

Program & Book of Abstracts of Bioelectrochemistry 2013

12th Topical Meeting
of the International Society of Electrochemistry
&
XXII International Symposium
on Bioelectrochemistry and Bioenergetics
of the Bioelectrochemical Society

17-21 March, 2013, Bochum, Germany

Organized by:
Bioelectrochemical Society
ISE Division 2 Bioelectrochemistry
ISE Region Germany



Please note that all submitted entries have been confirmed to be correct by the submitting author and can not be changed anymore.

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Gunther Wittstock, *Oldenburg, Germany*

Symposium Organization

Symposium on the occasion of the 80th birthday of Adam Heller

Woonsup Shin, *Seoul, Korea*

Wolfgang Schuhmann, *Bochum, Germany*

Protein electrochemistry

Lo Gorton, *Lund, Sweden*

Ana Maria Oliveira-Brett, *Coimbra, Portugal*

Electroporation and biomedical applications

co-organized by COST TD1104

Eberhard Neumann, *Bielefeld, Germany*

Damijan Miklavcic, *Ljubljana, Slovenia*

Design of the interface between biological recognition elements and electrodes including new tools and measuring techniques

Nicolas Plumeré, *Bochum, Germany*

Bioassays, biochips, biosensors: New developments and applications

Fred Lisdat, *Wildau, Germany*

Magdalena Gebala, *Stanford, USA*

Enzymatic and microbial biofuel cells

Lo Gorton, *Lund, Sweden*

Renata Bilewicz, *Warsaw, Poland*

Interdisciplinary bioelectrochemistry: hyphenated techniques; impact from other fields on bioelectrochemistry

Gunther Wittstock, *Oldenburg, Germany*

Alexander Kuhn, *Pessac, France*

Electrochemistry at cells and tissues

Renata Bilewicz, *Warsaw, Poland*

Pawel Krysinski, *Warsaw, Poland*

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Program



Special Meetings and Social Program

Sunday

09:00 to 12:00

BES Council

17:30 to 18:00

Opening Ceremony

Conference Center Room 2a/2b

19:30 to 21:30

Welcome Reception

Conference Center

Monday

18:00 to 20:30

Poster Session and Reception

Conference Center Room 1

Tuesday

14:45

Excursion

Departure Bus stop Unicenter

19:00

Banquet

Presentation of «RUB rectorate poster awards»

Wednesday

12:40 to 14:00

BES General Assembly

Conference Center Room 2a

18:00 to 19:00

**Panel Discussion: Future Directions
of Electroporation Based Approaches**

18:00 to 20:30

Poster Session and Reception

Conference Center Room 2

Sunday, 17 March, 2013 - Afternoon

Conference Center Room 2a/2b

17:30

Opening Ceremony

Giulio Milazzo Prize Lecture

Conference Center Room 2a/2b

Chaired by: Ana Maria Oliveira-Brett

18:00 to 18:50

Luigi Galvani Prize Lecture

Conference Center Room 2a/2b

Chaired by: Fred Lisdat

19:00 to 19:30

19:30

Welcome Reception

Monday, 18 March, 2013 - Morning

Plenary Lecture

Lecture Hall HNA

Chaired by: Woonsup Shin

09:00 to 09:50

page 64

Adam Heller (*Department of Chemical Engineering, University of Texas, Austin, USA*)

Searching for Nature's Truths and Life-Improving Products

S1 - Symposium on the occasion of the 80th birthday of Adam Heller

Room 2a

Chaired by: Woonsup Shin and Wolfgang Schuhmann

10:00 to 10:30 Keynote

page 66

Christian Amatore (*Department of Chemistry, UMR 840 Pasteur, CNRS, Ecole Normale Supérieure & UPMC, Paris, France*)

Coupling Amperometry and Total Internal Reflection Fluorescence Microscopy for Monitoring Exocytosis of Single Vesicles

10:30 to 11:00 Coffee Break

Chaired by: Woonsup Shin and Nicolas Mano

11:00 to 11:30 Keynote

page 71

Ben Feldman (*Advanced Development, Abbott Diabetes Care, Alameda, USA*),
Brian Cho, Zenghe Liu

A Self-Powered Glucose Sensor Based on a Wired Enzyme Anode

11:30 to 12:00 Keynote

page 87

Michael Pishko (*Department of Biomedical Engineering, Texas A&M University, College Station, USA*)

Improving implanted glucose sensor performance – Designing the next generation of sensors

12:00 to 12:20 Invited

page 143

Ioanis Katakis (*Department of Chemical Engineering, Universitat Rovira i Virgili, Tarragona, Spain*)

Electrochemically Actuated, Capillarity-Driven Biodetection Devices for Food Safety and Clinical Analysis

12:20 to 12:40

page 197

Woonsup Shin (*Department of Chemistry, Sogang University, Seoul, Korea*)

Development of Non-gassing Electroosmotic Pump for Drug Infusion System

S3 - Electroporation and biomedical applications

Room 82

Chaired by: Eberhard Neumann

10:00 to 10:30 Keynote

page 94

James Weaver (*Harvard-MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology, Cambridge, USA*), Thiruvallur Gowrishankar, Kyle Smith, Reuben Son

Cell Electroporation Creates Complex Pore Populations

10:30 to 11:00 Coffee Break

Chaired by: Magorzata Kotulska and Richard Heller

11:00 to 11:30 Keynote

page 70

Ruggero Cadossi (*R&D, IGEA, Carpi, Italy*)

Clinical electroporation: experience in cancer treatment in Europe

11:30 to 12:00 Keynote

page 86

Lluis M. Mir (*UMR 8203 CNRS and LEA EBAM, CNRS, Villejuif, France*), Marie Breton, Isabelle Leray, Aude Silve

Cell electroporation and cell electropermeabilisation: facts and theory

12:00 to 12:20

page 146

Malgorzata Kotulska (*Institute of Biomedical Engineering and Instrumentation, Wrocław University of Technology, Wrocław, Poland*), Maria Derylo, Arnold Grabiec, Julita Kulbacka, Julie Orio, Marie-Pierre Rols, Jolanta Saczko, Justin Teissie, Joanna Wezgowiec

Photodynamic Reaction Assisted by Reversible Electroporation as a Prospective Cancer Treatment - in Vitro Study on Breast Carcinoma Cells

12:20 to 12:40

page 169

Anna M. Nowicka (*Faculty of Chemistry, Warsaw University, Warsaw, Poland*), Ewa Augustin, Mikolaj Donten, Anita Jarzebinska, Agata Kowalczyk, Pawel Krynski, Zofia Mazerska, Zbigniew Stojek

Targeting Tumor Cells by Using Drug-Magnetic Nanoparticle Conjugate

54 - Design of the interface between biological recognition elements and electrodes including new tools and measuring techniques

Room 2b

Chaired by: Lars Jeuken

10:00 to 10:30 Keynote

page 82

Benoit Limoges (*Laboratoire Electrochimie Moleculaire, University Paris Diderot CNRS, PARIS, France*)

Rational Design of Highly Sensitive Bioelectroanalytical Devices: an Illustrating Example with the Heterogeneous Reconstitution of PQQ-Dependent Glucose Dehydrogenase

10:30 to 11:00 Coffee Break

11:00 to 11:20

page 118

Karolien De Wael (*Department of Chemistry, Antwerp University, Antwerp, Belgium*)

Electrochemical Aptasensing – Reaching Maximum Residue Limits and Unraveling Biomolecular Interactions

11:20 to 11:40

page 120

Thomas Doneux (*Chimie Analytique et Chimie des Interfaces, Université Libre de Bruxelles, Bruxelles, Belgium*), Claudine Buess-Herman, Eléonore Triffaux

Electrochemical Detection of the Protein Mdm2 by a Peptide Affinity Probe Based on the Protein p53

11:40 to 12:00

page 117

Anne De Poulpiquet (*Bioénergétique et Ingénierie des Protéines, CNRS - AMU, Marseille, France*), Alexandre Ciaccafava, Roger Gadiou, Marie-Thérèse Giudici-Orticoni, Elisabeth Lojou, Helena Marques

Immobilisation of Aquifex aeolicus Membrane-bound Hydrogenase on carbon nanofibers for H₂/O₂ biofuel cells

12:00 to 12:20

page 125

Artur Fandrich (*Biosystems Technology, Technical University of Applied Sciences, Wildau, Germany*), Jens Buller, André Laschewsky, Fred Lisdat, Erik Wischerhoff

“Smart” Polymer Interfaces at Electrodes - useful Matrix for Biorecognition Reactions

12:20 to 12:40

page 109

Ariadna Brotons (*Química Física, University of Alicante, Alicante, Spain*), Juan Miguel Feliu, Jesus Iniesta, Vicente Montiel, Jose Solla-Gullón, Francisco José Vidal-Iglesias

A First Approach to the Electrochemical Evaluation of DNA Methylation on Gold Surfaces: from Single Crystal to Nanoparticles

Monday, 18 March, 2013 - Afternoon

S1 - Symposium on the occasion of the 80th birthday of Adam Heller

Room 2a

Chaired by: Michael Pishko and Zhiqiang Gao

14:00 to 14:30 Keynote

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Kazuhito Hashimoto (*Department of Applied Chemistry, The University of Tokyo, Tokyo, Japan*)

Extracellular Electron Transfer via Conductive Minerals

14:30 to 14:50 Invited

page 158

Nicolas Mano (*CRPP-UPR 8641, CNRS, Pessac, France*)

The Evolution of the Miniature Membrane-less Biofuel cells From 2001 to 2006

14:50 to 15:10

page 198

Sergey Shleev (*Department of Biomedical Science, Health & Society, Malmö University, Malmö, Sweden*), Plamen Atanasov

Biomedical Applications of Implantable Biofuel Cells

15:10 to 15:30

page 152

Donal Leech (*Department of Chemistry, National University of Ireland Galway, Galway, Ireland*)

Redox complexes for mediation of electron transfer in enzymatic batteries and fuel cells

15:30 to 15:50

page 171

Marcin Opallo (*Institute of Physical Chemistry, Polish Academy of Sciences, Warszawa, Poland*), Alexandre Ciaccafava, Anne De Poulpiquet, Martin Jonsson-Niedziolka, Elisabeth Lojou, Frank Marken, Helena Marques, Joanna Niedziolka-Jonsson, Katarzyna Szot

Carbon nanoparticulate films as effective scaffolds for mediatorless bioelectrocatalytic hydrogen oxidation

15:50 to 16:10

page 131

Magdalena Gebala (*Department of Biochemistry, Stanford University, School of Medicine, Stanford, USA*), Gerhard Hartwich, Wolfgang Schuhmann, Andreas Zimdars

Sandwich microassay for pathogens detection related to urinary tract infections. Selective post-labeling of hybridized 16S rRNAs

16:10 to 16:40 Coffee Break

Chaired by: Ioanis Katakis and Magdalena Gebala

16:40 to 17:00

page 156

Fred Lisdat (*Department of Biosystems Technology, Technical University of Applied Sciences Wildau, Wildau, Germany*)

DNA on gold – tools for the label-free analysis of hybridization and sequence specific ligand interaction

17:00 to 17:30 Keynote

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Zhiqiang Gao (*Department of Chemistry, National University of Singapore, Singapore, Singapore*), Huimin Deng, Yuqian Ren, Wei Shen

Wired Enzyme Technology-Based Ultrasensitive Nucleic Acid Biosensors

17:30 to 18:00 Keynote

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Hubert Girault (*Laboratoire d'Electrochimie Physique et Analytique, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland*), Fernando Cortes-Salazar, Baohong Liu, Reza Pourhaghighi, Liang Qiao, Elena Tobolkina

Electrochemical methods for proteomics: From electrophoresis to mass spectrometry

S3 - Electroporation and biomedical applications

Room 82

Chaired by: Maja Cemacar and Veronique Preat

14:00 to 14:30 Keynote

page 91

Gregor Sersa (*Department of Experimental Oncology, Institute of Oncology Ljubljana, Ljubljana, Slovenia*)

Translational Research in Biomedical Applications of Electroporation

14:30 to 14:50

page 138

Richard Heller (*Center for Bioelectrics, Old Dominion University, Norfolk, USA*), Amy Donate, Siqi Guo, Cathryn Lundberg, Shawna Shirley

Gene Electrotransfer a Versatile and Powerful Tool to Enhance Therapeutic Applications

14:50 to 15:10

page 228

Veronique Preat (*Louvain Drug Research Institute, Université catholique de Louvain, Brussels, Belgium*), Gaëlle Vandermeulen, Paolo E. Porporato, Pierre Sonveaux, Marcus Lehnhardt, Frank Jacobsen, Veronique Preat, Lars Steinstraesser, Martin Lam

In Vivo Cutaneous Electroporation of Human Host Defense Peptide LL-37 Accelerates Wound Healing

15:10 to 15:30

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Franck André (*UMR8203, CNRS, Villejuif, France*), Léa Lesueur, Aaron Liew, Lluís M. Mir, Timothy O'Brien

Robust, efficient and practical electrogene transfer method for human mesenchymal stem cells using square electric pulses

15:30 to 15:50

page 113

Maja Cemazar (*Department of Experimental Oncology, Institute of Oncology Ljubljana, Ljubljana, Slovenia*), Darja Pavlin, Gregor Sersa, Natasa Tozon

Electrogene therapy with interleukin-12 alone or combined with electrochemotherapy for treatment of spontaneously occurring tumors in dogs

15:50 to 16:10

page 186

Marie-Pierre Rols (*Institute of Pharmacology and Structural Biology, CNRS and University of Toulouse, Toulouse, France*), Christelle Rosazza, Andreas Zumbusch

Cellular tracking of single DNA-particles after their delivery by electro-poration

16:10 to 16:40 Coffee Break

Chaired by: Giovanna Ferrari and Wolfgang Frey

16:40 to 17:10 Keynote

page 89

Javier Raso (*Food Technology Unit, University of Zaragoza, Zaragoza, Spain*)

Applications of Pulsed Electric Fields for Food Processing

17:10 to 17:30 page 128

Wolfgang Frey (*Institute for Pulsed Power and Microwave Technology (IHM), Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen, Germany*), Christian Eing, Martina Goettel, Christian Gusbeth, Ralf Straessner

Pulsed Electric Field Treatment of Microalgae: Benefits for Downstream Processing

17:30 to 17:50 page 135

Christian Gusbeth (*Institute for Pulsed Power and Microwave Technology (IHM), Karlsruhe Institute of Technology, Karlsruhe, Germany*), Wolfgang Frey, Annika Rieder, Thomas Schwartz

Bacterial Decontamination of Wastewater by Pulsed Electric Field Treatment

17:50 to 18:10 page 179

Gianpiero Pataro (*Industrial Engineering, University of Salerno, Fisciano, Italy*)

Metal Release from Stainless Steel Electrodes of an Ohmic Heater

S4 - Design of the interface between biological recognition elements and electrodes including new tools and measuring techniques

Room 2b

Chaired by: David Waldeck

14:00 to 14:30 Keynote page 77

Lars Jeuken (*School of Biomedical Sciences, University of Leeds, Leeds, United Kingdom*)

Electrochemistry of Fluorescently-labeled Enzymes Reveals Heterogeneous Interfacial Electron-transfer Rates and Intramolecular Rates that Differ between Rest and Turn-over Conditions

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Jose A. Garrido (*Walter Schottky Institut, Technische Universität München, Garching, Germany*)

Functionalization of Diamond Surfaces for Bio-applications

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page 157

Edmond Magner (*Materials and Surface Science Institute, University of Limerick, Limerick, Ireland*)

Spatially controlled immobilization of enzymes for use in biofuel cells and biocatalysis

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page 200

Koji Sode (*Department of Biotechnology, Graduate School of Engineering, Tokyo University of Agriculture & Technology, Tokyo, Japan*), Stefano Ferri, Yohei Horaguchi, Katsuhiko Kojima, Shoko Saito

Engineering FAD dependent oxidases ~development of dehydrogenases from oxidases for amperometric enzyme sensor applications~

15:30 to 15:50

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Joaquim T. Marquês (*Centro de Química e Bioquímica, Faculdade de Ciências da Universidade de Lisboa, Lisboa, Portugal*), Rodrigo F. M. de Almeida, Ana S. Viana

Building Raft-Containing Biomimetic Membranes on Bare and Modified Gold

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Ales Iglic (*Faculty of Electrical Engineering, University of Ljubljana, Ljubljana, Slovenia*), Ekaterina Gongazde, Peter Kramar, Alenka Macek Lebar, Sarka Perutkova, Aljaz Velikonja

Zwitterionic lipid layer in contact with monovalent ions and water dipoles in planar lipid bilayer experiments

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Chaired by: Karolien de Wael

16:40 to 17:00 Invited

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David Waldeck (*Department of Chemistry, University of Pittsburgh, Pittsburgh, USA*)

Fundamental Studies of Charge Transport between Biomolecules and Electrodes

17:00 to 17:20

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Barbara Palys (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Piotr Olejnik, Anna Sloniewska, Agnieszka Swietlikowska

Infrared Studies of Enzymes Entrapped in Supramolecular Hydrogels and Adsorbed on Electrode Surfaces

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Aleksandra Pinczewska (*School of Biological and Chemical Sciences, Queen Mary University of London, London, United Kingdom*) Jessica Groppi, Jeremy Kilburn, Philip Bartlett

Towards the Control of the Surface Coverage of Carbon Electrodes with Osmium and Flavin Redox Centers

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Olga Swiech (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*)

New derivatives of cyclodextrins as a pH-sensitive drug carriers for anthracycline

18:00 to 20:30

Poster Presentation Session 1

Tuesday, 19 March, 2013 - Morning

Plenary Lecture

Lecture Hall HNA

Chaired by: Lo Gorton

09:00 to 09:50

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Fraser Armstrong (*Department of Chemistry, Oxford University, Oxford, United Kingdom*)

Fundamental Insights from Enzyme Electrocatalysis

S3 - Electroporation and biomedical applications

Room 82

Chaired by: P. Tom Vernier

10:00 to 10:30 Keynote

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Ken-ichi Yano (*Bioelectrics Research Center, Kumamoto University, Kumamoto, Japan*), Keiko Morotomi-Yano

Adaptive Responses of Human Cells to Nanosecond Pulsed Electric Fields

10:30 to 11:00 Coffee Break

Chaired by: Lluís M. Mir and Andrei Pakhomov

11:00 to 11:20

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Gleb Tolstykh (*RHDR, 711 HPW Air Force Research Laboratory, San Antonio, USA*), Marjorie Kuipers, Hope Beier, Bennett Ibey, Caleb Roth, Gary Thompson

High-Intensity, Ultra-Short Pulsed Electric Field Exposure Initiates PIP₂ Hydrolysis and Actin Cytoskeletal Cortex Remodeling

- 11:20 to 11:40 page 173
Andrei Pakhomov (*Center for Bioelectrics, Old Dominion University, Norfolk, USA*), Iurii Semenov
 Passive and Active Components of Intracellular Calcium Activation by Nanosecond Pulsed electric Field (nsPEF)
- 11:40 to 12:00 page 182
Uwe Pliquet (*Analysemeßtechnik, Institut für bioprozess- und Analysemeßtechnik, Heilbad Heiligenstadt, Germany*), Nuccitelli Richard
 Joule heating during treatment of solid tumor with nano-second pulsed electric field
- 12:00 to 12:20 page 107
Marie Breton (*UMR 8203 Vectorologie et Thérapeutiques Anticancéreuses, CNRS IGR Université Paris Sud, Villejuif, France*), Lluís M. Mir
 Electric Pulses Induce the Oxidation of the Membrane Phospholipids of Giant Unilamellar Vesicles
- 12:20 to 12:40 page 218
P. Thomas Vernier (*Frank Reidy Research Center for Bioelectrics, Old Dominion University, Norfolk, USA*), Mayya Tokman
 Electric Field Enhancement of the Water-Driven, Permeabilizing Reorganization of Phospholipid Bilayers

S5 - Bioassays, biochips, biosensors: New developments and applications

Room 2b

Chaired by: Magdalena Gebala and Fred Lisdat

- 10:00 to 10:30 Keynote page 69
Philip Bartlett (*Department of Chemistry, University of Southampton, Southampton, United Kingdom*)
 High Throughput Studies of Modified Electrodes for Biosensors and Biofuel Cells
- 10:30 to 11:00 Coffee Break

- 11:00 to 11:20 Invited page 213
Gerald Urban (*Department of Microsystem Engineering, University Freiburg, Freiburg, Germany*)
Electrochemical Lab-on-Chip Microsystems for Biomarker Analysis
- 11:20 to 11:40 Invited page 124
Mathieu Etienne (*LCPME, CNRS and Université de Lorraine, Villers-lès-Nancy, France*), Wissam Ghach, Alain Walcarius
Communication Between Electrode Surface and Whole Cells with Biological Redox Shuttle for Biosensor Applications
- 11:40 to 12:00 page 106
Harold Braustein (*Department of Molecular Microbiology and Biotechnology, Tel Aviv University, Jerusalem, Israel*)
Point-of-Care Biosensor Electrochemical Arrays Based on Polymeric Solid State Kit
- 12:00 to 12:20 page 223
Maria Yakovleva (*Department of Analytical Chemistry/Biochemistry and Structural Biology, Lund University, Lund, Sweden*), Lo Gorton, Aniko Killyéni, Clemens K. Peterbauer, Ionel Catalin Popescu
Further insights into the catalytical properties of deglycosylated pyranose dehydrogenase from *Agaricus meleagris* recombinantly expressed in *Pichia pastoris*
- 12:20 to 12:40 page 99
Stéphane Arbault (*Institut of Molecular Sciences, CNRS UMR 5255, University of Bordeaux, Pessac, France*), Salem Ben-Amor, Serge Bottari, Anne Devin, Michel Rigoulet, Neso Sojic
Electroanalytical Study of The Oxidative Stress/Respiration Balance in Mitochondria

S6 - Enzymatic and microbial biofuel cells

Room 2a

Chaired by: Renata Bilewicz and Johanna Juhaniewicz

10:00 to 10:30 Keynote page 93

Jens Ulstrup (*Department of Chemistry, Technical University of Denmark, Kongens Lyngby, Denmark*), Allan Glargaard Hansen, Kasper Kannegaard Karlsen, Princia Salvatore, Jingdong Zhang

Electrochemistry of single protein and DNA-based molecules

10:30 to 11:00 Coffee Break

11:00 to 10:20 Invited page 211

Isao Taniguchi (*Former Applied Chemistry & Biochemistry, Kumamoto University, Kumamoto, Japan*)

Direct Electron-Transfer Reactions of Enzymes and Recent Developments on New Sugar-Air Bio-Fuel Batteries

11:20 to 11:40 page 150

Pawel Kulesza (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Katarzyna Brzostek, Weronika Lotowska, Adrianna Raczkowska, Iwona A. Rutkowska, Ewelina Seta, Ewelina Szaniawska, Sylwia Zoladek

Specific interactions of noble metal nanoparticles with biofilms grown on electrode surfaces: from anti-bacterial properties to development of electrocatalytic systems active towards oxygen reduction

11:40 to 12:00 page 185

Russell Reid (*Mechanical Engineering, University of Utah, Salt Lake City, USA*), Bruce Gale, Shelley Minteer

A Microfluidic Enzymatic Biofuel Cell Using a Flow-Through Bioanode and an Air-Breathing Cathode

12:00 to 12:20 page 187

Raphaël Rousseau (*Laboratoire de Génie Chimique (UMR 5503), Université de Toulouse-CNRS, Toulouse, France*), Wafa Achouak, Alain Bergel, Marie-Line Delia, Jean-Jacques Godon, Catherine Santaella

Electrochemical, Microbiological and Morphological Characterization of Microbial Bioanodes for MEC

12:20 to 12:40 page 145

Ivan Kazarinov (*Physical Chemistry, Saratov State University, Saratov, Russia*)

Microbic Fuel Elements: Prospects and Problems

Tuesday, 19 March, 2013 - Afternoon

S3 - Electroporation and biomedical applications

Room 82

Chaired by: Justin Teissie

14:00 to 14:30 Keynote

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Bruno Le Pioufle (*CNRS SATIE, ENS de Cachan, Cachan, France*), Claire Dalmay, Olivier Français

Design and use of microfluidic devices for the real time monitoring of micro/nanopulses effect on cells

S5 - Bioassays, biochips, biosensors: New developments and applications

Room 2b

Chaired by: Philip Bartlett

14:00 to 14:30 Keynote

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Damien Arrigan (*Department of Chemistry, Curtin University, Perth, Australia*), Eva Alvarez de Eulate, Sharon Fletcher, Philip Newsholme, Shane O'Sullivan

Electrochemistry of the Polypeptide Amylin at the Interface Between Aqueous and Gelled Organic Electrolyte Phases

S6 - Enzymatic and microbial biofuel cells

Room 2a

Chaired by: Lo Gorton

14:00 to 14:30 Keynote

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Elisabeth Lojou (*Bioénergétique et Ingénierie des Protéines, CNRS, Marseille, France*), Alexandre Ciaccafava, Anne De Poulpiquet, Marie-Thérèse Giudici-Orticoni, Christophe Innocent, Sophy Tingry

An innovative H₂/O₂ biofuel cell based on a O₂, CO and T° tolerant hydrogenase

Wednesday, 20 March, 2013 - Morning

Plenary Lecture

Lecture Hall HNA

Chaired by: Ana Maria Oliveira-Brett

09:00 to 09:50

page 65

Eberhard Neumann (*Department of Physical and Biophysical Chemistry, Faculty of Chemistry, University of Bielefeld, Bielefeld, Germany*)

Thirty Years of Membrane Electroporation - Evolution of a Concept for Gene Electro-Transfer up to Clinical Tumour Curing

S3 - Electroporation and biomedical applications

Room 82

Chaired by: Guillermo Marshall

10:00 to 10:30 Keynote

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Mounir Tarek (*SRSMC, CNRS-Universite de Lorraine, Vandoeuvre les Nancy, France*), Damijan Miklavcic, Lluís M. Mir

Synergic use of molecular dynamics simulations and sophisticated experiments reveal key aspects of lipid membranes electroporation

10:30 to 11:00 Coffee Break

Chaired by: Marie-Pierre Rols and James Weaver

11:00 to 11:20

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Rumiana Dimova (*Theory and Bio-Systems, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany*)

Giant Vesicles in Electric Fields – Approaches for Measuring Properties of Lipid Membranes

- 11:20 to 11:40 page 191
Gintautas Saulis (*Department of Biology, Vytautas Magnus University, Kaunas, Lithuania*), Raminta Rodaite-Riseviciene, Rita Saule, Valentinas Snitka
 Release of Iron Ions from the Stainless–Steel Anode during High-Voltage Pulses and its Consequences for Cell Electroporation Technology
- 11:40 to 12:00 page 154
Hao Lin (*Department of Mechanical and Aerospace Engineering, Rutgers, The State University of New Jersey, Piscataway, USA*), Jianbo Li, Mohamed Sadik, Jerry Shan, David Shreiber, Miao Yu
 Quantification of Basic Transport Processes in Electroporation-Mediated Molecular Delivery
- 12:00 to 12:20 page 114
Louise Chopinet (*Department of Cellular Biophysics, IPBS and LAAS-CNRS, Toulouse, France*), Etienne Dague, Marie-Pierre Rols
 Measuring and imaging electropermeabilization effects on cell membrane elasticity using Atomic Force Microscopy
- 12:20 to 12:40 page 163
Damijan Miklavcic (*Faculty of Electrical Engineering, Department for Biomed Eng, University of Ljubljana, Ljubljana, Slovenia*), Franci Bajd, Selma Corovic, Matej Kranjc, Igor Serša
 Increased Electrical Conductivity of Cells and Tissue due to Electroporation – Modeling and Experiments

S5 - Bioassays, biochips, biosensors: New developments and applications

Room 2b

Chaired by: Gerald Urban

- 10:00 to 10:30 Keynote page 78
Heinz-Bernhard Kraatz (*Department of Chemistry, University of Toronto Scarborough, Toronto, Canada*)
 New adventures in phosphorylation chemistry: Using electrochemistry to probe biochemistry
- 10:30 to 11:00 Coffee Break

- 11:00 to 11:20 Invited page 202
Giuseppe Spoto (*Department of Chemistry, University of Catania, Catania, Italy*)
 DNA Detection in Droplet-based Microfluidic Devices
- 11:20 to 11:40 Invited page 149
Steffi Krause (*School of Engineering and Materials Science, Queen Mary University of London, London, United Kingdom*), Gleb Sukhorukov, Jian Wang, Michael Watkinson
 Combined Electrochemical and Optical Imaging of Polymeric Microcapsules using Photocurrent Measurements at Electrolyte/ Insulator/ Semiconductor Field Effect Structures
- 11:40 to 12:00 page 166
Elizabeth Murago (*School of Chemistry, University of New South Wales, Sydney, Australia*), Rose Amal, Justin Gooding, D. Brynn Hibbert
 Au@Fe₃O₄ Nano-Electrodes: Their Electroanalytical Performance as 'Dispersible Electrodes' and their use as Sensors
- 12:00 to 12:20 page 209
Agnieszka Swietlikowska (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Barbara Palys
 Electrodeposited graphene nano-stacks for biosensor applications. Surface groups as redox mediators
- 12:20 to 12:40 page 161
Frank Meiners (*Department of Pure and Applied Chemistry, Carl v. Ossietzky University of Oldenburg, Oldenburg, Germany*)
 Modification of Silicon Oxides with Oligoethylene Glycol-Terminated Perfluorinated Silanes

S6 - Enzymatic and microbial biofuel cells

Room 2a

Chaired by: Sunil A. Patil and Arto Heiskanen

- 10:00 to 10:30 Keynote page 68
Plamen Atanassov (*Chemical & Nuclear Engineering, University of New Mexico, Albuquerque, USA*), Sofia Babanova, Kristen Garcia, Jared Roy
 Microbial Fuel Cells with "Artificial Biofilms"

10:30 to 11:00 Coffee Break

11:00 to 11:20

page 172

Roberto Ortiz (*Department of Biochemistry and Structural Biology / Analytical Chemistry, Lund University, Lund, Sweden*), Lo Gorton, Roland Ludwig

Highly Efficient Membrane Less Glucose/O₂ Biofuel Cell Anode based on *Corynascus thermophilus* Cellobiose Dehydrogenase on Aryl Diazonium Activated Single-Walled Carbon Nanotubes

11:20 to 11:40

page 215

Mieke C.A.A. van Eerten-Jansen (*Department of Environmental Technology, Wageningen University, Wageningen, Netherlands*), Cees J.N. Buisman, Hubertus V.M. Hamelers, Annemiek Ter Heijne

Microbial Electrolysis Cells for Production of Methane from CO₂

11:40 to 12:00

page 190

Sabine Sané (*Imtek, Microsystems Engineering, University of Freiburg, Freiburg, Germany*), Sven Kerzenmacher, Corinna Kräß, Stefanie Rubenwolf

A simple mediator-less enzymatic biofuel cell based on unpurified fungus culture supernatant

12:00 to 12:20

page 217

Krishnaveni Venkidusamy (*Centre for Environmental Risk Assessment and Remediation, University of South Australia, Adelaide, Australia*), Robin Lockington, Mallavarapu Megharaj, Ravi Naidu

Enriched diesel fed microbial fuel cell systems for enhanced remediation of petroleum hydrocarbon contaminants

12:20 to 12:40

page 136

Kamrul Hasan (*Department of Analytical Chemistry/ Biochemistry and Structural Biology, Lund University, Lund, Sweden*), Lo Gorton, Hassan Hamidi

Electrochemical Communication between Thylakoid Membranes and Osmium Redox Polymers Modified Electrodes

Wednesday, 20 March, 2013 - Afternoon

S5 - Bioassays, biochips, biosensors: New developments and applications

Room 2b

Chaired by: Heinz-Bernhard Kraatz

14:00 to 14:30 Keynote

page 79

Włodzimierz Kutner (*Department of Physical Chemistry of Supramolecular Complexes, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland*)

A Systematic Approach to Devising of Chemical Sensors Using Conducting Molecularly Imprinted Polymers

14:30 to 14:50

page 147

Barbara Kowalewska (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Paweł Kulesza

Designing Integrated Systems with Positively Charged Carbon Nanotubes as Platforms for the Construction of High Performance Biotransducer Biosensors

14:50 to 15:10

page 224

Aysu Yarman (*Department of Chemistry Biochemistry, University of Potsdam, Potsdam, Germany*), Frieder Wolfram Scheller

Enzyme/MIP Architecture in a Novel Bio(mimetic)sensor

15:10 to 15:30

page 203

Anca-Iulia Stoica (*CEST, Centre of Electrochemical Surface Technology, Wiener Neustadt, Austria*), Christoph Kleber, Francisc Teixidor, Clara Vinas

The use of Cobaltabisdicarbollide as a generator of ion-pair complexes with bioactive nitrogen containing compounds for sensors development

15:30 to 15:50

page 199

Anna Sloniewska (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Barbara Palys

Supramolecular Hydrogels as a Substrate for Biosensors

15:50 to 16:10

page 108

Christopher Brett (*Department of Chemistry, University of Coimbra, Coimbra, Portugal*), Madalina Barsan, M. Emilia Ghica, Somayeh Kakhki, Esmaeil Shams, A. Carolina Torres

Biosensor Architectures for Cholesterol Sensing

16:10 to 16:40 Coffee Break

Chaired by: Elena E. Ferapontova

16:40 to 17:00

page 111

Holly Campbell (*Department of Chemistry, University of Calgary, Calgary, Canada*), Viola Birss, Hanna Elzanowska

Optimization of an IrOx-Based Glucose Biosensor

17:00 to 17:20

page 137

Stanislav Hason (*Department of Biophysical Chemistry and Molecular Oncology, Institute of Biophysics, ASCR, v.v.i., Kralovopolska 135, Brno, Czech Republic*)

Sensitive Electrochemical Monitoring of Purine Derivatives in Real Biological Matrixes at Carbon-based Materials

17:20 to 17:40

page 178

Neil Pasco (*Bioelectrochemistry Group, Lincoln Ventures Ltd, Christchurch, New Zealand*), Claire Clark, Nick Glithero, Lo Gorton, Wolfgang Schuhmann

At-line measurement of lactose in dairy processing plants

17:40 to 18:00

page 132

Mohamed Ghanem (*Department of Chemistry, King Saud University, Riyadh, Saudi Arabia*), Abdullah Al-Mayouf, Mansour AlHoshan, Philip Bartlett, Izzet Kocak

Electrochemical and Solid Phase Chemical Modification of Carbon Electrodes for Biosensor Applications

S6 - Enzymatic and microbial biofuel cells

Room 2a

Chaired by: Christopher Schulz and Roberto Ortiz

14:00 to 14:30 Keynote

page 85

Shelley Minteer (*Department of Chemistry and Materials Science and Engineering, University of Utah, Salt Lake City, USA*), Michelle Rasmussen

Thylakoid Bioelectrocatalysis for Energy Conversion and Sensing

14:30 to 14:50

page 142

Maciej Karaskiewicz (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Jan F. Biernat, Renata Bilewicz, Jerzy Rogalski, Kamila Zelechowska

AA battery- shape biofuel cell based on carbon nanotubes modified with phytochemical compounds at the biocathode

14:50 to 15:10

page 140

Martin Jönsson-Niedziolka (*Department of Electrode Processes, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland*), Anna Celebanska, Marcin Opallo, Katarzyna Szot, Dorota Tomaszewska, Adrianna Zloczewska

An Ascorbic Acid Biofuel Cell Using Nanocarbon Electrodes for Catalytic Ascorbic Acid Oxidation

15:10 to 15:30

page 177

Deepak Pant (*Separation & Conversion Technology, VITO- Flemish Institute for Technological Research, MOL, Belgium*), Yolanda Alvarez Gallego, Suman Bajracharya, Ekin Dalak, Xochitl Dominguez-Benetton, Mohita Sharma, Karolien Vanbroekhoven

Development and characterization of low-cost, gas porous electrodes based on different carbon compositions and binder types for use in bioelectrochemical systems

15:30 to 15:50

page 227

Monika Zygoska (*Department of Chemistry, Life Sciences Interface, Tyndall National Institute, University College Cork, Cork, Ireland*), Veronika Urbanova, Mathieu Etienne, Gregoire Herzog, Vladimir Ogourtsov

Electrochemically-assisted deposition of chitosan and sol-gel enzyme bio-composites for microfluidic biofuel cell applications

15:50 to 16:10

page 216

Miroslava Varnicic (*Department of Process System Engineering, Max-Planck-Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany*)

Fluorescence Spectroscopy for the Visualization of the Enzyme Distribution on Enzymatic Fuel Cell Electrodes

16:10 to 16:40 Coffee Break

Chaired by: Jenny Emnéus and Kamrul Hassan

16:40 to 17:00

page 183

Sascha Pöller (*Analytische Chemie - Elektroanalytik & Sensorik, Ruhr-Universität Bochum, Bochum, Germany*), Dominique Koster, Wolfgang Schuhmann

Stabilization of redox polymer films by electrochemically induced cross-linking

17:00 to 17:20

page 205

Krzysztof Stolarczyk (*Faculty of Chemistry, Warsaw University, Warsaw, Poland*), Jan F. Biernat, Renata Bilewicz, Michal Kizling, Dominika Lyp, Jerzy Rogalski, Kamila Zelechowska

Carbon Nanotubes Covalently Modified with Glucose Oxidase and Dehydrogenase for Biofuel Cells

17:20 to 17:40

page 167

Claudia Narváez Villarrubia (*Department of Chemical and Nuclear Engineering, University of New Mexico, Albuquerque, USA*), Plamen Atanassov, Sergio Omar Garcia, Sergey Shleev

Composite Nanomaterial-Based Air-breathing Cathode for Contact Lens-Biofuel Cell Design

17:40 to 18:00

page 116

Javier Coronado (*Département de Génie Chimique, École Polytechnique Montréal, Montréal, Canada*), Michel Perrier, Boris Tartakovsky

Microbial Fuel Cell Operation with Pulse-Width Modulated Connection of the External Resistor

S7 - Interdisciplinary bioelectrochemistry: hyphenated techniques; impact from other fields on bioelectrochemistry

Room 82

Chaired by: Gunther Wittstock and Magdalena Gebala

- 14:00 to 14:30 Keynote page 84
Tomokazu Matsue (*WPI-Advanced Institute of Materials Research (WPI-AIMR), Tohoku University, Sendai, Japan*)
High-Resolution Bioimaging of Live Cells by Scanning Electrochemical Microscopy (SECM)
- 14:30 to 14:50 Invited page 148
Christine Kranz (*Institute of Analytical and Bioanalytical Chemistry, University of Ulm, Ulm, Germany*), Elena Hecht, Peter Knittel, Charlotte Steinbach
Hyphenated analytical techniques for studying living cells
- 14:50 to 15:10 Invited page 164
Diego Millo (*Department of Physics, Vrije Universiteit, LaserLaB, Amsterdam, Netherlands*)
Spectroelectrochemical Analysis of Electroactive Microbial Biofilms
- 15:10 to 15:30 page 141
Joanna Juhaniwicz (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*), Jacek Lipkowski, Slawomir Sek
Influence of Antibiotic Peptide, Melittin, on Lipid Membranes of Different Composition
- 15:30 to 15:50 page 194
Slawomir Sek (*Department of Chemistry, University of Warsaw, Warsaw, Poland*)
STM and AFM Studies of Structure and Dynamics of Supported Lipid Films on Gold Electrodes
- 15:50 to 16:10 page 188
Manuela Rueda (*Department of Physical Chemistry, University of Seville, Seville, Spain*), Julia Alvarez, Francisco Prieto, Antonio Rodes
Adenine-Thymine Coadsorption at Gold Electrodes Interfaces. An in-situ FT-IR Spectroscopy Study

16:10 to 16:40 Coffee Break

Chaired by: Uwe Schröder and Izabella Brand

16:40 to 17:00 Invited page 153

Frédéric Lemaître (*Chimie, Ecole Normale Supérieure, Paris, France*), Christian Amatore, Stéphane Arbault, François Darchen, Rémy Fulcrand, Manon Guille Collignon, Ouardane Jouannot, Anne Meunier

Investigating Exocytosis at the Single Cell Level : Combination of Amperometry and Total Internal Reflection Fluorescence Microscopy

17:00 to 17:20 Invited page 226

José H. Zagal (*Departamento de Química de los Materiales, Universidad de Santiago de Chile, Santiago, Chile*), Miguel A. Gulppi, Gonzalo Ochoa, Maritza A. Paez, Jorge Pavez

Optimizing the reactivity of Surface Confined Cobalt N₄ Macrocyclics for the Electrocatalytic Oxidation of L-cysteine by Modulating the Co(II)/(I) formal potential of the Catalyst

17:20 to 17:40 page 196

Milica Sentic (*Institut des Sciences Moléculaires, University of Bordeaux, Pessac, France*), Alexander Kuhn, Gabriel Loget, Dragan Manojlovic, Neso Sojic

Light-Emitting Electrochemical Swimmers

17:40 to 18:00 page 192

Albert Schulte (*Schools of Chemistry and Biochemistry, Suranaree University of Technology, Nakhon Ratchasima, Thailand*), Somjai Theanponkrang, Helge Weingart, Mathias Winterhalter

Robotic Drug Electroanalysis in Microtiter Plates: Convenience Paired with Potential

18:00 to 20:30

Poster Presentation Session 2

Thursday, 21 March, 2013 - Morning

Plenary Lecture

Lecture Hall HNA

Chaired by: Alexander Kuhn

09:00 to 09:50

page 63

Justin Gooding (*School of Chemistry and Australian Centre for NanoMedicine, The University of New South Wales, Sydney, Australia*), Muthukumar Chockalingham, Moinul Choudhury, Simone Ciampi, Katharina Gaus, Xun Lu
Shining Light on Electrodes for Bioelectronic Applications

S2 - Protein electrochemistry

Room 2b

Chaired by: Lo Gorton and Olga Swiech

10:00 to 10:30 Keynote

page 90

Uwe Schröder (*Institute of Environmental and Sustainable Chemistry, Technische Universität Braunschweig, Braunschweig, Germany*)
Microbial Electrochemistry – Fundamentals and Prospects

10:30 to 11:00 Coffee Break

11:00 to 11:20 Invited

page 222

Ulla Wollenberger (*Molecular Enzymology, University Potsdam, Golm, Germany*), Stefano Frasca, Joachim Koetz, Silke Leimkühler, Oscar Rojas, Ting Zeng
Efficient bioelectrocatalysis of sulfite oxidase

11:20 to 11:40

page 175

Emil Palecek (*Biophysical Chemistry and Mol. Oncology, Institute of Biophysics, Brno, Czech Republic*)
Electrochemistry of Non-conjugated Proteins and Glycoproteins

11:40 to 12:00

page 220

Thomas Werzer (*Department of Physical Chemistry, University of Vienna, Vienna, Austria*), Wolfgang Kautek, Uwe Sleytr, Günter Trettenhahn, Christian Zafiu
Electrochemical Control of the Adsorption of Surface Layer Proteins on Gold: in-situ FTIR and SPM Investigations

12:00 to 12:20

page 193

Christopher Schulz (*Department of Biochemistry and Structural Biology, Lund University, Lund, Sweden*), Lo Gorton, Roland Ludwig, Mojtaba Tavahodi
Influence of Metal Cations and the Polycation Polyethylenimine on the Turnover Rate of Cellobiose Dehydrogenase

12:20 to 12:40

page 133

Rolando Guidelli (*Department of Chemistry Ugo Schiff, University of Florence, Sesto Fiorentino (Firenze), Italy*)
Mercury-Supported Macro- and Micro-Biomimetic Membranes for Single-Channel Recording and Lipid Raft Investigations

S5 - Bioassays, biochips, biosensors: New developments and applications

Room 2a

Chaired by: Damien Arrigan

10:00 to 10:30 Keynote

page 88

Ulrich Rant (*Chemistry Department, TU Munich, Garching, Germany*)
An Electro-switchable Biointerface for the Analysis of Molecular Interactions

10:30 to 11:00 Coffee Break

11:00 to 11:20

page 162

Anne Meunier (*Chimie Analytique et Chimie des Interfaces, Faculté des Sciences, Université Libre de Bruxelles, Brussels, Belgium*)
Coupling Electrochemistry and Fluorescence Microscopy for the study of the organization of self-assembled monolayers of biomolecules on gold

- 11:20 to 11:40 page 127
Neville Freeman (*R and D, NanoFlex Ltd, Daresbury, United Kingdom*), Andrew Mount, Ilka Schmuser, Reshma Sultana, Jonathan Terry, Anthony Walton
 Practical Implications of using Nano-Electrodes for Bioanalytical Measurements
- 11:40 to 12:00 page 165
Milena Milutinovic (*Institut des Sciences Moléculaires, ENSCBP-NSYSA, Pessac, France*), Stéphane Arbault, Dragan Manojlovic, Milica Sentic, Neso Sojic
 Electrochemiluminescence Imaging at the Single Bead Level: New Approach to Investigate the ECL Mechanism
- 12:00 to 12:20 page 206
Lutz Stratmann (*Department of Analytische Chemie - Bioanalytik und Sensorik, Ruhr-Universität, Bochum, Germany*) Magdalena Gebala, Wolfgang Schuhmann
 Interface design of an EBV immunoassay based on recombinant native antigens
- 12:20 to 12:40 page 210
Shahida Syed (*Division of Pathway Medicine, University of Edinburgh, Edinburgh, United Kingdom*), Till. T. Bachmann, Jason Crain, Daniel MacDonald, Andrew Mount, Holger Schulze
 Electrochemical Control of DNA Hybridization

S8 - Electrochemistry at cells and tissues

Room 82

Chaired by: Renata Bilewicz and Pawel Krysinski

- 10:00 to 10:30 Keynote page 95
Joachim Wegener (*Institut fuer Analytische Chemie, Chemo- & Biosensorik, Universitaet Regensburg, Regensburg, Germany*)
In Vitro Monitoring of Animal Cells by Electrochemical Impedance Analysis

10:30 to 11:00 Coffee Break

Chaired by: Britta Sethson and Izabella Brand

11:00 to 11:20

page 134

Manon Guille Collignon (*Department of Chemistry UMR 8640, Ecole Normale Supérieure, Paris, France*), Christian Amatore, Rémy Fulcrand, Frédéric Lemaitre, Yun Li, Anne Meunier, Catherine Sella, Laurent Thouin

Microsystems for Oxidative Stress Electrochemical Detection on Murine Macrophages Population

11:20 to 11:40

page 170

Ana Maria Oliveira-Brett (*Departamento de Química, Universidade de Coimbra, Coimbra, Portugal*)

Human Colon Adenocarcinoma HT-29 cell: Electrochemistry and Nicotine Stimulation

11:40 to 12:00

page 121

Alexander Dubinin (*Department of Bioelectrochemistry, Mendeleev University of Chemical Technology of Russia, Moscow, Russia*), T.B Shvets-Teneta-Gurii, G.I. Troshin

Rhythms of Wake and Sleep in the rat's Cerebral Cortex Redox Potential

12:00 to 12:20

page 105

Izabella Brand (*Institute of Pure and Applied Chemistry, University of Oldenburg, Oldenburg, Germany*), Sorge Kelm, Karl-Wilhelm Koch, Martina Nullmeier

Impact of a strong and weak protein-lipid interaction on the structure of a model lipid bilayer

12:20 to 12:40

page 159

Stephane Marinesco (*Lyon Neuroscience Research Center, Team Wake, Inserm, Université Claude Bernard Lyon 1, Lyon, France*), Natalia Vasylieva

An immobilization method to preserve enzyme specificity in microelectrode biosensors: consequences for brain glutamate detection

Thursday, 21 March, 2013 - Afternoon

S2 - Protein electrochemistry

Room 2b

Chaired by: Plamen Atanasov and Jan Vacek

14:00 to 14:30 Keynote page 81

Christophe Léger (*Laboratoire de Bioénergétique et Ingénierie des Protéines, CNRS, Université Aix-Marseille, Marseille, France*), Abbas Abou Hamdan, Carole Baffert, Sébastien Dementin, Vincent Fourmond

Learning about enzyme mechanisms by examining catalytic voltammograms (recent examples)

14:30 to 14:50 page 180

Sunil Patil (*Laboratory of Microbial Ecology and Technology, Ghent University, Ghent, Belgium*), Korneel Rabaey

Microbial Electrocatalysis for Bioproduction

14:50 to 15:10 page 122

Matteo Duca (*Laboratoire d'Electrochimie Moléculaire, Université Paris Diderot, Sorbonne Paris Cité, Paris Cedex 13, France*), Cyrille Costentin, Vincent Pecoraro, Marc Robert, Jean-Michel Savéant, Cédric Tard

Electrochemical oxidation of a tyrosine radical in a de novo three-stranded coiled coil

15:10 to 15:30 page 201

Maciej Sosna (*Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Aarhus, Denmark*), Elena E. Ferapontova

Electrochemistry of immobilised hemin and reconstituted horseradish peroxidase

15:30 to 15:50 page 214

Jan Vacek (*Department of Medical Chemistry and Biochemistry, Palacký University, Olomouc, Czech Republic*)

Intrinsic Electroactivity of Membrane Proteins: Initial Findings and Future Prospects

15:50 to 16:10 page 110

Marisa Buzzeo (*Chemistry Department, Barnard College, Columbia University, New York, USA*), Faizunnahar Dewan, Lindsey Walker

Electrochemical Investigation of Diselenide Bond Reduction

16:10 to 16:40 Coffee Break

Chaired by: Ulla Wollenberger and Martin Jönsson-Niedziolka

16:40 to 17:00 page 129

Alonso Gamero Quijano (*Physical Chemistry, IUMA, Alicante, Spain*), Francisco Huerta, Francisco Montilla, Emilia Morallón

Direct electron transfer of Cytochrome C encapsulated in sol-gel silica matrices.

17:00 to 17:20 page 102

Keith Baronian (*School of Biological Sciences, University of Canterbury, Christchurch, New Zealand*), Alexandre Chamas, Martin Giersberg, Gotthard Kunze, Vimal Vijayan

Use of Recombinant Protein for the Electrochemical Detection of Oestrogen

17:20 to 17:40 page 97

Damián Alvarez-Paggi (*INQUIMAE-DQIQAQF, Universidad de Buenos Aires-CONICET, Buenos Aires, Argentina*), Luciano Abriata, Daniel Murgida, Alejandro Vila, Ulises Zitare

Probing the redox properties of the alternative ground states in native CuA centers

17:40 to 18:00 page 189

Sana Sabahat (*Department of Physics, COMSATS Institute of Information Technology, Chak Shahzad, Islamabad, Pakistan*), Zareen Akhter, Mathias Brust, Naveed Kausar Janjua

Electrochemical Quantification of Water Soluble Ferrocene Modified Gold Nanoparticles onto Electrode Surface

S5 - Bioassays, biochips, biosensors: New developments and applications

Room 2a

Chaired by: Ulrich Rant

- 14:00 to 14:30 Keynote page 72
Elena E. Ferapontova (*iNANO, Aarhus University, Aarhus, Denmark*)
 Electronic properties of the surface-tethered DNA duplex
- 14:30 to 14:50 Invited page 104
Laurent Bouffier (*Institute of Molecular Sciences, Univ. Bordeaux - CNRS, Pessac, France*), Sébastien Bonhommeau, Pierre-Alexis Condon, Patrick Garrigue, Sophie Lecomte, Neso Sojic, David Talaga
 Electrochemical and Raman Spectroscopic Detection of DNA Hybridisation with Pyridoacridine Intercalators
- 14:50 to 15:10 page 174
Ilaria Palchetti (*Dipartimento di Chimica, Università di Firenze, Sesto Fiorentino, Italy*), Francesca Bettazzi, Diego Voccia
 Electrochemical Biosensing Platforms for microRNA Detection
- 15:10 to 15:30 page 112
Rui Campos (*Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Aarhus, Denmark*), Elena E. Ferapontova, Michael R. Horsman
 Electrochemical analysis of miRNA deregulated during the hypoxia conditions
- 15:30 to 15:50 page 126
Miroslav Fojta (*Department of Biophysical Chemistry and Molecular Oncology, Institute of Biophysics, ASCR, v.v.i., Brno, Czech Republic*), Jana Balintová, Aleš Danhel, Ludek Havran, Michal Hocek, Petra Ménová, Veronika Raindlova, Jan Spacek, Pavlína Vidláková, Zdenka Vychodilová
 Utilization of organic electroactive moieties for redox DNA labelling and electrochemical monitoring of modified DNA synthesis
- 15:50 to 16:10 page 168
Gilbert Nöll (*Department of Chemistry-Biology, Siegen University, Siegen, Germany*)
 Monitoring DNA Hybridization by Faradaic Impedance Spectroscopy in Combination with QCM-D Measurements

16:10 to 16:40 Coffee Break

Chaired by: Mathieu Etienne

16:40 to 17:00

page 151

Mathieu Lazerges (*UPCGI, U 1022 INSERM, UMR 8151 CNRS, ENSCP, Université Paris Descartes, Paris, France*), Fethi Bedioui, Vanna.-T. Tal

Label-free electrochemical DNA-biosensor : setup for detection in microliter samples and miniaturization

17:00 to 17:20

page 207

Qiang Su (*Fak.IV/Dept. Chemie-Biologie, Universität Siegen, Siegen, Germany*)

Designing a Reusable and Label-Free Sensing Platform for Specific Oligonucleotides: Optimization of Sensor Response Based On Surface Plasmon Fluorescence Spectroscopy

17:20 to 17:40

page 100

Artavazd Badalyan (*Department of Molecular Enzymology, Institute for Biochemistry and Biology, University of Potsdam, Potsdam, Germany*), Marlen Dierich, Silke Leimkühler, Sascha Pöller, Wolfgang Schuhmann, Ulla Wollenberger

Bioelectrocatalysis of PaoABC-aldehyde oxidoreductase from *E. Coli*: the ionic strength effect and biosensor for benzaldehyde

17:40 to 18:00

page 195

Alina Sekretaryova (*Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia*), Arkady Karyakin

Unsubstituted Phenothiazine as a New Efficient Electron Transfer Mediator for Oxidases

S8 - Electrochemistry at cells and tissues

Room 82

Chaired by: Ana Maria Oliveira-Brett and Cigdem Yildirim

14:00 to 14:30 Keynote

page 75

Lo Gorton (*Department of Analytical Chemistry/Biochemistry and Structural Biology, Lund University, Lund, Sweden*), Cecilia Hägerhäll, Kamrul Hasan, Donal Leech, Sunil A. Patil

Mediated and Direct Electrochemical Communication between *Shewanella Oneidensis* MR-1 and Electrodes

14:30 to 14:50 Invited

page 123

Jenny Emnéus (*Micro and Nanotechnology, Technical University of Denmark, Kgs. Lyngby, Denmark*), M. Adamovski, L. Amato, A. Boisen, M. Carminati, V. Coman, M. Dimaki, M. Dufva, G. Ferrari, A. Ghio, A. Heiskanen, S. Keller, Zs. Keresztes, M. Kokaia, E. Landini, A. Martinez Serrano, R. Raiteri, T. Ramos Moreno, D. Sabourin, M. Sampietro, W.E. Svendsen, M. Vergani, Ulla Wollenberger, K. Zor

Microfluidic Electrochemical Lab-on-a-Chip Systems

14:50 to 15:10

page 225

Cigdem Yildirim (*Department of Analytical Biochemistry, University of Potsdam, Potsdam, Germany*), Miriam Adamovski, Dafna Benayahu, Carsten Beta, Matthias Gerhardt, Helmar Leonhardt, Ulla Wollenberger

Electrochemical Assay on Osteoblastic Cells on a Sensor Chip

15:10 to 15:30

page 101

Aliaksandr Bandarenka (*Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany*), Ramon Bragos, Benjamin Sanchez

Real-time Analysis of Bioimpedance Spectra

15:30 to 15:50

page 144

Ritu Katakya (*Department of Chemistry, Durham, Durham, United Kingdom*), Rui Campos, Anne Krol

Electrochemical investigations of lipid membranes, membrane associated molecules and functionalized nanoparticles

15:50 to 16:10

page 155

Britta Lindholm-Sethson (*Department of Chemistry, Umeå University, Umeå, Sweden*), Mohammad Yaser Khani Meynaq

Ionic Permeability of Lipid Cubic Phases. An Investigation with Electrochemical Impedance

16:10 to 16:40 Coffee Break

S7 - Interdisciplinary bioelectrochemistry: Hyphenated techniques; impact from other fields on bioelectrochemistry

Room

Chaired by: Alexander Kuhn and Ian Burgess

16:40 to 17:00

page 204

Zbigniew Stojek (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*), Michal Bystrzejewski, Mikolaj Donten, Mateusz Donten, Agata Kowalczyk, Anna M. Nowicka

Carbon-Encapsulated Iron Nanoparticles as New Ferromagnetic Matrix for Oxygen Reduction in the Presence of Immobilized Laccase

17:00 to 17:20

page 221

Gunther Wittstock (*Department of Pure and Applied Chemistry, Carl v. Ossietzky University of Oldenburg, Oldenburg, Germany*)

How Gentle Can a Soft Electrode Array Be?

17:20 to 17:40

page 103

Pascal Beese (*Interface Chemistry and Surface Engineering, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany*), Dennis Enning, Karl J.J. Mayrhofer, Martin Stratmann, Hendrik Venzlaff, Friedrich Widdel

Monitoring anaerobic microbially influenced corrosion with electrochemical frequency modulation

17:40 to 18:00

page 115

Jan Clausmeyer (*Analytische Chemie and Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany*), Jörg Henig, Nicolas Plumeré, Wolfgang Schuhmann

Scanning Droplet Cell for Chemoselective Patterning via Local Electroactivation of Protected Quinone Monolayers

Poster Presentation Session 1



s1 - Symposium on the occasion of the 80th birthday of Adam Heller

S1-001

Kamrul Hasan (*Department of Biochemistry and Structural Biology, Lund University, Lund, Sweden*), Vera Eßmann, Kamil Górecki, Cecilia Hägerhäll, Sunil A. Patil, Wolfgang Schuhmann

Electrochemical communication of heterotrophically grown *Rhodobacter capsulatus* with graphite electrodes via various polymeric mediators

S1-002

Shuji Nakanishi (*RCAST, The University of Tokyo, Tokyo, Japan*)

Redox responsive regulation of microbial metabolism activity in an iron reducing bacterium

S1-003

Stephan Vogt (*Nöll Junior Research Group, University of Siegen, Siegen, Germany*), Gilbert Nöll

Spectroelectrochemical Investigation on Glucose Oxidase: pH-dependent Determination of the Redox Potential

s2 - Protein electrochemistry

S2-001

Damián Álvarez Paggi (*INQUIMAE, Universidad de Buenos Aires, Buenos Aires, Argentina*), María A. Castro, Daniel Murgida, Rafael Radi, Verónica Tórtora

Electrostatically-Driven Second Sphere Ligand Switch Between High and Low Reorganization Energy Forms of Native Cytochrome c

S2-002

Lucia Becucci (*Department of Chemistry, University of Padova, Padova, Italy*), Rolando Guidelli

Electrochemical Techniques as Versatile Tools for the Investigation of the Mechanism of Peptide-Induced Membrane Permeabilization

S2-003

Mahdi Dargahi (*Department of Chemical Engineering, McGill University, Montreal, Canada*), Sasha Omanovic

The Influence of Surface Charge on the Interactive Adsorption Behavior of Fibrinogen on a Gold Surface

S2-004

Mahdi Dargahi (*Department of Chemical Engineering, McGill University, Montreal, Canada*), Mari T. Kaartinen, Aisha Mousa, Valentin Nelea, Sasha Omanovic

Electrochemically-assisted Immobilization of Fibronectin on Metal Surfaces: Enhancement of Cell/Surface Interactions

S2-005

Victor Diculescu (*Departamento de Química, Universidade de Coimbra, Coimbra, Portugal*), Oana Popa

Electrochemical Study of the Bcr-abl Tyrosine Kinase Inhibitor Danusertib

S2-006

Thomas Dietz (*Institute for Biochemistry and Biology, University of Potsdam, Potsdam, Germany*), Silke Leimkühler, Konstanze Stiba, Ulla Wollenberger

Is superoxide involved in human sulfite oxidase (hSOx) catalysis?

S2-007

Francisco Fabregat-Santiago (*Department of Physics, Universitat Jaume I, Castello de la Plana, Spain*), Paulo R. Bueno, Rocío Cejudo, Jason J. Davis

The Effect of Capacitances and Resistances in the Electrochemistry of Electroactive Self-Assembled Monolayers

S2-008

Artur Fandrich (*Department of Biosystems Technology, Technical University of Applied Sciences, Wildau, Germany*), Sven Christian Feifel, Lo Gorton, Fred Lisdat, Roland Ludwig

Nanoscaled Protein Architectures with CDH on Electrodes for Selective Analyte Detection

S2-009

Aniko Killyéni (*Department of Physical Chemistry, Babes-Bolyai University, Cluj-Napoca, Romania*), Lo Gorton, Ionel Catalin Popescu, Maria Yakovleva

Effect of Deglycosylation on the Selectivity of *Agaricus meleagris* Pyranose Dehydrogenase Modified Electrodes

S2-010

Svenja Kochius (*Department of Biochemical Engineering, DECHEMA Research Institute, Frankfurt, Germany*), Dirk Holtmann, Jens Schrader

Electrochemical regeneration of oxidized nicotinamide cofactors in a scalable reactor

S2-011

Nur Azura Mohd Said (*Life Sciences Interface (LSI) Group, Tyndall National Institute (UCC), Cork, Ireland*), Gregoire Herzog, Mingzhi Liang, Vladimir Ogourtsov, Michael Prentice

Electrochemical and Atomic Force Microscopy Studies of PduA Shell Protein Immobilisation on Gold Electrode Surface

S2-012

Severino Carlos Oliveira (*Química, Universidade de Coimbra, Coimbra, Portugal*), Ana Maria Oliveira-Brett, Inês Santarino

Electrochemical detection of DNA-Anticancer Antibody Rituximab Interaction

S3 - Electroporation and biomedical applications

S3-001

Mario Alberto Ascencio-Pinedo (*Department of Chemical Engineering, McGill University, Montreal, Canada*), Sasha Omanovic

Investigation of the corrosion mechanism of WE43 Mg-alloy for biodegradable implant applications

S3-002

Tanja Blagus (*Department of Experimental Oncology, Institute of Oncology Ljubljana, Ljubljana, Slovenia*), Maja Cemazar, Bostjan Markelc, Matej Rebersek, Gregor Sersa

New methodological approach for tracking systemic and local uptake of macromolecule enhanced by electroporation *in vivo*

S3-003

Mustafa Fincan (*Department of Food Engineering, Erciyes University, Kayseri, Turkey*), Seyma Avcý, Fatma Gundogdu, Betul Oskaybas

Effects of Different Pulse Electric Field Parameters on Electropermeabilization of Fresh Rose Petals

S3-004

Sasa Haberl (*Laboratory of Biocybernetics, University of Ljubljana, Faculty of Electrical Engineering, Ljubljana, Slovenia*), Marko Jarc, Damijan Miklavcic, Ales Strancar

Optimization of electroporation protocol for extracting plasmid DNA from *E. coli*

S3-005

Katarzyna Kilan (*Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Cracow, Poland*), Krzysztof Szczepanowicz, Lilianna Szyk-Warszyńska, Piotr Warszyński

Influence of calcium ions on the buildup and permeability of multilayer polymer films

S3-006

Katarzyna Krukiewicz (*Department of Physical Chemistry and Technology of Polymers, Silesian University of Technology, Gliwice, Poland*), Jerzy Zak

Electrochemical and spectroscopic characterization of PEDOT matrix containing iso-butyl-propanoic phenolate

S3-007

Léa Lesueur (*UMR8203, CNRS, Villejuif, France*), Franck André, Lluís M. Mir
Improvement of both cell survival and efficacy for large plasmids electrotransfer in MSC

S3-008

Bostjan Markelc (*Department of Experimental Oncology, Institute of Oncology Ljubljana, Ljubljana, Slovenia*), Maja Cemazar, Gregor Sersa
Mechanisms associated with vascular-disrupting action of electrochemotherapy: intravital microscopy on a single tumor blood vessel level

S3-009

Guillermo Marshall (*Laboratorio de Sistemas Complejos, DC, University of Buenos Aires, Buenos Aires, Argentina*), Pieranna Chiarella, Stefania De Santis, Vito M. Fazio, Nahuel Olaiz, Emanuela Signori, Alejandro Soba, Pablo Turjanski
EGT protocols: the role of electroporation based techniques, hyaluronidase and pH effects in the permeabilization of tissue fibers

S3-010

Damijan Miklavcic (*Faculty of Electrical Engineering, Department for Biomed Eng, University of Ljubljana, Ljubljana, Slovenia*)
COST TD1104 Action – A Network for Development of Electroporation-based Technologies and Treatments

S3-011

Tristan Nagy (*Dept. of Physical Chemistry, University of Vienna, Vienna, Austria*), Oskar Armbruster, Wolfgang Kautek, Ulrich Pacher, Günter Trettenhahn
Laser-Pulse-Induced *in-situ* Diagnostics of Processes at Solid-Fluid Interfaces

S3-012

Ewa Nazaruk (*Chemistry Department, University of Warsaw, Warsaw, Poland*), Renata Bilewicz, Ewa Górecka, Monika Szlêczak
Tailored Lipidic Cubic Phases as Novel Drug Delivery System

S3-013

Gianpiero Pataro (*Institute for Electromagnetic Sensing of the Environment, National Research Council of Italy, Naples, Italy*), Giovanna Ferrari, Stefania Romeo, Anna Sannino, Maria Rosaria Scarfi, Olga Zeni
A Nanosecond, High-Voltage Pulse Generator for Electric Pulse Application to Low Conductivity Liquid Media

S3-014

Denis Pavliha (*Faculty of Electrical Engineering, Department for Biomed Eng, University of Ljubljana, Ljubljana, Slovenia*), Maja M. Mušič, Damijan Miklavcic, Gregor Serša
Liver Segmentation for Electrochemotherapy Treatment Planning

S3-015

Andraz Polak (*Faculty of Electrical Engineering, University of Ljubljana, Ljubljana, Slovenia*), Peter Kramar, Damijan Miklavcic, Mounir Tarek

Molecular dynamics simulation of Archaea Aeropyrum pernix membrane

S3-016

Veronique Preat (*Louvain drug Research Institute, Université Catholique de Louvain, Brussels, Belgium*), Olivier Schakman, Cédric Szpirer, Gaëlle Vandermeulen, Kevin Vanvarenberg

Electrotransfer of pStaby: A new safe and efficient DNA vaccine vector devoid of antibiotic resistance marker

S3-017

Jolanta Saczko (*Department of Medical Biochemistry, Medical University, Wrocław, Poland*), Katarzyna Biezunska-Kusiak, Anna Choromanska, Malgorzata Daczewska, Malgorzata Kotulska, Julita Kulbacka, Nina Rembalkowska, Joanna Rossowska

Doxorubicin delivery enhanced by electroporation to colon adenocarcinoma cells with P-gp overexpression

S3-018

Gintautas Saulis (*Department of Biology, Vytautas Magnus University, Kaunas, Lithuania*), Saulius Balevicius, Aiste Bitinaite, Ruta Maciuleviciene, Rita Saule, E. Shatkovskis, Vitalij Stankevici, Arunas Stirke, Nerija Zurauskiene

System For Nanoporation of Biological Cells Based on Optically-Trigge-red High-Voltage Spark-Gap Switch

S3-019

Emanuela Signori (*Department of Biomedicine, CNR-Institute of Translational Pharmacology, Rome, Italy*), Pieranna Chiarella, Mariangela De Robertis, Stefania De Santis, Vito Michele Fazio, Emanuela Massi

Alternative Therapy Protocols For Tumours Treatment: DNA Vaccination Mediated By Electrotransfer

S3-020

Wojciech Simka (*Faculty of Chemistry, Silesian University of Technology, Gliwice, Poland*), Beata Cwalina, Tadeusz Gorewoda, Marzena Kik-Jaworska, Anna Klimczyk, Agnieszka Krzakala, Artur Maciej, Joanna Michalska, Anna Osyczka, Grzegorz Tylko, Magdalena Widziolok

Plasma Electrolytic Oxidation of Ti-13Nb-13Zr Alloy - Corrosion and Bioactivity Investigations

S3-021

Wojciech Simka (*Faculty of Chemistry, Silesian University of Technology, Gliwice, Poland*), Agnieszka Krzakala, Joanna Michalska, Robert Socha, Maciej Sowa

Anodic Oxidation of Tantalum in Silicate Solutions

s4 - Design of the interface between biological recognition elements and electrodes including new tools and measuring techniques

S4-001

Harold Braustein (*Molecular Microbiology and Biotechnology, Tel Aviv University, Jerusalem, Israel*)

New analytical tools for electrochemical biomarkers detection implying solid state biological recognition kits on nano-modified electrodes

S4-002

Anna Koper (*Chemistry, Maria Curie-Skłodowska University, Lublin, Poland*),
Malgorzata Grabarczyk, Agnieszka Nosal-Wiercinska, Cecylia Wardak

The Different Electrochemical Aspects of Studies of Humic Substances as a Natural Biopolymers Present in Environmental Samples

S4-003

Agata Kowalczyk (*Faculty of Chemistry, Warsaw University, Warsaw, Poland*),
Michal Fau, Anna M. Nowicka, Zbigniew Stojek, Marcin Strawski

Phenyl Layers – Matrix for Specific Immobilization of Biologically Important Compounds

S4-004

Jan Pawlowski (*Department of Chemistry, Univeristy of Warsaw, Warsaw, Poland*),
Slawomir Sek

Structural Diversity and Nanomechanical Stability of Solid-Supported Phospholipid Bilayers Formed by Vesicle Fusion

S4-005

Piyanut Pinyou (*Analytische Chemie - Elektroanalytik & Sensorik, Ruhr-Universität Bochum, Bochum, Germany*), Natalia Guerrero Alburquerque, André Laschewsky, Nicolas Plumeré, Wolfgang Schuhmann, Jan Szeponik, Erik Wischerhoff

Control of Small Molecules Diffusion in Temperature-Responsive Polymers Films at Heatable Electrode

S4-006

Mykola Rozhitskii (*Laboratory of Analytical Optochemotronics, Kharkiv National University of Radioelectronics, Kharkiv, Ukraine*), Dmytro Snizhko

Ultra Fast Cyclic Voltammetry for Bioelectrochemical Assays

S4-007

Carlos Sanchis (*Química-Física & Instituto de Materiales, University of Alicante, Alicante, Spain*), Emilia Morallon, Horacio J. Salvagione, Jose Miguel Sansano

An innovative route for the functionalization of PANI: Comparative study of attached *vs.* adsorbed ferrocene

S4-008

Sylvia Strzalkowska (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Andrzej Lewenstam, Magdalena Maj-Zurawska, Tomasz Sokalski, Wladyslaw Wiczorek

Ordered biomaterials in electrochemical sensors

S4-009

Christoph Traunsteiner (*Department of Physics, TU München, Garching, Germany*), Julia Kunze

Electrochemical and Scanning Probe Microscopy Studies of Laccase on Au(111) Surfaces

S4-010

Annalisa Vacca (*Dipartimento di Ingegneria Meccanica Chimica e dei Materiali, Università degli Studi di Cagliari, Cagliari, Italy*)

Coating of gold substrates with polyaniline through electrografting of diazonium salts

S4-011

Tal Yoetz-Kopelman (*Molecular Microbiology and Biotechnology; Phys. Electronics, Tel Aviv University, Tel Aviv, Israel*)

Novel Design of Impedimetric Affinity Biosensor based on Metal-Protein Hybrids and a New Polymeric Adhesion Layer

S4-012

Yongchun Zhu (*Department of Chemistry, Shenyang Normal University, Shenyang, China*), Yue Dong, Hongyan Gao, Jie Lu, Chunyan Pang

An amperometric urea biosensor based on *in-situ* secretory antibody modified electrode from wild winter Jasmine petal cells and inductive effect of urea

s6 - Enzymatic and microbial biofuel cells

S6-001

Sidney Aquino Neto (*Department of Chemistry, University of São Paulo, Ribeirão Preto, Brazil*), Franciane P. Cardoso, Laís B. Crepaldi, Paula G. Fenga, Matthew T. Meredith, Shelley Minter, Adalgisa R. De Andrade, Thiago S. Almeida

The use of MWCNTs/methylene green electrodes to enhance NADH electrocatalysis in ethanol biofuel cell

S6-002

Magdalena Blicharska (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Anna Dobrzeniecka, Pawel Kulesza, Jadwiga Stroka, Sylwia Zoladek

Application of polyoxometallate-modified gold nanoparticles to oxidation of glucose at physiological pH

S6-003

Tunc Catal (*Department of Molecular Biology and Genetics, Uskudar University, Istanbul, Turkey*)

Effect of Heavy Metals from Wastewater on Electricity Generation in Microbial Fuel Cells

S6-004

Anna Dobrzeniecka (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Pawel Kulesza, Wolfgang Schuhmann, Aleksandar Zeradjanin

Bioelectrocatalytic and electrocatalytic oxygen and hydrogen peroxide reduction of multicomponent films at a physiological pH electrolyte

S6-005

Marta Gierwatowska (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Barbara Kowalewska, Pawel Kulesza

Development of integrated mediating systems utilizing ultra-thin films of conducting polymers and functionalized carbon nanotubes for bioelectrocatalytic oxidation of glucose

S6-006

Maria José González-Guerrero (*Instituto de Microelectrónica de Barcelona, IMB-CNM (CSIC), Universidad Autónoma de Barcelona, Barcelona, Spain*), F. Javier del Campo, Juan Pablo Esquivel, Shelley Minter, Neus Sabaté

Modified Pyrolyzed Photoresist Bioelectrodes for Membraneless Glucose/O₂ Enzyme Microfluidic Fuel Cells

S6-007

Minerva Guerra-Balcázar (*División de Investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro, Santiago de Querétaro, Mexico*), Gerardo Arriaga, Francisco M. Cuevas-Muñiz, Christophe Innocent, Janet Ledesma-García, Berenice López-González, Louis Renaud, Sophie Tingry

Coupled enzymatic and inorganic oxygen electroreduction reactions to increase performances of a microfluidic biofuel cell

S6-008

Jia Shin Ho (*Division of Chemistry and Biological Chemistry, Nanyang Technological University, Singapore*), Chee-Seng Toh

Membrane-Based UV-Powered Low Wattage Biofuel Cell Sensor System

S6-009

Ivan Kazarinov (*Department of Physical Chemistry, Saratov State University, Saratov, Russia*), Oleg Ignatov, Anna Ignatova, Mariya Naumova

Kinetics of bioelectrocatalytic glucose oxidation by *Escherichia Coli* in the presence of exogenic mediators

S6-010

Donal Leech (*Department of Chemistry, National University of Ireland Galway, Galway, Ireland*), Partha Jana, Krishna Katuri, Paul Kavanagh, Amit Kumar, Piet Lens, Raghavulu Sapireddy

Biofilm formation on graphite anode surfaces for application to microbial electrochemical cells

S6-011

Berenice López González (*Facultad de Química, Universidad Autónoma de Querétaro, Santiago de Querétaro, Mexico*), Francisco M. Cuevas-Muñiz, Minerva Guerra-Balcázar, Janet Ledesma-García, Vanessa Vallejo Becerra

Biocathode based in Laccase on Vulcan XC-72 prepared by adsorption method

S6-012

Dominika Lyp (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Renata Bilewicz, Pawel Kryszynski, Krzysztof Stolarczyk

Biobattery Based on Carbon Nanotube Structured Biocathode and Plated Zinc Anode

S6-013

Mickaël Rimboud (*Laboratoire de Génie Chimique, Université de Toulouse, Toulouse, France*)

Screening Different Sludges from Sewage Treatment Led to Different Microbial Electrodes

S6-014

Zane Rutkovska (*Department of Microbiology and Biotechnology, University of Latvia, Riga, Latvia*), Ilze Dimanta, Arturs Gruduls, Janis Kleperis, Vizma Nikolajeva

Comparison of commercial and custom made microbial fuel cells, using bacterial substrates from wastewater treatment plants of Latvia as a substrate.

S6-015

Woonsup Shin (*Department of Chemistry, Sogang University, Seoul, Korea*)

Electrochemical Activation of Carbon Dioxide to Formate by *Moorella thermoacetica* and *Clostridium formicoaceticum*

S6-016

Nadéje Tekaya (*Institut des Sciences Analytiques, Université Claude Bernard Lyon 1, Villeurbanne, France*), Hatem Ben Ouada, Hafedh Ben Ouada, Nicole Jaffrezic-Renault, Florence Lagarde, Olga Saiapina

Ultra-sensitive Conductometric Detection of Pesticides Based on Inhibition of Esterase Activity from *Arthrospira platensis*

S6-017

Mieke C.A.A. van Eerten-Jansen (*Environmental Technology, Wageningen University, Wageningen, Netherlands*), Cees J.N Buisman, Tim I.M Grootcholten, Hubertus V.M. Hamelers, Tom H.J.A. Sleutels, Kirsten J.J. Steinbusch, Annemiek Ter Heijne

Bioelectrochemical Production of Caproate and Caprylate from Acetate by Mixed Cultures

S6-018

Jeevanthi Vivekananthan (*Analytische Chemie, Elektroanalytik & Sensorik, Ruhr-Universität Bochum, Bochum, Germany*), Wolfgang Schuhmann

A comparative study of carbon-based electrodes for direct electron transfer with multicopper oxidases

S6-019

Stéphanie Ketep (*Laboratoire de Génie Chimique de Toulouse, Institut Polytechnique de Toulouse, Toulouse, France*)

Alain Bergel, Wafa Achouak, Marie Bertrand, Eric Fourest

An Innovative Procedure for the Construction of Microbial Bioanodes for the Treatment of Paper Mill Effluents in Microbial Fuel Cells

Poster Presentation Session 2



s5 - Bioassays, biochips, biosensors: New developments and applications

S5-001

Stéphane Arbault (*Institute of Molecular Sciences, CNRS UMR 5255, University of Bordeaux, Pessac, France*), Salem Ben-Amor, Anne Devin, Michel Rigoulet, Neso Sojic, Emmanuel Suraniti, Suresh Vajjala

Fluorescence Microscopy of Isolated Mitochondria Coupled with Electrochemical Detection of Reactive Oxygen Species at The Single Organelle Level

S5-002

Martin Bartošík (*RECAMO, Masaryk Memorial Cancer Hospital, Brno, Czech Republic*), Roman Hrstka, Emil Palecek, Mojmír Trefulka, Boživoj Vojtišek

Simple label-based electrochemical assay for detection of microRNAs as potential cancer biomarkers

S5-003

Maria Bosserdt (*Fraunhofer Institute for Biomedical Engineering (IBMT), university Potsdam, Potsdam-Golm, Germany*), Nenad Gajovic-Eichelmann, Frieder Wolfram Scheller

First Electrochemically active Protein MIP

S5-004

Christopher Brett (*Department of Chemistry, University of Coimbra, Coimbra, Portugal*), Aziz Amine, Aisha Attar, Ricardo Carvalho, M. Emilia Ghica

Inhibitor Effect of Heavy Metal Cations at Redox-Mediated Enzyme Biosensors

S5-005

Ariadna Brotons (*Química Física, University of Alicante, Alicante, Spain*), Craig E. Banks, Jesus Iniesta, Vicente Montiel, Jose Solla-Gullón, Francisco José Vidal-Iglesias

Voltammetric behaviour of free DNA bases, methylcytosine and oligonucleotides at disposable screen printed graphite electrode platforms

S5-006

Bogdan Bucur (*Bioanalysis Center, National Institute of R&D for Biological Sciences, Bucharest, Romania*), Ana Chira, Gabriel-Lucian Radu, Maria-Cristina Radulescu

Synthesis of 4,4'-Dipyridine Derivatives for Immobilization on the Electrode Surface

S5-007

Anna Celebanska (*Department of Electrode Processes, Institute of Physical Chemistry PAS, Warsaw, Poland*), Marcin Filipiak, Martin Jonsson-Niedziolka, Olga Krysiak, Marcin Opallo

Biosensor based on the layer-by-layer method and a new sol-gel matrix for detection of highly toxic organophosphate pesticides

S5-008

Andrea Contin (*Analytische Chemie, Ruhr-Universität Bochum, Bochum, Germany*), Dmitrii A. Guschin, Véronique Lapeyre, Sascha Pöller, Valerie Ravaine, Wolfgang Schuhmann

New Osmium Loaded Hybrid Microgels as Biosensors with Controlled Redox Centers Nano-Gaps

S5-009

Cecilia Cristea (*Department of Analytical Chemistry, Faculty of Pharmacy, Iuliu Hatieganu, University of Medicine & Pharmacy, Cluj-Napoca, Romania*), Anca Florea, Giovanna Marrazza, Robert Sandulescu

Electrochemical immunoassay for the detection of MUC1 cancer biomarker

S5-010

Ales Danhel (*Department of Biophysical Chemistry and Molecular Oncology, Institute of Biophysics, AS CR, v.v.i., Brno, Czech Republic*), Miroslav Fojta, Ludek Havran, Michal Hocek, Hana Pivonkova, Veronika Raindlova

Novel DNA Redox Labels at Silver Solid Amalgam Electrode

S5-011

Sema Demirci Uzun (*Polymer Science and Technology Department, Middle East Technical University, Ankara, Turkey*), Naime Akbasoglu Ünlü, Fulya Ekiz Kanýk, Duygu Kozanoglu, Emren Nalbant Esentürk, Suna Timur, Levent Toppare

Surface Modification of a Novel Benzimidazole Containing Polymer for Biomolecule Immobilization and Biosensing Applications

S5-012

Fulya Ekiz Kanik (*Biotechnology, Middle East Technical University, Ankara, Turkey*), Müfit Bahadır, Marit Kolb, Suna Timur, Levent Toppare

Development of a Conducting Polymer Based Amperometric Acetylcholine Biosensor for Pesticide Detection

S5-013

Hanna Elzanowska (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*),
Agnieszka Gniazdowska, Magdalena Maj-Zurawska, Adriana Palinska-Saadi

Opposing effects of riboflavin and methylene blue on DNA oxidation

S5-014

Fatma Bilge Emre (*Department of Elementary Education, Ynn University, Malatya, Turkey*), Yasemin Aslan Udum, Funda Sayilkan, Levent Toppare

Carbazole Unit and TiO₂ Nanoparticles Containing Biosensor and Its Applications

S5-015

Fatma Bilge Emre (*Ynn University, Malatya, Turkey*), Evren Aslan Gurel, Fulya Ekiz Kanik, Melis Kesik, Levent Toppare

Benzoimidazole Based Conducting Polymer and PMMA/Clay Nanocomposite Containing Biosensor and Its Applications

S5-016

Fabiane Galdino (*Department of Chemistry and Biotechnology, Federal University of Alagoas, Maceio, Brazil*), Jonathan Caranto, Carlos Garcia, Donald Kurtz

Electrochemical Detection of Superoxide Using SOR Immobilized on Carbon Nanotubes

S5-017

Isabel Patricia Garrido Fernandes (*Departamento de Qumica, Universidade de Coimbra, Coimbra, Portugal*), Carlos Severino Bezerra Oliveira, Ana Maria Oliveira-Brett, Angelo Pinto, Barbara Silva

Isatin Halogen-Derivatives Anodic Behaviour

S5-018

Stefanie Grtzke (*Analytische Chemie - Elektroanalytik und Sensorik, Ruhr-Universitt Bochum, Bochum, Germany*), Magdalena Gebala, Sascha Pller, Wolfgang Schuhmann

Detection of biomolecules at nanostructured surfaces by combining of electrochemistry and spectroscopy

S5-019

Vinod Kumar Gupta (*Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee, India*), Shilpi Agarwal, A. Dwivedi, R. Jain, R. Mishra

Electrochemical determination of antihypertensive drug irbesartan in pharmaceuticals

S5-020

Ludek Havran (*Department of Biophysical Chemistry and Molecular Oncology, Institute of Biophysics, ASCR, v.v.i., Brno, Czech Republic*), Miroslav Fojta, Iva Kejnovská, Hana Pivonkova, Pavlína Vidláková, Michaela Vorlícková

Electrochemical analysis of DNA structure transitions

S5-021

Jia Shin Ho (*Division of Chemistry and Biological Chemistry, Nanyang Technological University, Singapore, Singapore*), Ming Soon Cheng, Vincent T. K. Chow, Chee-Seng Toh

Impedimetric Microbial Sensor for Real-Time Monitoring of Phage Infection of *Escherichia coli*

S5-022

Evgeniia Konishcheva (*Department of Chemistry, M.V. Lomonosov Moscow State University, Moscow, Russia*), Arkady Karaykin, Oleg Voronin

Development of the 3rd Generation Hydrogen Biosensor

S5-023

Mie Lillethorup (*Department of Chemistry, Aarhus University, Aarhus C, Denmark*), Marcel Cecatto, Kim Daasbjerg, Kristian Torbensen, Steen Uttrup Pedersen

Charge Transfer Processes in Ferrocene-containing Polymer Brushes

S5-024

Fred Lisdat (*Department of Biosystems Technology, University of Applied Sciences Wildau, Wildau, Germany*), Robert Brunner, Gero Göbel, Carolin Nietzold

Development of a voltammetric and an amperometric immunoassay for *E. coli* detection

S5-025

Magdalena Maj-Zurawska (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*), Hanna Elzanowska, Piotr Kozłowski, Adriana Palinska-Saadi, Aleksandra Szajerska

Screen-printed electrodes (SPEs) in investigation of DNA interactions with Ethidium Bromide and Methylene Blue

S5-026

Monika Mroczkiewicz (*Faculty of Chemistry, Department of Microbioanalytics, Warsaw University of Technology, Warsaw, Poland*), Lukasz Górski, Elzbieta Malinowska, Mariusz Pietrzak, Joanna Zajda

Porphyrin-based Anion Selective Electrodes and Their Application as Detectors in FIA Systems

S5-027

Hamid Naghibi (*Department of Mechanical Engineering, Sharif University of Technology, Tebran, Iran*)

Electrochemical studies of the hemin modified graphite nanostructures as a new biosensor for H₂O₂

S5-028

Piotr Olejnik (*Department of Chemistry, University of Warsaw, Warsaw, Poland*),
Barbara Palys

Structure and stability of adsorbed laccase

S5-029

Severino Carlos Oliveira (*Química, Universidade de Coimbra, Coimbra, Portugal*),
Ilanna Lopes, Ana Maria Oliveira-Brett

In situ Electrochemical and Gel-Electrophoresis Evaluation of Anticancer Drug Temozolomide and its Metabolites-DNA Interaction

S5-030

Ana Maria Oliveira-Brett (*Departamento de Química, Universidade de Coimbra, Coimbra, Portugal*)

Virgin olive oil ortho-phenols electrochemical behaviour

S5-031

Sanaz Pilehvar (*Department of Chemistry, University of Antwerp, Antwerp, Belgium*), Jahangir Ahmad Rather, Karolien De Wael

Biosensing of Endocrine Disruptors: Two Case Studies

S5-032

Heftsi Ragonis (*Department of Physical Electronics, Tel-Aviv University, Tel-Aviv, Israel*)

Novel 3D Integration Technology for Whole Cell Bio-Electrochemical Sensor

S5-033

Ana Dora Rodrigues Pontinha (*Departamento de Química, Universidade de Coimbra, Coimbra, Portugal*), Stephen Neidle, Ana Maria Oliveira-Brett, Silvia Sparapani

Triazole–Acridine Conjugates: Redox Mechanisms and *in situ* Electrochemical Evaluation of Interaction with DNA

S5-034

Mykola Rozhitskii (*Laboratory of Analytical Optochemotronics, Kharkiv National University of Radioelectronics, Kharkiv, Ukraine*), Olga Sushko

Sensor Based on Semiconductor Nanostructures for Polycyclic Aromatic Hydrocarbons Detection in Water Objects

S5-035

Saniye Soylemez (*Department of Chemistry, Middle East Technical University, Ankara, Turkey*), Sema Demirci, Fulya Ekiz Kanik, Levent Toppare

Application of a Novel Benzimidazole Containing Polymer to Biosensors

S5-036

Jan Spacek (*Department of Biophysical Chemistry and Molecular Oncology, Institute of Biophysics, Academy of Sciences, Brno, Czech Republic*)

Utilization of Controlled Length Homopolymer Tails Synthesised by Terminal Deoxyribonucleic Transferase for Electrochemical Detection and DNA Manipulation

S5-037

Milan Sýs (*Department of Analytical Chemistry, Faculty of Chemical Technology, University of Pardubice, Pardubice, Czech Republic*), Kurt Kalcher, Bruna Pecek, Dai Long Vu, Karel Vytøas

Amperometric Tyrosinase Biosensor Based on Multi Wall Carbon Nanotubes Immobilized on the Surface of Carbon Paste Electrode for the Determination of Trolox Antioxidant Capacity

S5-038

Sven Verguts (*Department of Materials & Chemistry, Vrije Universiteit Brussel, Brussel, Belgium*), Kurt Barbé, Annick Hubin, Oscar Olarte, Yves Van Ingelgem, Wendy Van Moer

Frequency Domain Identification for Non-Invasive Glucose Measurements

S5-039

Pavlna Vidláková (*Department of Biophysical Chemistry and Molecular Oncology, Institute of Biophysics v. n. i., ASCR, Brno, Czech Republic*)

Electrochemical analysis of DNA multiply labeled with selected organic electroactive tags

S5-040

Martina Zatloukalova (*Department of Medical Chemistry and Biochemistry, Palacky University Olomouc, Olomouc, Czech Republic*), Teodor Adrian Enache, Vacek Jan, Vladimír Kren, Ana Maria Oliveira-Brett, Jitka Ulrichova

Electrooxidation Chemistry of Quercetin-3-Gallate

S5-041

Robert Ziólkowski (*Institute of Biotechnology; Microbioanalytics, Faculty of Chemistry, Warsaw University of Technology, Warsaw, Poland*), Lukasz Górski, Elzbieta Malinowska

Electrochemical DNA biosensor for Hg²⁺ detection

s7 - Interdisciplinary bioelectrochemistry: Hyphenated techniques; impact from other fields on bioelectrochemistry

S7-001

Rafael Martos Buoro (*Fundamental Chemistry, Institute of Chemistry from University of São Paulo, São Paulo, Brazil*), Raphael Prata Bacil, Robson Pinho da Silva, Luis Carlos Cides da Silva, Antonio William Oliveira Lima, Silvia Helena Pires Serrano

Interaction between the Nitroanion Radical Derivative from Nitrofural and Guanine Immobilized at a Carbon Paste Composite Electrode

S7-002

Rafael Martos Buoro (*Fundamental Chemistry, Institute of Chemistry from University of São Paulo, São Paulo, Brazil*), Robson Pinho da Silva, Antonio William Oliveira Lima, Silvia Helena Pires Serrano

Simultaneous Detection of Purine Derivatives at a Dopamine Pyrolytic Graphite Modified Electrode

S7-003

Ana-Maria Chiorcea-Paquim (*Departamento de Química, Universidade de Coimbra, Coimbra, Portugal*), Ana Maria Oliveira-Brett, Paulina Viegas Santos

Atomic Force Microscopy and Voltammetric Characterization of Homo-Oligodeoxynucleotides

S7-004

Balazs Endrodi (*Department of Physical Chemistry and Materials Science, University of Szeged, Szeged, Hungary*), Csaba Janaky, Attila Kormanyos, Csaba Visy

Laccase Enzyme Immobilization in Conducting Polymer Matrix through Magnetite Nanoparticles

S7-005

Sajjad Habibzadeh (*Department of Chemical Engineering, McGill University, Montreal, Canada*), Grishma Hirode, Sasha Omanovic, Dominique Shum-Tim

Electrochemical Surface Treatment of 316L Stainless Steel for Biomedical Applications

S7-006

Dirk Holtmann (*Department of Biochemical Engineering, DECHEMA-Forschungsinstitut, Frankfurt, Germany*), Laura Getrey, Jens Schrader

Electrochemical reaction system to overcome enzyme instability

S7-007

Joanna Michalska (*Department of Materials Science, Silesian University of Technology, Gliwice, Poland*), Weronika Dec, Marzena Jaworska-Kik

Electrochemical Behavior of Duplex Stainless Steel in the Presence of Sulphate-reducing Bacteria Biofilms

S7-008

Frank Müller (*CES, Ruhr-Universität Bochum, Bochum, Germany*), Nicolas Plumeré, Tarik Abdulazim, Thomas Happe, Joerg Henig, Thore Schmidt, Martin Winkler

Double intrachain histidine-tag for isotropic self-assembly of redox enzyme on electrode surfaces

S7-009

Iveta Pilarova (*Department of Chemistry, Masaryk University, Brno, Czech Republic*), Rudolf Navratil, Libuse Trnkova

A comparative voltammetric study of the redox behavior of 6-benzylaminopurine and its derivatives on mercury and pencil graphite electrodes

S7-010

Alexandra Revina (*Department of Polymer Nanomaterials Photonic & Electronic Processes Lab., Frumkin Institute of Physical Chemistry and Electrochemistry, Moscow, Russia*)

On the Role of Early Stages of Molecular Oxygen Activation in Bioelectrochemistry and Nanotechnology

S7-011

Libuse Trnkova (*Department of Chemistry, Masaryk University, Brno, Czech Republic*), Sylvie Dohnalikova, Libor Gurecky, Iveta Pilarova, Paula Toimil Loureiro

Hemiprotonated C-C+ base pairing investigated by electrochemical and spectral methods

S7-012

Nehar Ullah (*Department of Chemical Engineering, McGill University, Montreal, Canada*), Sasha Omanovic

Development of Neural Stimulating Electrodes Based on Iridium-Ruthenium Mixed Oxides

S7-013

Agnieszka Wieckowska (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*)

Laccase – Substrate Interaction – Surface Plasmon Resonance Study

S7-014

Martina Zatloukalova (*Department of Medical Chemistry and Biochemistry, Palacky, University Olomouc, Olomouc, Czech Republic*), Barbora Papoušková, Jana Skopalova, Jan Vacek

Electrochemical Oxidation of the Isoquinoline Alkaloid Berberine in Aqueous Medium

s8 - Electrochemistry at cells and tissues

S8-001

Yun Li (*Department of Chemistry, UMR 8640, Ecole Normale Supérieure, Paris, France*), Christian Amatore, Manon Guille Collignon, Frédéric Lemaître, Catherine Sella, Laurent Thouin

Highly Sensitive Platinum-Black Coated Platinum Electrodes For Electrochemical Detection of Oxidative Stress in Microchannels

S8-002

Dorota Niececka (*Department of Chemistry, University of Warsaw, Warsaw, Poland*), Aleksandra Joniec, Agata Królikowska, Pawel Kryszinski

Interaction of Anthracycline Drug with Model Membrane System

S8-003

Alice Solda (*Department of Chemistry, University of Bologna, Bologna, Italy*), Marco Giorgio, Francesco Paolucci, Pier Giuseppe Pelicci, Stefania Rapino

Study of cancer cells altered processes by mapping both glucose uptake and lactate release

S8-004

Charlotte Steinbach (*Institute of Analytical and Bioanalytical Chemistry, University of Ulm, Ulm, Germany*), Elena Hecht, Anita Ignatius, Christine Kranz, Astrid Liedert, Boris Mizaikoff, Stefanie Weber

A motorized stretching device in combination with scanning electrochemical microscopy: Towards detection of ATP at bone cells

S8-005

Bilyana Tacheva (*Department of Physics and Biophysics, Trakia University, Faculty of Medicine, Stara Zagora, Bulgaria*), Ivan T. Ivanov, Miroslav Karabaliev, Boyana Paarvanova

Thermal dielectroscopy study of erythrocyte Triton-X-100 skeletons

S8-006

Bilyana Tacheva (*Department of Physics and Biophysics, Trakia University, Faculty of Medicine, Stara Zagora, Bulgaria*), Ivan T. Ivanov, Miroslav Karabaliev, Boyana Paarvanova

Phenothiazine drug interactions with thin lipid films modified electrodes