Joint European Summer School on Fuel Cell, Electrolyser, and Battery Technologies

JESS 2018

10 – 14 September 2018
(Introductory Courses)

and

17 – 21 September 2018
(Advanced Courses)

Vouliagmeni, Athens, Greece

First Announcement

Participation fees:

1.435,- € per course and person (*)

This covers accommodation in single room (double room occupancy = 1.235,- € per person), including all tuition fees and taxes, as well as:

- full board for six nights,
- coffee breaks,
- a banquet on the Friday, and
- an excursion on the Wednesday.

An Early Bird discount of 150,- € applies until incl. 30 April 2018.

Accompanying persons (in same double room, not attending lectures) pay 590 € including of the above.

(*) An additional 'hotel tax' payment of €3 per night will be due to the hotel on arrival.

For updates and information, please go to our web site:

http://www.jess-summerschool.eu

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JESS is organised by: UNIVERSITY OF BIRMINGHAM, DTU, JÜLICH FORSCHUNGSZENTRUM, Ulster University

If you want to sponsor this event, please contact Mr. Hooper.

Organising committee:

Prof. Robert Steinberger-Wilckens, U Birmingham
Prof. Jens Oluf Jensen, DTU Energy
Prof. Rüdiger-A. Eichel, FZ Jülich GmbH
Prof. Vladimir Molkov, Ulster University

Scope and target:

Participants can select from seven individual course modules run in the two weeks:

Week 1 offers three comprehensive introductions aimed at graduate and PhD students and young professionals within the fields of low and high temperature fuel cell & electrolysis, and in battery technology.

Week 2 offers four advanced courses for students and professionals with a few years of experience, covering the fields of fuel cell vehicles, business development, modelling, and hydrogen safety.

All the lectures will be presented by highly acclaimed experts from universities, research centres, and industry with long-standing experience in teaching. More details will be published with the final programme early in 2017.

The courses are accredited at DTU and RWTH Aachen (week 1), and University of Birmingham (week 1 & 2). Upon taking the optional final exams, students will receive 3 ECTS credit points per course.

Lecture language: English.

Slides and information will be available to participants via a secure download area on the JESS website.

The Joint European Summer School, JESS 2018, will be held in Vouliagmeni near the beautiful city of Athens on the coast of the Aegean Sea. Once again, it will provide highly condensed high level courses on selected topics.

It addresses newcomers to the field, graduate students, and young professionals working at the forefront of fuel cell, electrolyser, battery, and hydrogen technologies.

Week 1 of the Summer School will focus on:

Introduction to Fuel Cell, Electrolyser, and Battery Technologies Starting from the fundamental principles of electrochemistry and thermodynamics the entire spectrum of materials, design and balance of plant will be covered both from a scientific and an engineering perspective. The courses will be augmented by more general lectures on various aspects of the technology.

Week 2 of the Summer School will focus on:

Fuel Cell Vehicle Technology, Business Development, Hydrogen Safety, and a Modelling Master Class. These address students with one or two years of experience in fuel cell and hydrogen research. The Master Class will offer insight into modelling approaches before giving the students room to discuss their own projects. The other courses offer students with a background in the basic technology further insights into developing businesses, protecting know-how, safely handling hydrogen, and the engineering and design of fuel cell vehicles.

In addition to the lectures, the participants will be asked to join in student projects, applying the course content to case studies to be presented at the end of the week.

Tentative Programme Schedule

JESS comprises of seven independent course modules as shown below that can be booked separately. Students choose the specific course they want to attend during registration.

Week 1:

<table>
<tr><td colspan="3">Introduction to Electrochemistry and Thermodynamics
Introduction to Solid State Chemistry and Ionics</td></tr>
<tr><td>Introduction to SOFC / SOE</td><td>Introduction to LT Fuel Cells & Electrolysers</td><td rowspan="3">Introduction to Batteries</td></tr>
<tr><td>• electrolyte materials
• anode materials
• cathode materials
• cell and stack designs
• manufacturing
• characterisation
• degradation
• system technology</td><td>• electrolyte materials
• anode materials
• cathode materials
• cell and stack designs
• manufacturing
• characterisation
• degradation
• system technology</td></tr>
<tr><td colspan="2">• power to gas, power to fuel</td></tr>
<tr><td colspan="2"></td><td>• electrolyte, anode, cathode materials
• cell and stack designs
• manufacturing
• characterisation
• modelling
• degradation
• system technology
• beyond Lithium
• metal-air batteries
• solid state batteries</td></tr>
</table>

Week 2:

Fuel Cell Vehicles	*Business Development*	*Modelling Master Class*	*Hydrogen Safety*
• *vehicle design* • *hybrid vehicles* • *electric drivetrains* • *vehicle batteries* • *life cycle and emissions* • *market introduction*	• *spinning out a fuel cell/ hydrogen business* • *financing a business* • *intellectual property protection* • *ideation, creativity*	• *0D, 1D, 2D/3D modelling approaches & software* • *multi-physics modelling* • *student project presenta-tions*	• *introduction to hydrogen safety* • *hydrogen fires* • *hydrogen explosions* • *incident handling* • *incident prevention* • *standards*