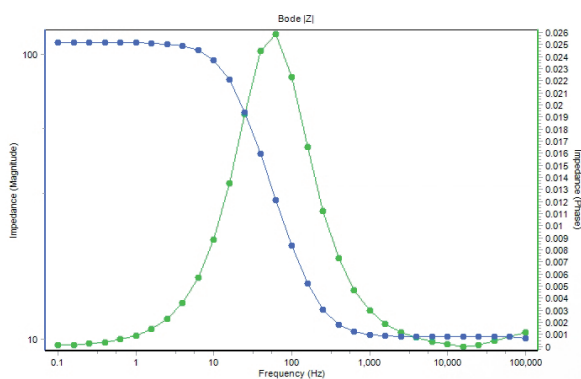
Practical sessions begin by introducing the experimental apparatus used for impedance measurement. In the first two lab sessions, participants learn how to set up and interface the hardware and how to troubleshoot problems. The subsequent lab sessions concentrate on experiments chosen to illustrate the principles and applications of frequency response analysis.

By the end of the course: Participants will be able to operate frequency response analysers and PC-controlled potentiostats as well as interpret and fit impedance data using non-linear regression programmes.



The Team

- Professor Petra Cameron, University of Bath
- Dr Sara Dale, University of Bath
- Professor David Fermin, University of Bristol
- Professor Toby Jenkins, University of Bath
- Professor Frank Marken, University of Bath
- Professor Laurie Peter, University of Bath
- Professor Jason Riley, Imperial College London



Any Questions?

Contact Frank Marken:
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Department of Chemistry,
University of Bath

Course Fees

The £1150 registration fee for the four day intensive course includes:

- All course materials
- All practical laboratory costs
- Daily lunches
- Tea and coffee
- Course dinner at a restaurant in Bath

Accommodation is not included.

Early registration is advised, as the number of places is limited to guarantee all participants full access to the equipment.

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