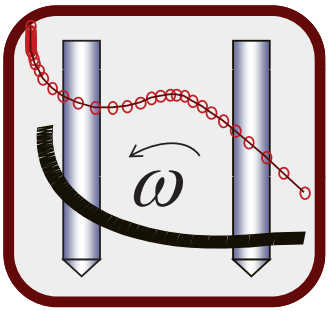
Program Book
17th International Workshop
on Impedance Spectroscopy

IWIS 2024



September 24-27, 2024
Technische Universität Chemnitz
Germany

Chairman's Welcome Message

The exchange of ideas and concepts between different scientific fields is an essential first step to find innovative solutions for future and current problems of mankind. The goal of the International Workshop on Impedance Spectroscopy (IWIS) is to bring together innovative and experienced scientists from different countries to discuss methods, instrumentation, and results of recent research in electrochemistry, materials science, biology and medicine, electronics and sensors. The Advanced School on Impedance Spectroscopy (ASIS), now in its fourth year, provides a good overview of the basics of the method and makes it more accessible to young scientists. An exhibition will provide information on the latest developments in instrumentation and equipment. These are the main components of this annual international workshop at the Chemnitz University of Technology.

In its 17^{th} edition, the IWIS includes 37 contributions from 12 countries in 6 sessions, 4 plenary talks, 2 Hands-on tutorials and 8 tutorials. The peer-reviewed contributions highlight new advances and present different approaches to impedance spectroscopy, including modeling, measurement, and applications.

This year's IWIS is a continuation of the brilliance of the IEEE Technical Committee IM-TC 2 on Impedance Spectroscopy. In its fourth year, TC2 promotes Impedance Spectroscopy and standards within the IEEE community worldwide.

The workshop organization has requested a considerable effort from the organizing team of the chair for measurement and sensor technology, which makes it possible to organize this international event this year online within Technische Universität Chemnitz.

We thank the IEEE Instrumentation and Measurement Society for supporting the Advanced School on Impedance Spectroscopy and the IEEE Instrumentation and Measurement Chapter Portugal for the assistance of the event. The workshop is co-organized by the Chemnitz School of Metrology (CSM e.V.), whose support for the event is highly acknowledged.

We would like to thank you for choosing IWIS 2024.

Prof. Olfa Kanoun & Prof. Pasquale Arpaia
General Chairs

IWIS 2024 Organizers

General Chairs

O. Kanoun (DE) P. Arpaia (IT)

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H.-R. Tränkler (DE)

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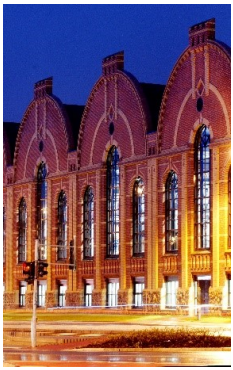
General Information

The City of Chemnitz

Chemnitz has its unique story - of groundbreaking inventions in automotive engineering, mechanical engineering or the textile industry as well as of courageous companies like Richard Hartmann, Carl Gottlieb Haubold or Louis Schönherr. As a modern industrial city, Chemnitz has continued to write its history and is today one of the fastest-growing cities in Germany. The city is a center of technology focusing on the automotive and supplier industries, information technology and mechanical and plant engineering.



Industry Museum,
(©www.chemnitz2025.de)

Rathaus, Neumarkt (©CWE - Chemnitz)

Going down their own path, experiencing new adventures and inventions - this recipe makes the city Chemnitz and its people successful: thousands of patented ideas like the thermos flask or the first mild detergent were conceived

here. Today, as an essential link in the global manufacturing chain, Chemnitz produces excellent machines and production facilities for the whole world.

A European selection jury has named the German city of Chemnitz the European Capital of Culture for 2025. The Saxonian city beat four other German cities on the shortlist: Hannover, Hildesheim, Magdeburg and Nuremberg.

Logo of Chemnitz as European capital of culture (©www.chemnitz2025.de)

Residents of Chemnitz celebrate the nomination of Chemnitz as the European Capital of Culture 2025. (©Jan Woitas/dpa)

Tradition and modernity are also reflected in exciting urban contrasts. Unique evidence like “das Bauhaus” and “die neue Sachlichkeit” or the Kaßberg, some of the largest intact areas of Wilhelminian style architecture in Europe, are deeply loved by the architecture fans. Just like Chemnitz city center, which has been redesigned over the past 20 years by internationally renowned architects such as Helmut Jahn, Hans Kollhoff and Christoph Ingenhoven.
For lovers of the fine arts there is a lot to discover in Chemnitz: For example, the Chemnitz Art Collections or the Gunzenhauser Museum, which houses one of the most impressive collections of classical modern art. Meanwhile, the Saxon

Buildings in Jugendstyle in the famous Chemnitz-Kaßberg (4.5 km^2 protected area as a historic monument), (©www.chemnitz.de)

Industrial Museum traces its history and present. The Municipal Theatres with the Robert-Schumann-Philharmonie attract visitors from all over Germany.

A side trip to the more than 100-year-old town hall is also worthwhile: the monumental Klinger-mural "Arbeit - Wohlstand - Schönheit" can be admired in the town council hall. The council hall is adorned with the work "Die Abwäng" by Neo Rauch, one of the most important contemporary artists.

Those who simply want to relax will also find a place in Chemnitz: recreation islands such as the castle pond with the adjoining kitchen forest invite you to stroll and linger as well as the historic city park along Chemnitz.

Let Chemnitz surprise you, go to discover the city by yourself - it's worth it!

Conference Venue

The International Workshop on Impedance Spectroscopy will take place in a **hybrid** form: **online** using the Zoom platform and **On-site** at TU Chemnitz:

Technische Universität Chemnitz
Neues Hörsaal und Seminargebäude (Orangerie)
Reichenhainer Straße 90
09126 Chemnitz

TU Chemnitz, Zentrales Hörsaal- und Seminargebäude (©www.chemnitz.de)

Bars & Restaurants

If you want to spend an evening in the modern city center of Chemnitz, there are some nice bars and restaurants. You may want to try the following:

Brazil – Innere Klosterstraße 10, www.restaurant-brazil.de

Buono – Theaterstraße 7, www.bouno-chemnitz.de www.buschfunk-chemnitz.de

City Pub – Brückenstraße 17, www.tower-pub.de

Diebels Fasskeller – An der Markthalle 3, www.fasskeller.de

Janssen – Schloßstraße 12, www.janssen-restaurant.de

Tillmanns – Brückenstraße 17, www.tillmanns-chemnitz.de

Turmbrauhaus – Neumarkt 2, www.turmbrauhaus.de

Gastromeile

New in the city of Chemnitz is Gastromeile, where there is something for everyone. Have a look at the website:

Chemnitzer Gasttromeile – chemnitzcity.de/gastromeile/

Lunch
The lunches will be provided by the Mensa of TU Chemnitz, where a special room is reserved for IWIS participants:

Building of the Mensa on the other side of the street as the conference building

IWIS Special Dinner - Turm-Brauhaus

We invite you to a special dinner at on **September 26th 2024 at 19:00**

Turm-Brauhaus is a restaurant located in Chemnitz, Germany. It offers a unique dining experience for scientific conference participants. Here are some details about Turm-Brauhaus:

Address: Neumarkt 2, 09111 Chemnitz, Germany

Getting there by: local trains "C13/C14" or tram "3" from the front of the university, and get off at the "Chemnitz, Zentralhaltestelle" stop (16 mins ride).

Phone: +49 371 9095095

Cuisine: The restaurant specializes in serving authentic Saxony and German dishes.

Menu: The restaurant offers a diverse menu with various options for conference participants.

Hours: Turm-Brauhaus closes at 11 PM.

IWIS Social Program – Visit to KARREE 49

KARREE49 Open House: Explore urban agriculture to discover innovative farming in the city.

Event Details

Date: September 25, 2024

Time: 3:00 PM - 9:00 PM

Location: KARREE49, Petersstraße 24-28, 09130 Chemnitz

About the Open House

With the motto "GEMEINSAMerLEBEN"(Living Together, Experiencing Together), KARREE49 is opening its doors for an afternoon of exploration and discovery. Visitors will have the opportunity to see urban agriculture in action and learn about innovative farming techniques.

Highlights of the visit include:

- Tours of the unique indoor aquaponics system
- Information about urban farming initiatives
- Displays showcasing the connection between agriculture and social projects

Travel to Chemnitz

You can reach *Technische Universität Chemnitz* via car or train.

By car from Autobahn A72:

- Take the motorway exit '15-Chemnitz Süd'
- Use B173 / Neefestraße direction 'Stadtzentrum'
- After 1 km turn right on the B169 / 'Südring'
- After 5.5 km use exit 'Reichenhainer Straße' direction 'Technische Universität'
- You'll reach campus after 1.5 km. The conference venue is on the left

By car from Autobahn A4:

- Take the motorway exit 'Chemnitz Mitte' toward the city centre.
- Follow the road for about 5 km. There are several big crossings.
- Always go straight until there are signs to turn right to the 'Reichenhainer Straße' and to 'Technische Universität'.
- After 1.5 km you'll reach the campus, the conference venue is on the left side. Next to the Mensa is a -car park- where 30 places are reserved.

By train:

- Get off at Chemnitz central station and use tram 3 in direction 'Technopark Chemnitz', alternatively local trains C13, C14 or C15 in direction 'Technopark Chemnitz'
- Get off at 'TU Campus (Reichenhainer Straße)'

Airport:

- The next nearby Airports are Dresden and Leipzig
- From airport Dresden go into A4 direction Chemnitz/Erfurt.
- From airport Leipzig-Halle go into A14 direction Dresden, at 'Dreieck Nossen.'
- Go on A4 direction Chemnitz/Erfurt. Proceed as described above.

Taxi: If you need a taxi in Chemnitz, please call: +49 371 369 000

Getting Around in Chemnitz

Most of the buses and trams in Chemnitz meet at the Central Bus Station ('Zentralhaltestelle').
Information about public transport and timetables you can find here:

www.cvag.de
www.öpnvkarte.de
www.bahn.de

The tickets for the local train (C13, C14 and C15), Trams (1, 2, 3, 4, and 5), and Buses could be obtained either from the ticket distribution machines in the stations or directly from inside the mean of transport.

The tickets obtained from the distribution machines in the stations should be stamped after boarding the bus/tram/train. The stamp machine is typically orange.

Meanwhile, the tickets obtained from public transport do not require further stamping. The distribution machines are found in the middle of the means of transport for trams and trains. The bus, however, must always be boarded from the front door. The ticket could be obtained from the driver.

A 1-day ticket "Tageskarte" could get you around Chemnitz. It costs 6€ and is valid until 4:00 AM the following day with reference to the date stated on the ticket.

A one-drive ticket, "Einzelfahrtkarte," is valid for 1 hour from the stamp time. It costs 3€.

Please note that, in case you have booked a Sachsen-Ticket, the ticket would also be valid for all the means of transport indicated above.

It is possible to use Android/iPhone app DB Navigator from the app store. (https://www.bahn.com/en/view/booking-information/booking/db-navigator-app.shtml)

Getting from the Hotel Seaside Residenz to the workshop venue:

By feet:
15 minutes of walk.

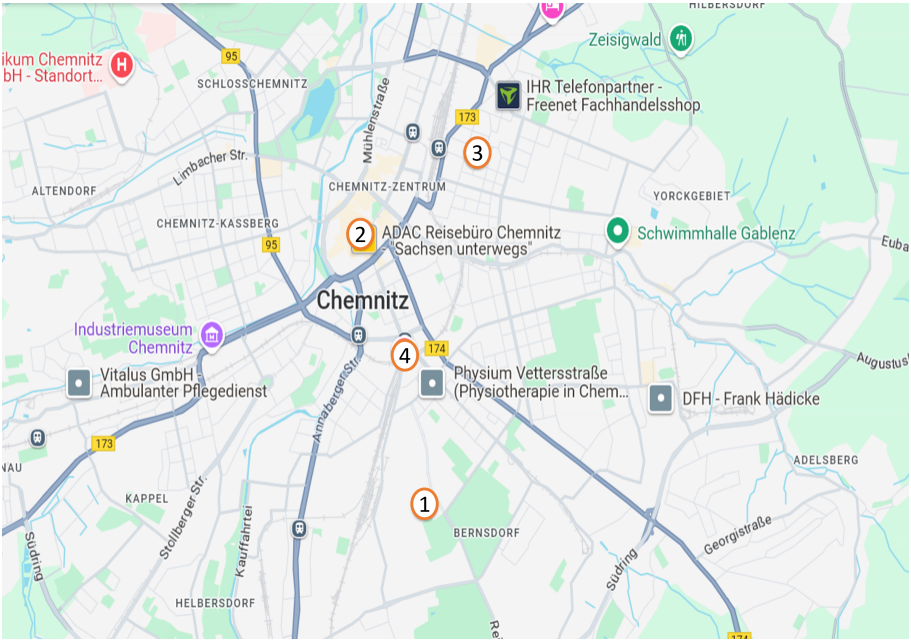
By Tram/Train:
In front of the hotel, you will find 'Bernsbachplatz' train/tram station. Take Tram 3, alternatively Train C13, C14 or C15 to the direction 'Technopark Chemnitz'. The station at university is named 'TU Campus' and is just in front of the workshop venue.

Getting from the Hotel Dorint Kongresshotel to the workshop venue:

By Tram/Train:
Nearby the hotel, you will find 'Roter Turm' train/tram station. Take Tram 3, alternatively Train C13, C14 or C15 to the direction 'Technopark Chemnitz'. The station at university is named 'TU Campus' and is just in front of the workshop venue.

City Plan

1. Venue (Zentrales Hörsaal- und Seminargebäude, nicknamed Orangerie)
2. Turm-Brauhaus Restaurant
3. KARREE49 Open House
4. Hotel Seaside Reisdenz Chemnitz


Zeisigwald
IHR Telefonpartner - Freenet Fachhandelsshop
SCHLOSSCHEMNITZ
Limbacher Str.
Mühlenstraße
ALTENDORF
CHEMNITZ-ZENTRUM
YORCKGEBIET
CHEMNITZ-KASSBERG
ADAC Reisebüro Chemnitz "Sachsen unterwegs"
Schwimmhalle Gablenz
Chemnitz
Industriemuseum Chemnitz
Vitalus GmbH - Ambulanter Pflegedienst
Physium Vettersstraße (Physiotherapie in Chem...
DFH - Frank Hädicke
ADELSBERG
KAPPEL
Stollberger Str.
Kaufhartei
BERNSDORF
Georgistraße
HELBERSDORF
Südring
95
173
174
1
2
3
4

City Plan

Internet Access

During the event, Wi-Fi access is available at the campus site. Please use the following registration information to log in:

Network name	`tu-chemnitz.de`
WPA2 key	`IWIS2024`

If you have problems connecting to the network, please ask organizers for help at the workshop desk.

Sponsors

The workshop is supported mainly by:

- Sciospec

- ZAHNER-elektrik GmbH & Co. KG logo

- RHD Instruments

- EDAG Engineering GmbH

- NTI Deutschland GmbH

and by:

- School of Metrology CSM e.V.

- IEEE Instrumentation & Measurement Society

- IEEE IM Chapter Germany Section

- IEEE EMB Chapter Germany Section

- IEEE Technical committee IM-TC 2 on Impedance Spectroscopy

- IEEE Education Society Germany Section

First Aid
Your safety is our priority; if you or anyone else is injured, contact Mr. Frank Wendler immediately.

ASIS Program

Tuesday, September 24th, 2024 : ASIS Day 1

09:00 - 10:15	**Tutorial 1** Where does the signal processing begin in Impedance Spectroscopy Prof. Olfa Kanoun, Measurement and Sensor Technology, Chemnitz University of Technology, Germany
10:15 - 10:45	**Short break**
10:45 - 12:00	**Tutorial 2** Overcoming Resource Constraints in Embedded Impedance Spectroscopy M. Sc. Dipl.-Ing. Ahmed Yahia Kallel, Measurement and Sensor Technology, Chemnitz University of Technology, Germany
12:00 -13:00	**Lunch break**
13:00 -14:15	**Tutorial 3** Impedance Basics: Choosing the Instrumentation Dipl. phys. Martin Bulst, Sciospec Scientific Instruments GmbH, Bennewitz, Germany
14:00 - 15:15	**Tutorial 4** Modeling of impedance data Prof. Andrzej Lasia, Emeritus Professor at the Chemistry Department, University of Sherbrooke, Quebec, Canada
15:30 -15:45	**Short break**
15:45 - 16:30	**Tutorial 5** EIS Quality Indicators Dr. Bogdan Petrescu, Senior Scientist, BioLogic, France
16:30 -17:15	**Tutorial (Hands-on) 1** Arduino basics - hands-on Dipl.-Ing. Cherif Ouni and M. Sc. Amin Fischer, Measurement and Sensor Technology, Chemnitz University of Technology, Germany

Wednesday, September 25th, 2024 : ASIS Day 2

09:00 - 10:15	**Tutorial 6** Dielectric material characterization in the GHz range Prof. Uwe Pliquett, Institut für Bioprozess- und Analysenmesstechnik e.V., Heilbad Heiligenstadt, Germany
10:15 - 10:45	**Short break**
10:45 - 12:00	**Tutorial 7** Precise Engineering of Heterostructured and Doped Nanomaterials for High-Performance and Flexible Supercapacitors Prof. Ahmed S. G. Khalil, Materials Science and Environmental Engineering, Egypt-Japan University of Science and Technology (E-JUST) and Fayoum University, Egypt
12:00 -13:00	**Lunch break**
13:00 - 14:45	**Tutorial 8** Artificial neural network for electrode diagnostic in EIS: biomedical application Prof. Pasquale Arpaia and M. Sc. Rosanna Manzo, Dipartimento di Ingegneria Elettrica, UniversitÃ di Napoli Federico II, Naples, Italy
13:45 - 14:30	**Tutorial (Hands-on) 2** Artificial neural network for electrode diagnostic in EIS: biomedical application Hands-on Prof. Pasquale Arpaia and M. Sc. Rosanna Manzo, Dipartimento di Ingegneria Elettrica, UniversitÃ di Napoli Federico II, Naples, Italy
15:00 - 20:00	**Social event**

IWIS Program

Thursday, September 26th, 2024 : IWIS day 1

08:30 - 08:45 **Opening**

08:45 - 09:30 **Plenary Talk 1**
Chair: Prof. Olfa Kanoun
Bioimpedance Sensors in Cardiovascular Surgery; *Prof. Mart Min*

Session 1 - Signal Processing
Chair: Prof. Pasquale Arpaia

09:30 - 10:30
- Improving four-electrode impedance measurements by numerical simulations; *Nils Arbeiter et al.*

- A Polynomial Curve Fitting of Bioimpedance Data for Parameter Estimation of the Cole-impedance Model; *Mitar Simic et al.*

- The link between Distribution of relaxation times and time constants of a Voigt model identification; *Mohamed TOURKI et al.*

10:30 - 11:00 **Short break**

Session 2 - Insights
Chair: Prof. Mart Min

11:15 - 12:00
- Extracting the Distribution of Relaxation Times Directly from Impedance Data through the Loewner Framework; *Bansidhar Patel et al.*

- Reliable and reproducible analysis of impedance spectra of electrochemical systems using a data-driven and systems-theoretical approach; *Michael A. Danzer et al.*

- Operando determination of lithium-ion cell temperature based on electrochemical impedance features; *Tobias Hackmann et al.*

- Biohybrid microcapsules based on electrosprayed CS-immobilized nanoZrV for self-healing epoxy coating development; *Lydia Uko et al.*

12:30 - 13:30 **Lunch Break**

13:30 - 14:15 **Plenary Talk 2**
Chair: Dr. Saddam Weheabby
How does the solution resistance influence the electrochemical behavior of porous electrodes?; *Prof. Andrzej Lasia*

Session 3 - Materials
Chair: Prof. Ahmed S. G. Khalil

14:15 - 15:45 -Estimating bentonite content in foundry sands using machine learning from measured electrical impedance spectra; *Xiaohu Ma et al.*

- Complementary Analysis of Cyclic Voltammograms and Impedance Spectra of Porous Carbon Electrodes; *Sebastian Reinke et al.*

- Study of Steel Behavior in Synthetic Pore Solutions of GGBFS-containing Cements Using EIS; *Ali Nikoonasab et al.*

- A Compact Electrochemical Model for a Conducting Polymer Dendrite Impedance; *Antoine Baron et al.*

15:45 - 16:30 **Coffee Break**

15:45 - 16:30 **Poster Session & Exhibition & Hackathon Presentations**

- Influence of polycondensation on the silyl grafting route of anion on nano ceramic particles for use in solid-state batteries; *Athira Mullakkal Ravikumar et al.*

- Comparative Analysis of Embedded AI Techniques for Bovine Meat Monitoring; *Varsha Sadashiv Narale et al.*

- Portable Metal Oxide E-Nose Based on Machine Learning for Multiple Beverage Classification; *Tianqi Lu et al.*

- Low-Cost and Easily Manufactured Flexible All-Solid-State Supercapacitors Based on Laser-Induced Graphene; *Tianqi Lu et al.*

- Reducing Injections in Low-Power Electrical Impedance Tomography for Hand Sign Recognition; *Bilel Ghoul et al.*

-Effect of 3D tubular electrode geometry on Electrochemical Impedance Spectroscopy (EIS) cytokines detection; *Aseel Alnaimi et al.*

- Impedance spectroscopy measurement of graphene oxide/reduced graphene oxide heterostructures; *Ammar Al-Hamry et al.*

- Study for the determination of the optimum Set of Frequencies for Cole-Cole Model Using CPE for Bioimpedance Spectroscopy; *Cherif Ouni et al.*

- Exploiting the patch antennas for wireless identification of polymer substrates; *Dhivakar Rajendran et al.*

- Surface Electromyography Signal Analysis for Detecting Muscle Fatigue During Grasping Exercises; *Sawsan Njah et al.*

- Distributed high-voltage EIS sensor system for electric vehicles; *Tobias Frahm et al.*

- Generalization of Reflection Modeling in Complex Cable Structure with Impedance Mismatches; *Dhia Haddad et al.*

- Plasma-treated polyimide film modified by liquid epitaxially grown HKUST-1 MOFs for development of selective gas sensors; *Oumayma Otay et al.*

- Chemically treated polyimide film modified by liquid phase epitaxially grown HKUST-1 MOFs for electrochemical sensing applications; *Amir Mrayeh et al.*

16:30 - 17:15 **CEIS: TC-2 Meeting & Women in Engineering**

19:00 **Dinner**

Friday, September 27th, 2024 : IWIS Day 2

09:00- 09:45 **Plenary Talk 3**
Chair: Dr. Thomas Keutel
Impedance Spectroscopy and the Future of Sustainable Value Creation; *Prof. Marlen Arnold*

09:45 - 10:30 **Plenary Talk 4**
Chair: Prof. Michael Danzer
A missing bridge between batteries and small-scale devices: submillimeter batteries; *Dr. Minshen Zhu*

10:30 -11:00 **Short break**

Session 4 - Medical
Chair: Prof. Uwe Pliquett

11:00 - 12:30
- A Method for Minimizing the Number of Frequencies in Bioimpedance Spectroscopy-based Approach for Insulin Bioavailability Assessment; *Pasquale Arpaia et al.*

- Bioimpedance Spectroscopy for Noninvasive Monitoring of Tumor Spheroids; *Ahmed Khattab et al.*

- Comparison of Active and Passive Shielded 4-point Probes for Impedance Spectroscopy of Brain Tissue; *Konstantin Weise et al.*

- Evaluation of Adjacent and Opposite Current Injection Patterns for 3D Image Reconstruction of the Human Lung Based on a Realistic Mode; *Mejda Bouchhima et al.*

Session 5 - Sensors (I)
Chair: Prof. Jörg Himmel

11:00 - 12:30
- Exploratory data analysis of Bulk Fluid Viscosity measurements by means of Quartz Cyrstal Microbalance Impedance Analysis; *Ceyhun E. Kirimli et al.*

- Microscale electromagnetic tracking using a second-generation quantum sensor; *Thomas Thuilot et al.*

- Usage of Electro-Mechanical Impedance Spectra for Structural Health Monitoring of Bolted Connections under Varying Temperatures; *Anna-Lena Dreisbach et al.*

- Conductometric methanol microsensor based on electrospun PVC-nickel phthalocyanine composite nanofiber technology; *Ibrahim Musa et al.*

12:30 - 13:30 **Lunch break**

Session 6 - Sensors

Chair: Prof. Olfa Kanoun

13:30 - 15:00 - Pressure-sensitive mat for the detection of hoof diseases in dairy cows; *Uwe Pliquett et al.*

- Silicon Nanowire-Based Electrochemical Sensors with Copper Phthalocyanine for Phosphate Monitoring; *Milaine Jebali et al.*

- Co-Planner Sensor for Impedimetric Characterization of Aqueous Solutions; *Bikash K. Bhawmick et al.*

- Screen Printed Electrochemical Sensors: Textile Effect on pH Sensing; *Saima Qureshi et al.*

15:00 - 15:15 **Closure**

Notes:

Notes:

Publications series

O. Kanoun (Ed.)

Impedance Spectroscopy: Advanced Applications: Battery Research, Bioimpedance, System Design

Vol. 1, ISBN 978-3-11-055892-0, 2018

Progress Reports on Impedance Spectroscopy

Vol. 1, ISBN 978-3-11-044756-9, 2016

Lecture Notes on Impedance Spectroscopy: Measurement, Modeling and Applications

Vol. 5, ISBN 978-1-138-02754-1 (Hbk), 2015
Vol. 4, ISBN 978-1-138-00140-4 (Hbk), 2014
Vol. 3, ISBN 978-0-415-64430-3 (Hbk), 2012
Vol. 2, ISBN 978-0-415-69838-2 (Hbk), 2012
Vol. 1, ISBN 978-0-415-68405-7 (Hbk), 2011

TIME	Tuesday **24** September ASIS Day 1	Wednesday **25** September ASIS Day 2	Thursday **26** September IWIS Day 1	Friday **27** September IWIS Day 2
8:00				
8:15				
8:30			Opening	
8:45				
9:00	Tutorial 1 (Room N010)	Tutorial 6 (Room N010)	Plenary 1 (Room N012)	Plenary 3 (Room N012)
9:15				
9:30			Session 1 Signal Processing (Room N012)	
9:45				Plenary 4 (Room N012)
10:00	Discussion	Discussion		
10:15	Coffee Break	Coffee Break		
10:30			Coffee Break	Coffee Break
10:45	Tutorial 2 (Room N010)	Tutorial 7 (Room N010)		
11:00				Session 4 Medical Apps (Room N012) / Session 5 Sensors (I) (Room N010)
11:15			Session 2 Insights (Room N012)	
11:30				
11:45	Discussion	Discussion		
12:00	Lunch Break	Lunch Break		
12:15				
12:30			Lunch Break	Lunch Break
12:45				
13:00	Tutorial 3 (Room N010)	Tutorial 8 (Room N010)		
13:15				
13:30			Plenary 2 (Room N012)	Session 6 Sensors (II) (Room N012)
13:45		Hands-on Tutorial 2 (Room N010)		
14:00	Discussion			
14:15	Tutorial 4 (Room N010)		Session 3 Materials (Room N012)	
14:30				
14:45				Closure
15:00				
15:15	Discussion			
15:30	Coffee Break			
15:45	Tutorial 5 (Room N010)		Poster Session / Exhibition / Hackathon	
16:00				
16:15				
16:30	Hands-on Tutorial 1 (Room N010)		CEIS-TC2 Meeting / WIE	
16:45				
17:00		Social Event		
17:15				
17:30				
17:45				
18:00				
18:15				
18:30				
18:45				
19:00			Dinner	