



# 10<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON ELECTROCHEMICAL IMPEDANCE ANALYSIS

## PROGRAM

### SUNDAY, June 1

**15:00-17:00** Departure by bus from IEES via Sofia Airport to Borovets, Hotel Lion

**17:00-19:30** Registration

**19:30-20:30** "Meet and Greet"

### MONDAY, June 2

Hall BOROEVETS

Hall LION

**09:00-12:30** Morning Session

Chairpersons: Višnja Horvat-Radosevic, Gabor Mészáros

**09:00-09:20** EIA10 Opening

Welcome address by Representative of the Bulgarian Academy of Sciences

Welcome address by the Co-Chairs of the Organising Committee

**09:20-10:00** T.Pajkossy

Capacitance and potential of zero total charge (pztc) measurements on Au(100) in an ionic liquid, BMIPF6

**10:00-10:20** R. Jurczakowski

Impedance of the Catalytic EC' Processes

**10:20-10:40** F. Lima

Electrochemical Impedance Spectroscopy of n-Si(100) Pre-etched by KOH or BHF

**10:40-11:10** Coffee Break

**11:10-11:50** M.Bojinov

Growth and dissolution of passive films – estimation of kinetic parameters from EIS and XPS data

**11:50-12:20** G. Lang

Reduction of perchlorate ions on noble metals

**12:20-12:40** D. Koleva

Electrochemical impedance spectroscopy for simultaneous evaluation of chloride sensors performance and steel response in model environment

**13:00-14:30** Lunch

Technical Exhibition

Technical Exhibition



# 10<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON ELECTROCHEMICAL IMPEDANCE ANALYSIS

**MONDAY, June 2**

**Hall BOROEVETS**

**Hall LION**

**14:30-18:30** Afternoon Session

Chairpersons: Luis Colmenares, Claudia Paoletti

14:30-15:10	<b>EERA Session</b>	<b>L. Colmenares</b> Fuel Cell and Hydrogen Technologies Joint Programme - Sub-programme 2: Catalyst and Electrodes	<b>Technical Exhibition</b>
15:10-15:40		<b>D. Vladikova</b> Advanced Impedance Techniques in SOFC Studies	
15:40-16:00		<b>C. Boigues Muñoz</b> Analysis of superposed relaxation processes in EIS spectra of High Temperature Fuel Cells in order to individualize the degradation phenomena	

**16:00-16:30** Coffee Break

16:30-17:00	<b>EERA Session</b>	<b>M. Cassir</b> Electrochemical impedance spectroscopy diagnosis tool for a cathode-supported solid oxide electrolysis cell	<b>Technical Exhibition</b>
17:00-17:30		<b>C. Paoletti</b> Electrochemical Impedance Study of the Poisoning Behavior of Ni-based Anodes at Low Concentrations of H <sub>2</sub> S in a MCFC	
17:30-18:00		<b>C. Chatzichristodoulou</b> The need for localized electrochemical measurements and the promise of Controlled Atmosphere High Temperature scanning probe microscopy	
18:00-18:30		<b>L. Colmenares</b> Summary; relevant points for the discussion session, first EERA session closing	



# 10<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON ELECTROCHEMICAL IMPEDANCE ANALYSIS

**TUESDAY, June 3**

**Hall BOROEVETS**

**Hall LION**

**09:00-12:00** Morning Session

Chairpersons: Luis Colmenares, Claudia Paoletti

09:00-09:15

**EERA Session**

**L. Colmenares**

Summary of previous day session. Opening of the discussion session

09:15-09:45

**A. Barbucci**

Study of Reliability of Sofc Cathode Impedances at Applied Overpotentials

09:45-10:15

**C. Chatzichristodoulou**

Intermediate temperature and pressure electrochemical reactors

**Technical  
Exhibition**

**10:15-10:45** Coffee Break

10:45-12:00

**EERA  
Session**

**Discussion:** Interpretation of the experimental data – can construction of impedance models be avoided or replaced with more simple procedures that extract valuable information

**Moderators: D. Vladikova and Luis Colmenares**

**12:00**

**Closing of the EERA session**

**Technical  
Exhibition**

**12:30** ECSCURSION to the town of Plovdiv

Lunch, tour of the Old Town, and museum visit



# 10<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON ELECTROCHEMICAL IMPEDANCE ANALYSIS

**WEDNESDAY, June 4**

**Hall BOROEVETS**

**Hall LION**

**09:00-12:30 Morning Session**  
Chairpersons: Norbert Wagner, Lubomir Pospisil

**09:00-09:40 V. Horvat-Radosevic**  
Impedance approach to hydrogen evolution at GC/Ru electrodes: influence of differently modified GC electrode supports

**09:40-10:10 A. Survila**  
Impedance under forced convection conditions. Measurements and analysis.

**10:10-10:30 T. Günther**  
Multispectral impedance measurement in Embedded Systems

**10:30-10:50 G. Mészáros**  
Diffusion related electrochemical noise

**10:50-11:10 Coffee Break**

**11:10-11:20**  
**Iosif Fromondi**  
Metrohm Autolab B.V.

**11:20-11:30**  
**Calr-Albrecht Schiller**  
Zahner-elektrik, GmbH

**11:30-11:40**  
**Vladimir Jovic**  
Gamry Instruments

**11:40-11:50**  
**Karol Fijalkowski, Rafal Jurczakowski**  
Novel Impedance Cell for Highly Reactive Powder Samples

**11:50-13:00**  
**Discussion:** Advancements in Impedance Instrumentation: Recent Progress (Producers Information) and Advancing Requirements (The Users' vision)  
**Moderators: Z. Stoynov and D.Vladikova**

**13:0-14:10 Lunch**

**Technical Exhibitors Session**

**Technical Exhibition**



# 10<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON ELECTROCHEMICAL IMPEDANCE ANALYSIS

WEDNESDAY, June 4

Hall BOROEVETS

Hall LION

14:10-19:30 Afternoon Session

Chairpersons: Antonio Barbucci, Gyözö Lang

14:10-14:50 **N. Wagner**

Production and Characterization of carbon-free bi-functional cathodes for the use in lithium-air batteries with an aqueous alkaline electrolyte

14:50-15:20 **C.Schiller**

Modeling Dye Sensitized Solar Cells Based on Nano Tubes or Nano Rods - A New Transmission Line Approach

15:20-15:40 **F. Wendler**

Efficient parameter estimation impedance-based sensors by local, linear transformation

15:40-16:00 **L. Pospisil**

Negative Differential Resistance of Extended Viologen. Oscillations with Odd Harmonic Frequencies.

16:00-16:30 Coffee Break

16:30-18:00 **Oral Presentations of Posters**

16:30-16:40

**M. Hromadova**

Electron Transfer Kinetics in a Series of Expanded Pyridiniums and its Correlation with Steric Constraint around N-pyridinio Site

16:40-16:50

**R. Sokolova**

Adsorption of N-butyl-N-ethyl-2,6-dinitro-4-(trifluoromethyl) aniline on Gold(111) Substrate

16:50-17:00

**S. Avramov**

The Effect of Temperature and Humidity on Proton Conductivity of Polybenzimidazole Based Electrolyte Membrane

17:00-17:10

**J. H. Bae**

Reliability test of a bio-electrical impedance device with varying contact area of electrodes

17:10-17:20

**I. Genov**

Electrochemical Studies of Monolithic Dual Membrane Fuel Cell in Reversible Mode

17:20-17:30

**S. Akay**

Proton Conductivity Studies of Novel Organic Polymers

17:30-17:40

**M. Tanovska**

Electrochemical impedance investigation of cholesterol enriched supported films of lipids

17:40-17:50

**R. Duarte**

Electrochemical Impedance Spectroscopy Analysis in Electrodes for Redox Supercapacitors

17:50-18:00

**A. Survila**

Equivalent circuits for electrochemical reaction involving consecutive charge transfer steps

18:00

**Poster Presentations**

Technical Exhibition

Technical Exhibition

Poster Session



# 10<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON ELECTROCHEMICAL IMPEDANCE ANALYSIS

**THURSDAY, June 5**

**Hall BOROEVETS**

**Hall LION**

**08:30-12:30 Morning Session**  
Chairpersons: Magdalena Hromadova, Tamás Pajkossy

**09:00-09:20 M. Krapchanska**  
Impedance Studies of Porous Electrolytes with Mixed Ion Conductivity

**09:20-09:40 K. Fijalkowski**  
Impedance of alkali metals amidoboranes – lightweight hydrogen stores

**09:40-10:00 C. Schiller**  
Relaxation Impedance - The Nature of Inductive and Capacitive Behaviour in Low Frequency Impedance Spectra of Corroding Electrodes, Batteries and Fuel Cells

**10:00-10:20 D. Levi**  
Dielectric Impedance Spectroscopy - an Insight into Motor Oils Behaviour

**10:20-10:40 E. Mladenova**  
Permittivity Impedance Spectroscopy of Porous Wet functional ceramics

**10:45-11:15 Coffee Break**

**11:15-12:15 EIA10 Closing**  
Award Ceremony for Best presentation by Young Scientist  
Closing Remarks

**14:00 Organized transportation from Hotel Lion Borovets to Sofia via Sofia Airport**

**Technical Exhibition**