# **Topical Session A: Electrochemical Methods and Sensors**

 Tutorial Lecture A: "From Electrochemical Sensing to Imaging with Ionophores" 

 Prof. Eric BAKKER (University of Geneva, Switzerland)
 p.1

### Short Oral Presentations:

- A1 **Stefan SCHMIDT** (University of Applied Science Aachen, Germany) *Electrokinetic* studies about the impact of compressed nitrogen on the zeta potential of aluminum oxide surfaces p. 2
- A2 **Hüseyin ZENGIN** (Johannes Kepler University Linz, Austria) Contrasting corrosion behaviour of pure Mg and Mg-1.8Ca (at.%) alloy: Insights from thin film and bulk structures p.3
- A3 **Fatemeh AHMADI TABAR** (KU Leuven, Belgium), *Electrochemical determination* of *PFOA* with screen-printed electrodes modified with molecularly imprinted *polymers* p.4
- A4 **Tobias KARSCHUCK** (University of Applied Science Aachen, Germany) -Electrochemical characterization of capacitive field-effect sensors by means of a portable measurement device p. 5
- A5 **Karl Frederik WERNER** (Kyoto Institute of Technology, Japan) *Detection of alphasynuclein with a lipid layer-immobilized light-addressable potentiometric sensor* p. 6
- A6 **Dua ÖZSOYLU** (University of Applied Science Aachen, Germany) *Monitoring of* saliva pH and buffer capacity using a miniaturized multiwell capacitive sensor p. 7
- A7 **Minh-Hai NGUYEN** (Hannover Medical School, Germany) *Electrochemical* degradation of molecularly imprinted polymers for advanced inflammation sensors in cochlear implants p. 8
- A8 **Manuel HOFINGER** (Johannes Kepler University Linz, Austria) *Investigation on* the influence of Ytterbium on potentiodynamic polarization of co-evaporated Magnesium thin-films p. 9
- A9 **Kevin JANUS** (University of Applied Science Aachen, German) *Fibroin as* biocompatible and bioabsorbable immobilization matrix for amperometric biosensors? p. 10
- A10 **Theodor DOLL** (Hannover Medical School, Germany) *Work Function Tuning by Alloying: Silver – Ln Libraries* p. 11
- A11 **Stefan ACHTSNICHT** (University of Applied Science Aachen, Germany) -Aluminium-doped manganese dioxide particles "boosting" hydrogen peroxide sensitivity? p. 12
- A12 Animesh Pratap SINGH (RWTH Aachen, Germany) Exploring 2D materialsubstrate dielectric interface in MoS<sub>2</sub> liquid-gated transistors p. 13
- A13 **Lukas PÖTSCHER** (Johannes Kepler University Linz, Austria) *Combinatorial study* of Aluminium-Dysprosium thin films p. 14
- A14 **Maximillian KNOLL** (University of Applied Science Aachen, Germany) -Characterization of an Al<sub>2</sub>O<sub>3</sub> extended-gate ion-sensitive field-effect transistor with Nernstian behavior p. 15
- A15 **Martin KONRAD** (Johannes Kepler University Linz, Austria) Combinatorial analysis of silver-gold alloy thin films for possible application in AIMD p. 16

# **Topical Session B: Biological Systems and Sensors**

Tutorial Lecture B: "Multifunctional bandages as strategy for wound management" -Prof. Dr. Sabine SZUNERITS (University of Lille, France)p. 17

### Short Oral Presentations:

- B1 **Nathalie PHILIPPAERTS** (Maastricht University, The Netherlands) *Surface Imprinted Polymers for the Detection of Fungal Spores* p. 18
- B2 **Dua ÖZSOYLU** (University of Applied Science Aachen, Germany) New concept for surface-MIPs for bacteria detection: no need for template cell, well-ordered high cavity density p. 19
- B3 **Clara ZOBELEY** (RPTU Kaiserslautern, Germany) *Bottom-up Assembly of a 3D* Structure of Icosahedral Viral Nanoparticles via Specific Binding p. 20
- B4 **Flavia DI SCALA** (Maastricht University, The Netherlands) A real-time viscosity technique: from the monitoring of PDMS polymerization to the investigation of biological fluids p. 21
- B5 Andrei Ionut MARDARE (Johannes Kepler University Linz, Austria) Anodic memristors as future of artificial synapses p. 22
- B6 **Fereshteh ALIAZIZI** (KU Leuven, Belgium) Development and Calibration of a Sensor System for Assessing the Physical Properties of Water Samples in Aquaculture p. 23
- B7 **Kevin JANUS** (University of Applied Science Aachen, Germany) Adjusting the working potential of a bioabsorbable screen-printed carbon-based glucose biosensor on silk-fibroin p. 24
- B8 **Tao HE** (RPTU Kaiserslautern, Germany) Building a Virus Actuator p. 25
- B9 **Melanie WELDEN** (University of Applied Science Aachen, Germany) Turnip veinclearing virus particles as versatile nanotemplates for the binding of biomolecules on capacitive field-effect sensors p. 26
- B10 **Valerii MYNDRUL** (Maastricht University, The Netherlands) *PSi/SIP Photonic Composites for the Point-of-Care Diagnosis of Bacterial Urinary Tract Infections*

p. 27

- B11 **Csongor Tibor URBAN** (KU Leuven, Belgium) A heat-transfer biosensor with variable geometry p. 28
- B12 **Rocio ARREGUIN-CAMPOS** (Maastricht University, The Netherlands) *Whole-Cell Thermal Sensor for the Detection of P. falciparum-infected Erythrocytes: Expanding the Boundaries of Imprinted Polymers for the Detection of Malaria* p. 29
- B13 **Tobias KARSCHUCK** (University of Applied Science Aachen, Germany) Detection of C-reactive protein with capacitive field-effect sensors using antibodyfunctionalized magnetic nanoparticles p. 30
- B14 **Xuan Thang VU** (RTWH Aachen, Germany) *Design and implementation of a wafer-scale process for SiC microwire aiming for biochemical sensing applications*

p.31

# **Topical Section C: Advanced Characterisation Methods**

Tutorial Speaker C: "Characterization of working electrochemical interfaces with X-rayspectroscopies and electron microscopy" – Dr. Juan Jesús VELASCO VÉLEZ(ALBA Synchrotron, Spain)p. 32

## Short Oral Presentations:

- C1 **Ko-ichiro MIYAMOTO** (Tohoku University, Japan) *In-situ measurement of the work function of steel surface by photoelectron yield spectroscopy under atmospheric condition* p. 33
- C2 **Heping CUI** (RWTH Aachen, Germany) *Ohmic contacts in tellurium nanowires* semiconductor devices p. 34
- C3 Jiazhe ZHAO (Queen Mary University of London, UK) 3D Photoelectrochemical Imaging p. 35
- C4 Andreas GREUL (Johannes Kepler University Linz, Austria) Combinatorial property mapping of a Al-Eu Compositional Thin Film Library p. 36
- C5 **Gil van WISSEN** (Maastricht University, The Netherlands) *Thermal Detection of Riboflavin in Almond Milk Using Molecularly Imprinted Polymers* p.37
- C6 **Dua ÖZSOYLU** (University of Applied Science Aachen, Germany) *Exploring of a multi-sensor array system for on-site monitoring of groundwater quality* p.38
- C7 **Ruixiang LI** (Queen Mary University of London, UK) *Live Cell Imaging with Photoelectrochemical Imaging and Scanning Ion Conductance Microscopy* p.39
- C8 Ramiro MARROQUIN-GARCIA (Maastricht University, The Netherlands) -Colorimetric detection of veterinary tranquilizer in adulterated alcoholic beverages p. 40
- C9 Astghik TSOKOLAKYAN (A.B. Nalbandyan Institute of Chemical Physics, Armenia) - Detection of urea in artificial urine using capacitive field-effect biosensors modified with a stacked polyelectrolyte-enzyme bilayer p. 41
- C10 **Huijie JIANG** (RWTH Aachen, Germany) *Temperature and solvent effect on the electrical characteristics of two-dimensional metal-organic frameworks* p. 42
- C11 **Maximillian KNOLL** (University of Applied Science Aachen, Germany) *Fluidic* setup for automated electrochemical characterization of extended-gate ISFETs

р. 43

- C12 **Niels KNIPPENBERG** (Maastricht University, The Netherlands) Development towards a novel screening method for nipecotic acid bioisosteres using molecular imprinted polymers (MIPs) as alternative to in vitro cellular uptake assays p. 44
- C13 **Stefan SCHMIDT** (University of Applied Science Aachen, Germany) A portable platform for the multiplexed characterization of 16 capacitive field-effect sensors

p.45

- C14 Elena ATANASOVA (Johannes Kepler University Linz, Austria) Sensing capabilities of anodic memristors in the Nb-Ti System p. 46
- C15 **Torsten WAGNER** (University of Applied Science Aachen, Germany) A project introduction "PFAS-resolve": On-site monitoring of per- and polyfluoroalkyl substances (PFAS) in soil and wastewater p.47

# **Topical Session D: Medicine and Surface Function**

Tutorial Speaker D: "Surface modifications of implants for tailored osseointegration properties" - Univ.-Prof. Dr. Christoph KLEBER (Danube Private University, Austria) p. 48

### Short Oral Presentations:

D1 **Wiktor ŁUCZAK** (Danube Private University Krems, Austria) - *TM-AFM analysis of laser-treated surface compared to 3D-printed ceramic and titanium dental implants* 

p. 49

- D2 Anastasija LINK (RPTU Kaiserslautern, Germany) Interaction of Dextran with Dental Surfaces p. 50
- D3 **Nils HEINE** (Hannover Medical School, Germany) *Medical-grade liquid-infused titanium for biofilm reduction* p. 51
- D4 **Soroush BAKHSHI SICHANI** (KU Leuven, Belgium) *Study of spontaneous cell* detachment using a multiparametric biosensing platform based on HTM, EIS, and QCM-D p. 52
- D5 **Muhammad Usman ANWAR** (RPTU Kaiserslautern, Germany) *Cell adhesion and* behaviour on micro-nano-structured glass surfaces produced by wet etching p. 53
- D6 **Kevin BRUNKE** (Hannover Medical School, Germany) Design of a microfluidic channel system for real-time monitoring of the perilymphatic fluid of the inner ear using molecularly imprinted polymers p. 54
- D7 **Margaux FRIGOLIA** (Maastricht University, The Netherlands) *Gold screen-printed* electrodes coupled with molecularly imprinted conjugated polymers for ultrasensitive detection of streptomycin in milk p. 55
- D8 **Eashika GHOSH** (RWTH Aachen, Germany) Concept of foldable active intraocular implants for artificial vision with enhanced spatial resolution p. 56
- D9 Adrian ONKEN (Hannover Medical School, Germany) Investigating Diffusion-Triggered Corrosion in AIMD p. 57
- D10 Andreas GREUL (Johannes Kepler University Linz, Austria) Quantification of the Titanium Dissolution during a new Explantation Procedure p. 58