

Program of the
XXIV International Symposium
on Bioelectrochemistry
and Bioenergetics of the
Bioelectrochemical Society

3-7 July, 2017

Lyon, France



The Bioelectrochemical Society

The Bioelectrochemical Society
Chemin du Closelet 2
1006 Lausanne
Switzerland

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Alexander Kuhn, Bordeaux University, France

Program

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Special Meetings and Social Program

Monday, 3 July 2017

09:00 – 13:00

BES Council, Room D138

17:30 – 18:00

Opening Ceremony

18:00 – 18:50

Giulio Milazzo Prize Lecture

19:00 – 19:30

Luigi Galvani Prize Lecture

19:30 – 22:00

Dinner welcome reception

Tuesday, 4 July 2017

19:00 – 20:30

Poster Session

Wednesday, 5 July 2017

19:00 – 20:30

Poster Session

Thursday, 6 July 2017

11:35 – 12:35

BES General Assembly

14:00 – 22:05

Excursion and Dinner

Friday, 7 July 2017

12:05 – 12:20

Closing Ceremony

Program of the XXIV International Symposium on Bioelectrochemistry and Bioenergetics

Monday, 3 July - Afternoon

17:30 – 18:00

Opening Ceremony

Giulio Milazzo Prize Lecture

Room: Large Amphi

Chaired by: Lo Gorton

18:00 to 18:50

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F. Scheller (Institute for Biochemistry and Biology, University of
Potsdam, Potsdam, Germany)

Protein electrochemistry: From mercury to MIPs

Luigi Galvani Prize Lecture

Room: Large Amphi

Chaired by: Lo Gorton

19:00 to 19:30

page 59

Sergey Shleev (Malmö University, 20506 Malmö, Sweden)

Hybrid biological electric power sources: from blue
bioelectrochemistry to green bioelectronics

Tuesday, 4 July - Morning

Plenary Lecture

Room: Large Amphi

Chaired by: Ana-Maria Oliveira-Brett

09:00 to 09:45

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Christian Amatore (Département de Chimie, Ecole Normale Supérieure, Paris, France)

Observing, Quantifying and Understanding Vesicular Exocytosis with Micro- and Nanoelectrodes

S2 Affinity sensors, 3D bioarchitectures for biosensing

Room: Large Amphi

Chaired by: Carole Chaix

09:50 to 10:10 Invited

page 84

Camelia Bala (Department of Analytical Chemistry, University of Bucharest, Bucharest, Romania)

Tunable Self-Assembled Scaffolds on Gold-Interfaced Transducers as Supports for Biosensing Applications

10:10 to 10:25

page 80

Catherine Adam (Université Libre de Bruxelles, Boulevard du Triomphe, 2, Bruxelles, Belgium), Thomas Doneux, José Manuel Olmos Martínez

Electrochemical monitoring of the reversible folding of unlabelled DNA i-motif structures at gold electrodes

10:25 to 10:40 page 86

Ausra Baradoke (National Centre for Sensors Research, Dublin City University, Dublin, Ireland), Samantha F. Douman, Robert J. Forster, Bincy Jose, Rasa Pauliukaite, Ramunas Valiokas

Development of an Electrochemical Biosensor Based on Nanomodified IDA Biochip for High Sensitivity Non-Labeled Biomarker Detection

10:40 to 11:05

Coffee Break

S4 Microbial fuel cells, biofilms, bioconversion of energy

Room: Room F004

Chaired by: Cesar Torres

09:50 to 10:10 Invited page 198

Carlo Santoro (Chemical and Biological Engineering Department, University of New Mexico, Albuquerque, USA), Plamen Atanassov, Alexey Serov, Francesca Soavi

Utilization of Supercapacitive Features in Bioelectrochemical Systems

10:25 to 10:40 page 107

Pierangela Cristiani (Ricerca sul Sistema Energetico, Milano, Italy), Lucia Cavalca, Alessandra Colombo, Laura Rago, Andrea Schievano, Federica Villa, Sarah Zecchin

Anaerobic and aerobic processes synergistically promoted in biocathodes of microbial fuel cells

10:25 to 10:40 page 223

Mirpouyan Zarabadi (Département de Chimie, Faculté des Sciences et de Génie, Université Laval, Québec, Canada), Jesse Greener

A Microfluidic Approach for Determining the Combined Effects of Nutrient Concentration and Hydrodynamic Conditions on Electrical Output of *Geobacter Sulfurreducens* Biofilms

10:40 to 11:05

Coffee Break

S6 Bioelectrochemistry in the service of medicine

Room: Small Amphi

Chaired by: Stephane Marinesco

09:50 to 10:10 Invited page 96

Ramon Bragos (Electronic Engineering Department, Universitat Politècnica de Catalunya, Barcelona, Spain)

Fast-EIS Applications on Dynamic In-Vivo Tissues

10:10 to 10:25 page 85

Anna Banasiak (School of Chemical and Pharmaceutical Sciences, Dublin Institute of Technology, Dublin, Ireland), John Cassidy, John Colleran

Electrochemical Monitoring of the Interactions between DNA and Bioinorganic Compounds

10:25 to 10:40 page 212

Wakako Tsugawa (Department of Biotechnology & Life Science, Tokyo University of Agriculture and Technology, Nakamachi, Koganei-city, Japan), Nana Hirose, Katsuhiko Kojima, Masaki Shiota, Koji Sode, Nanoha Suzuki, Yuki Yamashita-Tsukada

Analyses of the electron transfer pathway of direct electron transfer type iron sulfur flavo cytochrome type glucose dehydrogenase complex ~enzyme for continuous glucose monitoring~

10:40 to 11:05

Coffee Break

Chaired by: Lanqun Mao

11:05 to 11:35 Keynote page 72

Kendall H. Lee (Mayo Clinic, Rochester, USA), Kevin E. Bennet

Neural Engineering Next Generation of DBS Technology

11:35 to 11:50 page 99

Ann-Sofie Cans (Department of Chemistry and Chemical Engineering, Chalmers University of Technology, Gothenburg, Sweden), Johan Dunevall, Hoda Fathali, Soodabeh Majdi

Extracellular Osmotic Stress Reduces the Vesicle Size While Keeping a Constant Neurotransmitter Concentration

- 11:50 to 12:05 page 206
Krzysztof Stolarczyk (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Marta Laszcz, Dorota Bryk, Marek Kubiszewski, Wioleta Maruszak, Wioletta Olejarz, Elzbieta U. Stolarczyk
Synthesis and characterization of genistein conjugated with gold nanoparticles for anticancer drug delivery application and therapeutic performance
- 12:05 to 12:20 page 106
Cecilia Cristea (Department of Analytical Chemistry, Iuliu Hatieganu University, of Medicine and Pharmacy, Cluj-Napoca, Romania), Andreea Cernat, Anca Florea, Robert Sandulescu, Mihaela Tertis
New Customized Platform Based on Electrochemically Generated Polypyrrole Nanoparticles Decorated with Gold Nanoparticles for the Highly Selective and Sensitive Electrochemical Detection of Serotonin
- 12:20 to 12:35 page 108
Melinda David (Faculty of Physics, University of Bucharest, Magurele, Romania), Monica Florescu, Dumitru Lazurca, Adrian Serban
Label-Free Electrochemical Sensors for Total Antioxidant Capacity Monitoring in Plant Extracts

S1 Electrochemistry of proteins, enzyme electrodes

Room: Large Amphi

Chaired by: Christophe Léger

- 11:05 to 11:35 **Keynote** page 77
Ulla Wollenberger (Molecular Enzymology, Analytical Biochemistry, University of Potsdam, Potsdam, Germany)
Coupling enzymes and electrodes for bioelectrocatalysis:
Coupling strategies and electrochemical reactions of heme- and molybdopterin containing enzymes
- 11:35 to 11:50 page 78
Sofiene Abdellaoui (Department of Chemistry, University of Utah, Salt Lake City, USA), Rong Cai, Ross D. Milton, Shelley D. Minteer
Enzymatic Bioelectrosynthesis of Ammonia and Hydrocarbon

11:50 to 12:05 page 81

M. Gabriela Almeida (Faculdade de Ciências e Tecnologia, Caparica, Portugal), Ricardo Franco, Maria João Oliveira, Miguel Peixoto de Almeida, Eulália Pereira, Célia Marisa Silveira

Star-shaped Gold Nanoparticles Provide Improved Interfaces for Electrochemical Biosensors

12:05 to 12:20 page 82

Sabine Alsaoub (Analytische Chemie Elektroanalytik & Sensorik, Ruhr-Universität Bochum, Bochum, Germany), Felipe Conzuelo, Roland Ludwig, Piyanut Pinyou, Adrian Ruff, Wolfgang Schuhmann, Sergey Shleev

Biosupercapacitors Based on Enzymes Entrapped in Os-Complex Modified Redox Polymers

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Chloé Aymard (Institute for Molecular and Supramolecular Chemistry and Biochemistry, University Lyon 1, Villeurbanne, France), Loïc J. Blum, Franck Charmantray, Bastien Doumèche, Matilte Halma, Laurence Hecquet, Christine Mousty

High throughput electrochemical assays for oxidase activity measurements

S3 Enzymatic fuel cells

Room: Room F004

Chaired by: Serge Cosnier

11:05 to 11:35 Keynote page 75

Seiya Tsujimura (Faculty of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan)

Porous carbon materials for enzymatic biofuel cells

11:35 to 11:50 page 167

Ievgen Mazurenko (BIP-Laboratory of Bioenergetics and Protein Engineering, CNRS - Aix-Marseille University, Marseille, France), Marie-Therese Giudici-Orticoni, Pascale Infossi, Elisabeth Lojou, Nicolas Mano, Karen Monsalve

H₂/O₂ Enzymatic Fuel Cell Based on the Thermostable Enzymes in Direct Connection with 3D-Electrodes

- 11:50 to 12:05 page 87
Awatef Ben Tahar (TIMC-IMAG (UMR 5525 UGA-CNRS), Université Grenoble Alpes, Grenoble, France), Jean-Pierre Alcaraz, François Boucher, Philippe Cinquin, Lionel Dubois, Gaultier Mennasol, Jacques Thélou, Sophie Tingry, Abdelkader Zebda
Optimization of a Biocompatible Implantable Bio-Anode Based Glucose Dehydrogenase
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Paolo Bollella (Chemistry and Drug Technologies, Rome, Italy), Riccarda Antiochia, Gabriele Favero, Lo Gorton, Roland Ludwig, Su Ma, Franco Mazzei, Cristina Tortolini
A Novel Self-Powered Glucose Biosensor based on CtCDH and AuNPs modified Screen-Printed Carbon Electrode
- 12:20 to 12:35 page 165
Nikola Markovic (Analytical Chemistry, Center for Electrochemical Sciences, Bochum, Germany), Magnus Falk, Elena Gonzalez-Arribas, Wolfgang Schuhmann, Sergey Shleev
Self-powered wireless carbohydrate sensitive radio based biodevice operating in human blood stream

Tuesday, 4 July - Afternoon

S1 Electrochemistry of proteins, enzyme electrodes

Room: Large Amphi

Chaired by: Philip Bartlett

14:00 to 14:15 page 301

Renata Bilewicz (Faculty of Chemistry, Warsaw, Poland)
Electrochemical studies of membrane proteins reconstituted in
lipidic liquid crystalline cubic phase

14:15 to 14:30 page 98

Darren Buesen (Ruhr-Universität Bochum, Bochum, Germany),
Huaiguang Li, Nicolas Plumeré
Electrochemical Determination of Electroactive Film Thickness
Distribution in the Solvated State

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Antonio De Lacey (Instituto de Catalisis, CSIC, Madrid, Spain), Oscar
Gutierrez-Sanz, Ivan Lopez-Montero, Marta Marques, Ileana Marquez,
Paolo Natale, Ines Pereira, Marcos Pita, Marisela Velez, Sonia Zacarias
ATP Synthesis Coupled to the Electroenzymatic Activity of a
Hydrogenase Immobilized at an Electrode/Biomimetic Membrane
Interface

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Mariam Fadel (BIP- Aix Marseille University, CNRS, IUSTI- Aix
Marseille University, Marseille, France), Jean-Vincent Daurelle, Vincent
Fourmond, Jerome Vicente
Advanced Electrochemical Cell for the Study of the Highly Active
Enzymes: CO- Dehydrogenase

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Magnus Falk (Biomedical Sciences, Faculty of Health and Society,
Malmö University, Malmö, Sweden), Neville Freeman, Sergey Shleev,
Marcus Swann
Bio-modified nanoband array electrodes for sensing in complex
fluids

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Hassan Fini (Department of Physical & Environmental Sciences, University of Toronto, Toronto, Canada), Kagan Kerman
Electrochemical Detection of Nitrite Reductase Activity of Hemoglobin

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Vincent Fourmond (BIP, Aix-Marseille Université, CNRS, Marseille, France), Carole Baffert, Robert B. Best, Jochen Blumberger, Hervé Bottin, David De Sancho, Sebastien Dementin, Holger Dobbek, Lilith Domnik, Charles Gauquelin, Jessica Hadj-Saïd, Adam Kubas, Christophe Léger, Meriem Merrouch, Isabelle Meynial-Salles, Christophe Orain, Laure Saujet, Philippe Soucaille
Reactivity with O₂ of H₂-producing and CO₂-reducing enzymes

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Solène Gentil (Département de Chimie Moléculaire, Université Grenoble-Alpes, Saint-Martin-d'Herès, France), Vincent Artero, Serge Cosnier, Noémie Lalaoui, Alan Le Goff, Yannig Nedellec, Wendy Shaw
Pt-free Hydrogen/Air fuel cell integrating carbon-nanotube-supported Copper Enzyme at the Cathode and a Bio-Inspired Nickel Complex at the Anode

16:00 to 16:30

Coffee Break

Chaired by: Lance Seefeldt

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Lars Jeuken (School of Biomedical Sciences, Leeds, United Kingdom), Julea Butt, Stefan Frielingsdorf, George Heath, Oliver Lenz, Mengqiu Li, Valentin Radu
Multilayered Lipid Membrane Stacks for Bioelectrocatalysis Using Membrane Enzymes

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Valentina Grippo (Chemistry Department, Warsaw University, Warsaw, Poland), Renata Bilewicz, David Hernandez Santos, Hussein Kanso, Roland Ludwig, Su Ma
Lipidic cubic phase for hosting enzymes and improving their catalytic activity

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Andrew Gross (Department of Molecular Chemistry, Université Grenoble Alpes, Grenoble, France), Pierre Audebert, Redouane Borsali, Xiaohong Chen, Serge Cosnier, Fabien Giroud, Raoudha Haddad, Eric Reynaud, Christophe Travelet

Self-Assembly of Redox-Active Glyconanoparticles for Bioelectrocatalytic Energy Conversion

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Michal Kizling (Faculty of Chemistry, Warsaw University, Warsaw, Poland), Renata Bilewicz

Fructose dehydrogenase electron transfer pathways in direct and mediated electron transfer mechanisms

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Estelle Lebègue (Institut des Sciences Chimiques de Rennes, Université de Rennes 1, Rennes, France), Frédéric Barrière, Thomas Flinois

Cytochrome c Electroactivity Revealed by Pure Cardiolipin on the Electrode or in the Electrolyte

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Mariana Emilia Ghica (Departamento de Quimica, Universidade de Coimbra, Coimbra, Portugal), Mohammed Nooredeen Abbas, Christopher M.A. Brett, Hend Samy Magar

Nanostructured Choline Oxidase Biosensor for Sensitive Choline Detection

S3 Enzymatic fuel cells

Room: F004

Chaired by: Michael Holzinger

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Samet Sahin (School of Chemical Engineering and Advanced Materials, Newcastle University, Newcastle, United Kingdom), Pimchai Chaiyen, Eileen Hao Yu

Development of Enzymatic Electrodes with Mutant Pyranose-2-Oxidase for Enzymatic Biofuel Cell Applications

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Fernanda Sales (Institute of Chemistry of São Carlos, University of São Carlos, São Carlos, Brazil), Frank Crespilho, Eduardo Moreira
Glucose Dehydrogenase on Flexible Carbon Fiber Arrays for Biofuel Cell Implanted in Small Insects

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Sergey Shleev (Biomedical Science, Malmoe, Sweden), Olga Aleksejeva, Sergey Bushnev, Elena Gonzalez-Arribas, Yulia Parunova, Vladimir Popov, Tamara Tikhonova
Conventional Biosupercapacitors

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Xinxin Xiao (Department of Chemical Sciences and Bernal Institute, University of Limerick, Limerick, Ireland), Dónal Leech, Roland Ludwig, Edmond Magner, Peter Ó'Conghaile
An energy-harvesting device based on supercapacitive enzyme-modified nanoporous gold electrodes: an autonomous pulse generator

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Francesca Lopez (Chemistry Department, Bochum, Germany), David Hernandez Santos, Adrian Ruff, Wolfgang Schuhmann
An O₂ insensitive self-powered biosensor based on a polymer multilayer bioanode for instrument-free detection of glucose

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Caroline Abreu (DCM/BEA, Université Grenoble-Alpes, Saint-Martin-d'Heres, France), François Buret, Serge Cosnier, Andrew J. Gross, Michaël Holzinger, Alan Le Goff, Yannig Nedellec, Olivier Ondel
 Assembly and stacking of enzymatic bioelectrodes for high power glucose fuel cells

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Magdalena Murawska (Centre de Recherche Paul Pascal, Pessac, France)
 Designing highly organized porous electrodes for miniaturized Biofuel Cells

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Aihua Liu (Institute for Biosensing, Qingdao University, Qingdao, China), Shuqin Fan, Chuantao Hou, Bo Liang
 Efficient Biofuel Cells Based on Microbial Surface Displaying Enzyme and Novel Nanostructures

16:00 to 16:30 Coffee Break

S4 Microbial fuel cells, biofilms, bioconversion of energy

Room: F004

Chaired by: Alain Bergel

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Maxime Pontie (Lab Geihp Ea3142, Angers University, Angers, France), Jean-Philippe Bouchara, Pauline Delage, Maeva Delaruelle, Sylvie Egloff, Serge Mbokou, Julia Razafimandimby, Ignas Tonle
 Novel Hybrid Biofuel Cell Type APAP/O₂ Based on a Fungal Bioanode with a *Scedosporium dehoogii* biofilm

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Antonin PrévotEAU (Center for Microbial Ecology and Technology, Ghent University, Ghent, Belgium), Kun Guo, Jo Philips, Korneel Rabaey, Hugo Roume, Xu Zhang
 Rapid and Quantitative Assessment of Redox Conduction across Electroactive Biofilms via Double Potential Step Chronoamperometry

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Graziela Cristina Sedenho (Institute of Chemistry of São Carlos (IQSC), University of São Paulo (USP), São Carlos, Brazil), Frank Nelson Crespilho, Kamila Cássia Pagnoncelli
Enzyme and Yeast in a Cooperative Ethanol Biofuel Cell

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Pau Bosch-Jimenez (Device, Design and Engineering Division, Leitat Technological Center, Terrassa, Spain), Martí Aliaguilla, Eduard Borràs, Mirko Faccini, Marta Juan-y-Seva, Victoria Miles, Daniele Molognoni, Ruediger Schweiss, Almut Schwenke, Juan de Dios Sirvent
Inoculation process and assessment of different carbon-based anode materials for Microbial Desalination Cells

S6 Bioelectrochemistry in the service of medicine

Room: Small Amphi

Chaired by: Kendall Lee

14:00 to 14:15

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Tautgirdas Ruzgas (Biomedical Sciences, Malmö University, Malmö, Sweden)

Study of Biological Barriers by Electrochemistry: In-vitro Model of Inflammatory Condition

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Noya Loew (Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology, Koganei, Japan), Mika Hatada, Koji Sode, Wakako Tsugawa

Interdigitated Array Microelectrodes as Novel Platform Technology for Disposable Enzyme Sensor Strips

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Amandine Impergre (INSA Lyon-Mateis UMR CNRS 5510, University of Lyon, Villeurbanne, France), Christelle Der-Loughian, Laurent Gremillard, Bernard Normand, Benoit Ter-Ovanessian

The intrinsic reactivity of cell culture medium acts on the biocompatibility of metallic alloys

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Mika Hatada (Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology, Koganei, Japan), Noya Loew, Koji Sode, Wakako Tsugawa

Development of 2.5th Generation Biosensors

15:00 to 15:15 page 139

Milica Jovic (Laboratory of Physical and Analytical Electrochemistry LEPA, École Polytechnique Fédérale de Lausanne (EPFL), Sion, Switzerland), Hubert Girault, Frédéric Gumy, Andreas Lesch, Yingdi Zhu

Point-of-Care Diagnostics using Inkjet-printed Microtiter Plates

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Kagan Kerman (Physical and Environmental Sciences, University of Toronto, Toronto, Canada), Hassan Fini, Hashwin V. S. Ganesh, Shaopei Li, Han Su

Electrochemical Methods to Understand Protein-Protein Interactions in Alzheimer's Disease

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Pawel Krysinski (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Gary Blanchard, Aleksandra Joniec, Slawomir Sek

Surface Chemistry-Dependent Effect of Superparamagnetic Iron Oxide-Based Nanoparticles on Biomimetic Membranes. Electrochemical and Spectroscopic Studies

15:45 to 16:00

Jinhee Lee (Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology, Koganei, Japan), Christophe A. Marquette, Kazunori Ikebukuro, Loïc J. Blum, Koji Sode, Kaori Tsukakoshi

Development of alkaline phosphatase fused zinc finger protein for target DNA detection

16:00 to 15:30

Coffee Break

Chaired by: Pankaj Vadgama

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Kevin Bennet (Division of Engineering, Mayo Clinic, Rochester, USA),
Kendall Lee
Neural Engineering Next Generation of DBS Technology

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Inyoung Lee (Department of Industrial Technology and Innovation,
Tokyo University of Agriculture and Technology, Koganei, Japan), Noya
Loew, Koji Sode, Wakako Tsugawa
Direct Electron Transfer Type Glucose Sensor with Self-Assembled
Monolayer (SAM) Immobilized FAD Glucose Dehydrogenase
Complex

17:05 to 17:20 page 199

Karolina Schwarzova-Peckova (Department of Analytical Chemistry,
Charles University, Prague, Czech Republic)
Bile Acids and Cholesterol: Possibilities of Electrochemical
Oxidation and Reduction at Bare Electrode Materials

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Hashwin Vijay Sundar Ganesh (University of Toronto, 1265 Military
Trail, Toronto, Canada), Kagan Kerman
Understanding the anti-oxidant activity of Epigallocatechin gallate
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Charles Chatard (Centre de Recherches en Neurosciences de Lyon
(CRNL), Institut des Nanotechnologies de Lyon (INL), Lyon, France),
Stéphane Marinesco, Anne Meiller, Andrei Sabac
Brain monitoring with Minimally Invasive Microelectrode Biosensors
based on Platinized Carbon Fibers

Wednesday, 5 July - Morning

Plenary Lecture

Room: Large Amphi

Chaired by: Damijan Miklavcic

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Rafael Davalos (Biomedical Engineering and Mechanics, Virginia Tech, Blacksburg, USA), Chris Arena, Jill Ivey, Eduardo Latouche, Melvin Lorenzo, John Rossmeisl, Mike Sano, Scott Verbridge
High-Frequency Irreversible Electroporation for Brain Cancer Treatment

S4 Microbial fuel cells, biofilms, bioconversion of energy

Room: Large Amphi

Chaired by: Ioannis Ieropoulos

09:50 to 10:10 Invited

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Cesar Torres (Chemical Engineering Program, Arizona State University, Tempe, USA), Guarav Albal, Bradley Lusk, Sudeep Popat
Electrochemical pH Dependency in Anode-Respiring Biofilms Suggests a Proton-Dependent Electron Transfer Reaction

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page 117

Thomas Flinois (Institut des Sciences Chimiques de Rennes, Université de Rennes 1, Rennes, France), Frédéric Barrière
Oxygen-Reducing Biocathodes from Wastewater Inoculum: Insight from 16S rRNA Gene Sequencing

10:25 to 10:40 page 121

Michael Füeg (Department of Chemistry and Biochemistry, University of Bern, Bern, Switzerland), Abraham Esteve-Nuñez, Bernd Giese, Akiyoshi Kuzume

Electron Transfer from *G. sulfurreducens* to ω -Functionalized Alkanethiol-Modified Gold Electrodes

10:40 to 11:05 Coffee Break

Chaired by: Pierangela Cristiani

11:05 to 11:35 Keynote page 68

Ioannis Ieropoulos (Bristol BioEnergy Centre, Bristol Robotics Laboratory, University of the West of England, Bristol, Bristol, United Kingdom), John Greenman

Bioenergy from Microbial Fuel Cells for Practical Implementation

11:35 to 11:50 page 127

Laura Gil-Carrera (IMTEK-Department of Microsystems Engineering, University of Freiburg, Freiburg, Germany), Stefanie Epple, Johannes Gescher, Sven Kerzenmacher

A novel inoculation and adaptation procedure to improve the performance of microbial anodes operated with complex industrial wastewater

11:50 to 12:05 page 128

Lo Gorton (Department of Biochemistry, Lund University, Lund, Sweden), Lars Hederstedt, Dónal Leech, Ross D. Milton, Shelley D. Minteer, Galina Pankratova

Electrochemical Study of the Extracellular Electron Transfer of Wild Type and Mutants of *Enterococcus faecalis* to Electrodes

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Matteo Grattieri (Department of Chemistry, University of Utah, Salt Lake City, USA), Kamrul Hasan, Shelley D. Minteer

Halotolerant Bacteria for Treatment and Monitoring of Hypersaline Solutions in Microbial Fuel Cells

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Ludovic Legrand (LAMBE UMR8587, Université Evry val d'Essonne, Evry, France), Annie Chaussé, Damien Féron, Snehangshu Patra

MFC bioanodes constituted of nickel sulfide nanoparticles and electroactive biofilm

S7 Electroporation and membrane bioelectrochemistry

Room: Small Amphi

Chaired by: Marie-Pierre Rols

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Pouyan Boukany (Chemical Engineering, Delft University of Technology, Delft, Netherlands), Dayinta Perrier, Lea Rems, Shaurya Sachdev

The Role of Cytoskeleton in Electroporation of Cellular Membranes

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Marie Breton (UMR 8203, CNRS, Gustave Roussy, Université Paris Sud, Villejuif, France), Lluis M. Mir

Investigation of the Chemical Mechanisms Involved in the Electropulsation of Membranes at the Molecular Level

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Michal Cifra (Institute of Photonics and Electronics, Czech Academy of Sciences, Prague, Czech Republic), Marie Breton, Daniel Havelka, Lluis M. Mir

Monitoring of oxidation during electroporation via endogenous chemiluminescence

10:40 to 11:05

Coffee Break

Chaired by: Gregor Sersa

11:05 to 11:35 Keynote page 73

Lluis M. Mir (Vectorology and Anticancer Therapeutics, UMR 8203, CNRS, Villejuif, France)

Electroporation without Electroporomeabilization and Electroporomeabilization without Electroporation ? A Reflexion on the Consequences of Cell Exposure to Electro(magnetic)fields and its Major Consequences

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Tomás García-Sánchez (Vectorology and Anticancer Therapies, UMR 8203, CNRS, Univ. Paris-Sud, Gustave Roussy, Université Paris-Saclay, Villejuif, France), Jessica Fontaine, LLuis M. Mir, Adeline Muscat
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Calcium ions and photosensitizer co-loaded in biocompatible nanocarriers dedicated for electroporation-supported photodynamic treatment of melanoma cells
- 12:05 to 12:20 page 152
Pauline Lefrançois (Institut of Molecular Science UMR 5255 - NSysA, 16, Avenue Pey Berland, Pessac, France), Stéphane Arbault, Jérôme Santolini
Electroanalysis at a Single Biomimetic Microreactor for Studying NO-Synthase Activities
- 12:20 to 12:35 page 169
Caterina Merla (CNRS UMR 8203 Lab. of Vectorology and Anticancer Therapies, Gustave Roussy, Univ. Paris-Sud, Université Paris Saclay, Villejuif, France), Brigitte Attal-Trétout, LLuis M. Mir, Michael Scherman
A wide-field CARS Setup for spectroscopy under electropulsation of biological objects

S5 Photobioelectrochemistry

Room: F004

Chaired by: Antonio Lopez De Lacey

09:50 to 10:10 Invited page 120

Raoul Frese (LaserLab VU University Amsterdam, Amsterdam, Netherlands)

Biological Photovoltaic Building Blocks for Solar Energy Harvesting

10:10 to 10:25 page 91

Tim Bobrowski (Analytical Chemistry, Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany), Felipe Conzuelo, Elena González-Arribas, Matthias Rögner, Adrian Ruff, Wolfgang Schuhmann, Sergey Shleev, Fangyuan Zhao

Flexible Transparent Nanostructured Photoelectrodes for Solar Biofuel Cells and Biosupercapacitors

10:25 to 10:40 page 94

Laurent Bouffier (ISM, University of Bordeaux, Pessac, France), Stéphane Arbault, Anne de Poulpiquet, Alexander Kuhn, Milica Sentic, Neso Sojic

3-Dimensional Bipolar Bioelectrochemistry

10:40 to 11:05

Coffee Break

S2 Affinity sensors, 3D bioarchitectures for biosensing

Room: F004

Chaired by: Robert Sandulescu

11:05 to 11:35 Keynote page 65

Frank F. Bier (Dept. Biosystems Integration and Process Automation, Fraunhofer IZI-BB, Potsdam, Germany), Ralph Hölzel, Xenia Knigge, Eva-Maria Laux

Systems Integration in Bioanalysis: Oriented Immobilization of Biomolecules for Affinity Sensors

- 11:35 to 11:50 page 103
Arnaud Chovin (Laboratoire d'Electrochimie Moléculaire, UMR CNRS 7591, Université Paris Diderot, 15, rue Jean Antoine de Baif, Paris cedex 13, France), Agnès Anne, Christophe Demaille, Eric Grelet, Thierry Michon, Anisha, N. Patel, Cécilia Taofifenua
Scaffolding of enzymes on virus nanoarrays: searching for nanoscale confinement effects on enzymatic activity
- 11:50 to 12:05 page 112
Sheida Esmail Tehrani (Department of Micro-and Nanotechnology, Technical University of Denmark, Kgs.Lyngby, Denmark), Catarina Almeida, Dorota Kwasny, Ida Schjødt, Winnie Edith Svendsen
An Impedimetric Biosensor for Early Rapid Diagnosis of Invasive Fungal Infections in Critically-ill Patients
- 12:05 to 12:20 page 115
Deby Fapyane (iNANO, Aarhus University, Aarhus, Denmark), Elena E. Ferapontova
Electrochemical Hairpin Biosensor Based on Peroxidase-mimicking Covalent Hemin-G4 quadruplex complexes for Ultrasensitive Detection of E.coli DNA and rRNA
- 12:20 to 12:35 page 136
Daliborka Jambrec (Ruhr University Bochum, Bochum, Germany), Felipe Conzuelo, Wolfgang Schuhmann, Bin Zhao
Coupling Rolling Circle Amplification and SECM Read-out for Label-free DNA Detection

Wednesday, 5 July - Afternoon

S1 Electrochemistry of proteins, enzyme electrodes

Room: Large Amphi

Chaired by: Ulla Wollenberger

14:00 to 14:15 page 172

Gilbert Noell (Chem.-Biol.-Dept., University of Siegen, Siegen, Germany)
UV/VIS-Spectroelectrochemical Investigation of Cellobiose Dehydrogenase from *Corynascus thermophilus*

14:15 to 14:30 page 176

Ana Maria Oliveira-Brett (Department of Chemistry, University of Coimbra, Coimbra, Portugal), Isabel P.G. Fernandes
Calcium Induced Calmodulin Conformational Change. Electrochemical Evaluation

14:30 to 14:45 page 188

Vanousheh Rahemi (AXES-University of Antwerp, Antwerpen, Belgium), Karolien De Wael, Stanislav Trashin
How to avoid hydrogen peroxide in horseradish peroxidase based sensing?

14:45 to 15:00 page 190

Bertrand Reuillard (Chemistry Department, University of Cambridge, Cambridge, United Kingdom), Jane Leung, Erwin Reisner, David Wakerley, Julien Warnan
Electrocatalytic H₂ evolution with a Poly-(cobaloxime)/carbon nanotube hybrid electrode

15:00 to 15:15 page 193

Adrian Ruff (Analytical Chemistry, Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany), James Birrell, Wolfgang Lubitz, Ines A. C. Pereira, Piyanut Pinyou, Nicolas Plumeré, Wolfgang Schuhmann, Julian Szczesny, Sonia Zacarias
Bioanodes based on hydrogenases entrapped in viologen-modified polymers: protection and reactivation strategies

15:15 to 15:30 page 217

Ana S. Viana (Centro de Química e Bioquímica, Faculdade de Ciências, Universidade de Lisboa, Lisboa, Portugal), Luís C Almeida, Maria de Deus Carvalho, Jorge Correia, Alessandra Morana, Guisepppe Squillaci
Adhesive Polydopamine-based Electrodes for Laccase and Magnetite Nanoparticles Immobilization

15:30 to 15:45 page 218

Xie Wang (Bioénergétique et Ingénierie des Protéines, UMR 7281, CNRS, AMU, 31 Chemin Aiguier, Marseille, France), Marianne Ilbert, Elisabeth Lojou, Ievgen Mazurenko
Fe(II)-oxidizing super-complex from extreme acidic environment reconstruction on electrode

15:45 to 16:00 page 224

Martina Zatloukalova (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Renata Bilewicz, Ewa Nazaruk, David Novak, Jan Vacek
Lipidic Cubic Phase-Modified Electrochemical Sensor for ATP-hydrolyzing Enzyme Activity Monitoring

16:00 to 16:30

Coffee Break

Chaired by: Lars Jenken

16:30 to 16:50 Invited page 201

Lance Seefeldt (Chemistry and Biochemistry, Utah State University, Logan, USA), Nimesh Khadka, Ross Milton, Shelley Minter
Electrocatalysis of the Enzyme Nitrogenase: Insights into Mechanism

16:50 to 17:05 page 160

Su Ma (Department of Food Science and Technology, BOKU, University of Natural Resources and Life Sciences, Vienna, Austria), Lo Gorton, Roland Ludwig, Marta Meneghello, Philip N. Bartlett, Jani Tuoriniemi
Direct electron transfer of cellobiose dehydrogenase anisotropically orientated on gold electrodes

- 17:05 to 17:20 page 161
Florika Macazo (Department of Chemistry, University of Utah, Salt Lake City, USA), Sofiene Abdellaoui, David Hickey, Shelley Minteer
Polymer-Immobilized Hybrid Enzyme-TEMPO Electrocatalytic Systems for Enhanced Oxidation of Glycerol
- 17:20 to 17:35 page 163
Nicolas Mano (CRPP- UPR 8641, Pessac, France), Sébastien Gounel, Claire Stines Chaumeil, Emilie Tremey
An O₂ insensitive glucose oxidase bioelectrode
- 17:35 to 17:50 page 164
Lanqun Mao (Institute of Chemistry, Chinese Academy of Sciences, Beijing, China)
Enabling Bioelectrochemistry for In Vivo Analysis
- 17:50 to 18:05 page 166
Miriam Marquitan (Analytical Chemistry, Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany), Jan Clausmeyer, Andrzej Ernst, Adrian Ruff, Wolfgang Schuhmann
Development and Characterisation of Amperometric Enzymatic Nanosensors
- 18:05 to 18:20 page 129
Mani Govindasamy (Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, Taipei, Taiwan), Shen-Ming Chen, Veerappan Mani
Myoglobin immobilized graphene oxide nanoribbons/chitosan nanobiocomposite for biosensing H₂O₂ release in living cells and NO₂ in meat sample

S7 Electroporation and membrane bioelectrochemistry

Room: Small Amphi

Chaired by: Damijan Miklavic

14:00 to 14:30 Keynote page 66

Maja Cemazar (Department of Experimental Oncology, Institute of Oncology Ljubljana, Ljubljana, Slovenia), Masa Bosnjak, Loree Heller, Olga Pakhomova, Nina Semenova, Katarina Znidar

The role of DNA-specific pattern recognition receptors in electrotransfer of plasmid DNA into tumor cell lines

14:30 to 14:45 page 182

David Perry (Chemistry, University of Warwick, Coventry, United Kingdom), Ashley Page, Patrick Unwin

Electrochemical Mapping of the Surface Charge of Living Cells

14:45 to 15:00 page 183

Flavien Pillet (IPBS/CNRS, Toulouse, France)

Pulsed Electric Fields induce cell-envelope damages on living bacteria

15:00 to 15:15 page 185

Clair Poignard (Research Team MONC, Inria Bordeaux Sud Ouest & CNRS UMR 5251, Inria, Talence, France), Baudouin Denis de Senneville, Olivier Gallinato, Mickael Maguet, Olivier Séror

Clinical and Numerical Workflow for IRE Ablation

15:15 to 15:30 page 189

Lea Rems (Department of Chemical Engineering, Delft University of Technology, Delft, Netherlands), Pouyan E. Boukany

Nanopiercing the Cell Membrane with Nanochannel
Electroporation: A Theoretical View

15:30 to 15:45 page 191

Marie-Pierre Rols (IPBS CNRS, Toulouse, France)

How studying membrane and cell processes involved in electroporation in relevant models may improve its development in cell biology and in clinics

15:45 to 16:00 page 203

Gregor Sersa (Department of Experimental Oncology, Institute of Oncology Ljubljana, Ljubljana, Slovenia), Spela Kos
Controlled delivery of plasmid DNA into skin

16:00 to 16:30

Coffee Break

Chaired by: Lluís M Mir

16:30 to 16:50 Invited page 174

Rodney O'Connor (Dept. of Bioelectronics, École des Mines de Saint-Étienne, Centre Microélectronique de Provence- Georges Charpak Campus, Gardanne, France)

Considering the Excitability of Cancer Cells in Electropulsation and Electroporation Effects

16:50 to 17:05 page 207

Anna Szewczyk (Department of General Zoology, University of Wrocław, Wrocław, Poland), Malgorzata Daczewska, Julie Gehl, Stine Krog Frandsen, Julita Kulbacka

Calcium electroporation is efficient on rhabdomyosarcoma cells with less toxicity in normal muscle cells and in differentiated cells

17:05 to 17:20 page 209

Mounir Tarek (Chemistry, CNRS, Nancy, France)

Reactive oxygen species action on cell membranes: Unraveling a potential mechanism of electroporation in the biological context using Molecular Simulations

17:20 to 17:35 page 216

P. Thomas Vernier (Frank Reidy Research Center for Bioelectrics, Old Dominion University, Norfolk, USA), Esin B. Sözer

Beyond the “Standard Model” (of Electroporation) — Cells Fight Back!

17:35 to 17:50 page 170

Damijan Miklavcic (Faculty of Electrical Engineering, University of Ljubljana, Ljubljana, Slovenia), Janja Dermol, Audrius Grainys, Matej Kranjc, Vitalij Novickij

Cell Membrane Permeabilization by Pulsed Electromagnetic Fields in Vitro

- 17:50 to 18:05 page 177
Ashley Page (Department of Chemistry, University of Warwick, Coventry, United Kingdom), Alexander Armitstead, Minkyung Kang, David Perry, Patrick Unwin
 Quantitative Visualization of Molecular Delivery and Uptake at Living Cells with Scanning Electrochemical Probe Microscopy
- 18:05 to 18:20 page 181
Dayinta Perrier (Departement of Chemical Engineering, Delft, Netherlands), Pouyan E. Boukany, Michiel T. Kreutzer
 A Systematic Study on the Response of Multiphase Vesicles to Electric Pulses

S5 Photobioelectrochemistry

Room: F004

Chaired by: Huangxian Ju

- 14:00 to 14:30 **Keynote** page 76
Inez Weidinger (Institute of Chemistry and Food Chemistry, Technische Universitaet Dresden, Dresden, Germany), Peter Hildebrandt, Patrycja Kielb, Murat Sezer
 Mechanistic insight into enzymatic electrocatalysis via surface enhanced vibrational spectro-electrochemistry
- 14:30 to 14:45 page 105
Felipe Conzuelo (Analytical Chemistry, Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany), Volker Hartmann, Marc M. Nowaczyk, Nicolas Plumeré, Matthias Rögner, Adrian Ruff, Wolfgang Schuhmann, Fangyuan Zhao
 Evaluation of Stability of PS1-based Photocathodes. Suppressing the Effect of Reactive Oxygen Species
- 14:45 to 15:00 page 155
Fred Lisdat (Biosystems Technology, Technical University Wildau, Wildau, Germany), Sven C. Feifel, Mahdi Hejazi, Adrian Kölsch, Heiko Lokstein, Kai R. Stieger, Athina Zouni
 Photoactive biohybrid electrodes based on photosystem I and a small redox protein

15:00 to 15:15 page 180

Galina Pankratova (Biochemistry and Structural Biology / Lund University, PO Box 124, Lund, Sweden), Hans-Erik Åkerlund, Per-Åke Albertsson, Lo Gorton, Kamrul Hasan, Dónal Leech, Dmitry Pankratov, Sergey Shleev

Supercapacitive Photo-Bioanodes and Biosolar Cells for Conversion and Accumulation of Light Energy

15:15 to 15:30 page 184

Marcos Pita (Biocatalysis, Institute of Catalysis / CSIC, Madrid, Spain), Jose Carlos Conesa, Antonio L. De Lacey, Sergey Shleev, Cristina Tapia
Laccase-Catalyzed Bioelectrochemical Oxidation of Water Assisted with Visible Light

15:30 to 15:45 page 192

Sam Rowe (School of Chemistry, University of East Anglia, Norwich, United Kingdom), Emma Ainsworth, Julea Butt, Lars Jeuken, Gwenaelle Le Gall, Colin Lockwood, Erwin Reisner

A Whole Cell Approach to Light-Driven Hydrogen-Evolution and C=C or C=O Bond Hydrogenation by Non-Photosynthetic Bacteria

15:45 to 16:00 page 202

Matteo Sensi (Laboratoire de Bioénergétique et Ingénierie des Protéines, Aix-Marseille Université, Marseille, France), Carole Baffert, Luca Bertini, Luca De Gioia, Vincent Fourmond, Christophe Léger

Photo-Electrochemistry of FeFe Hydrogenases

16:00 to 16:30

Coffee Break

S2 Affinity sensors, 3D bioarchitectures for biosensing

Room: F004

Chaired by: Fred Lisdat

16:30 to 16:50 page 215

Albert van den Berg (BIOS Lab on a Chip Group, University of Twente, Enschede, Netherlands)

Nanotech-Based Biosensors and Bioanalytical Systems

- 16:50 to 17:05 page 137
Bincy Jose (Trinity College Dublin, Dublin, Ireland)
Surfactant-Free Gold Nanoparticles on Graphene: Optical and
Electro-catalytic Properties
- 17:05 to 17:20 page 140
Huangxian Ju (State Key Laboratory of Analytical Chemistry, Nanjing
University, Nanjing, China)
Signal Switch and Signal Amplification for Electrochemical
Biosensing
- 17:20 to 17:35 page 141
Yasin Ugur Kayran (Analytical Chemistry, Ruhr-Universität Bochum,
Bochum, Germany), Nergis Cinar, Daliborka Jambrec, Wolfgang
Schuhmann
Identification of Single Nucleotide Polymorphisms by Means of
Electrochemistry Combined with SERS
- 17:35 to 17:50 page 156
Aihua Liu (Institute for Biosensing, Qingdao University, Qingdao,
China), Lei Han, Yang Zhang
Biotemplated Synthesis of Nanoarchitectures and Their
Electrochemical Glucose Biosensing Applications
- 17:50 to 18:05 page 173
Telmo O. Paiva (Centro de Química e Bioquímica, Faculdade de
Ciências (Universidade de Lisboa), Lisbon, Portugal), Inês Almeida, Luís
C. Almeida, Maria D. Carvalho, Gang Jin, Maria L. Oliveira, Wei Liu, Yu
Niu, Ana S. Viana
Nanostructured platforms for sensitive electrochemical
immunosensors
- 18:05 to 18:20 page 178
Ilaria Palchetti (Department of Chemistry, University of Florence,
Sesto Fiorentino (Firenze), Italy)
Electrochemical Nanostructured Biosensing Platforms for Small
RNA Determination

Thursday, 6 July - Morning

Plenary Lecture

Room: Large Amphi

Chaired by: Lo Gorton

09:00 to 09:45

page 63

Joseph Wang (Nanoengineering, UCSD, La Jolla, USA)
Wearable Bioelectronic Devices based on Advanced Materials

S1 Electrochemistry of proteins, enzyme electrodes

Room: Large Amphi

Chaired by: Alexander Kuhn

09:50 to 10:05

page 110

João Carlos Perbone de Souza (Institute of Chemistry of São Carlos, University of São Paulo, São Carlos, Brazil), Frank N. Crespilho, Fábio H. B. Lima, Wanderson O. Silva
Differential Electrochemical Mass Spectrometry (DEMS) Applied in Enzyme Electrochemistry

10:05 to 10:20

page 154

Huaiguang Li (Center for Electrochemical Sciences, Bochum, Germany), Darren Buesen, Thomas Happe, Joerg Henig, Frank Müller, Nicolas Plumeré, Rhodri Williams, Martin Winkler
Transferring Monodispersity from the Nanoscale to the Microscale – Dendrimers as Building Blocks for Redox Hydrogel Films

10:20 to 10:35

page 168

Marta Meneghello (Chemistry, University of Southampton, Southampton, United Kingdom), Firas Al-Lolage, Philip Bartlett, Roland Ludwig, Su Ma
Kinetics and Electrocatalytic Properties of Cellobiose Dehydrogenase Covalently Immobilised at Electrode Surfaces

10:35 to 11:05

Coffee Break

Chaired by: Florence Lagarde

11:05 to 11:35 Keynote

page 67

Frederic Gloaguen (UMR 6521, CNRS, Université de Bretagne Occidentale, Brest, France), Marc Bourrez

Electrochemical and Computational Study of the Reactivity of a Diiron Azadithiolate Complex towards Protons

S4 Microbial fuel cells, biofilms, bioconversion of energy

Room: Small Amphi

Chaired by: Shelley Minteer

09:50 to 10:05

page 101

Pierre Champigneux (Laboratoire de Génie Chimique, CNRS, Université de Toulouse, Toulouse, France), Alain Bergel, David Bourrier, Marie-Line Delia, Carole Rossi

From Nanometer-Smooth to 500- μm Pillars: New Surface Topography to Improve *Geobacter sulfurreducens* Bioanodes

10:05 to 10:20

page 210

Yoshihide Tokunou (Department of Applied Chemistry, The University of Tokyo, Tokyo, Japan), Kazuhito Hashimoto, Akihiro Okamoto

Proton Transfer in Outer-Membrane Flavocytochromes Coupled with Extracellular Electron Transport

10:20 to 10:35

page 213

Matteo Tucci (Department of Agricultural and Environmental Science (DISAA), University of Milan, Milan, Italy), Alessandra Colombo, Pierangela Cristiani, Andrea Goglio, Andrea Schievano

Shock-sensors as a tool for online monitoring of Anaerobic Digestion process

10:35 to 11:05

Coffee Break

S3 Enzymatic fuel cells

Room: Small Amphi

Chaired by: Engeny Katz

11:05 to 11:35 Keynote

page 71

Alan Le Goff (DCM UMR 5250, Univ. Grenoble Alpes, CNRS, Grenoble, France)

From metalloenzymes to bioinspired catalysts for Noble Metal-Free hydrogen fuel cells

S5 Photobioelectrochemistry

Room: F004

Chaired by: Erwin Reisner

09:50 to 10:05

page 100

Leonardo Castañeda Losada (Chemistry, Ruhr-Universität Bochum, Bochum, Germany), Volker Hartmann, Robin Kentsch, Marc M. Nowaczyk, Nicolas Plumeré, Matthias Rögner

Redox Polymer Bearing Plastoquinone Mimics for Efficient Wiring of Photosystem II

10:05 to 10:20

page 225

Huijie Zhang (Center for Electrochemical Sciences, Bochum, Germany)

Charge Recombination in Biophotovoltaics based on Reaction Centers in Redox hydrogels and on Ubiquinone as Charge Carrier

10:20 to 10:35

page 226

Fangyuan Zhao (Analytical Chemistry, Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany), Felipe Conzuelo, Volker Hartmann, Huaiguang Li, Wolfgang Lubitz, Marc M. Nowaczyk, Nicolas Plumeré, Matthias Rögner, Wolfgang Schuhmann

Photosystem 1-based light-induced H₂ evolution and in-situ detection by a hydrogenase-based microbiosensor

10:35 to 11:05

Coffee Break

Chaired by: Nicolas Plumeré

11:05 to 11:35 Keynote

page 74

Erwin Reisner (University of Cambridge, Department of Chemistry,
Cambridge, United Kingdom)

Photoelectrochemistry of the water oxidation enzyme Photosystem
II: From basic understanding to semi-artificial photosynthesis

Friday, 7 July - Morning

Plenary Lecture

Room: Large Amphi

Chaired by: Renata Bilewicz

09:00 to 09:45

page 62

Evgeny Katz (Department of Chemistry and Biomolecular Science, Clarkson University, Potsdam NY, USA)
Unconventional Use of Biofuel Cells - From Implantable Devices to Drug Release Systems and Memristors

S1 Electrochemistry of proteins, enzyme electrodes

Room: Large Amphi

Chaired by: Wolfgang Schuhmann

09:50 to 10:05

page 122

Giovanni Fusco (Department of Chemistry, La Sapienza, University of Rome, Rome, Italy), Gabriele Favero, Gero Göbel, Fred Lisdat, Franco Mazzei

Polymer-supported electron transfer of PQQ-dependent glucose dehydrogenase at carbon nanotubes modified by electropolymerized polythiophene

10:05 to 10:20

page 162

Pascal Mailley (CEA, LETI-DTBS, Grenoble cedex 9, France), Romain Coppard, Georges Malliaras, Roisin Owens, Gaetan Scheiblin
OEET-based (Bio)logic circuits for sensing

10:20 to 10:35

page 147

Florence Lagarde (CNRS, University of Lyon, Institute of Analytical Sciences, Villeurbanne, France), Mohamed Braiek, Jean-François Chateaux, Nicole Jaffrezic-Renault, Elena Sapountzi
Electrospun Nanofibers Embedding Carbon Nanotubes and Enzyme as Efficient Conductive Matrix for Biosensor Application

S6 Bioelectrochemistry in the service of medicine

Room: Large Amphi

Chaired by: Wakako Tsugawa

11:05 to 11:20 page 221

Kumi Y. Inoue (Graduate School of Environmental Studies, Tohoku University, Sendai, Japan), Miho Ikegawa, Kosuke Ino, Tomokazu Matsue, Hitoshi Shiku, Shinichiro Takano

Liquid-junction-free substitutional stripping voltammetry based on a closed bipolar electrode system and its application to endotoxin sensor

11:20 to 11:35 page 214

Pankaj Vadgama (SEMS, Queen Mary University of London, Mile End Road, London, United Kingdom), Krishma Adatia, Mohammad Raja Anomalous, Low Diffusion Through Micropores: Implications for Mass Transport Control

11:35 to 11:50 page 118

Miroslav Fojta (Institute of Biophysics of the CAS, v.v.i., Kralovopolska 132, Brno, Czech Republic)

Alternative DNA Structures Studied By Voltammetric Methods: Guanine Quadruplex Models

11:50 to 12:05 page 205

Koji Sode (Department of Biotechnology & Life Science, Tokyo University of Agriculture & Technology, Koganei, Japan), Katsuhiko Kojima, Madoka Ookurita, Asuka Sorada, Hiromi Yoshida

Engineering Oxidative Half Reaction of Redox Enzymes for the Biomedical Applications

S2 Affinity sensors, 3D bioarchitectures for biosensing

Room: Small Amphi

Chaired by: Camelia Bala

09:50 to 10:05

page 179

Quentin Palomar (Département de Chimie Moléculaire, Université Grenoble Alpes, Grenoble, France), Serge Cosnier, Chantal Gondran, Michael Holzinger, Robert Marks

Controlled Carbon Nanotube layers for Impedimetric Immunosensors: High performance label free detection and quantification of Anti-Cholera Toxin antibody

10:05 to 10:20

page 197

Paola Sanjuan Alberte (School of Pharmacy, University of Nottingham, Nottingham, United Kingdom), Morgan Alexander, Richard Hague, Frankie Rawson, Ehab Saleh

Development of Nano-Sized Multi-Material and Multifunctional Bioelectronic Systems

10:20 to 10:35

page 208

Nobuyuki Takahashi (Department of International and Regional Studies, Hokkaido University of Education, Hakodate, Japan)

Adaptive Response of Side-Chain Dynamics in Binding Site of Ribonuclease Inhibitor

10:35 to 11:05

Coffee Break

Chaired by: Albert Van Den Berg

11:05 to 11:35 Keynote page 70

Ulrich Keyser (Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom)

Enhancing nanopore sensing with DNA nanotechnology

11:35 to 11:50 page 222

Tomohiko Yamazaki (Nanomedicine Group, Research Center for Functional Materials, National Institute for Materials Science, Tsukuba, Japan), Ryutaro Asano, Katsuhiko Kojima, Ryota Miyazaki, Koji Sode, Wakako Tsugawa

Electrochemical Properties of Glucoside 3-Dehydrogenase, an Enzyme for 1,5-Anhydro-D-Glucitol Sensing

11:50 to 12:05 page 146

Włodzimierz Kutner (Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Maciej Cieplak, Francis D'Souza, Alvaro Garcia-Cruz, Karolina K. Golebiewska, Krzysztof Noworyta, Piotr Pieta, Emmanuelle Schulz, Piyush Sindhu Sharma

Molecular Imprinting for Some Toxin Selective Determination in Processed Food of Animal Origin

S3 Enzymatic fuel cells

Room: F004

Chaired by: Nicolas Mano

09:50 to 10:05 Invited page 111

Mirella Di Lorenzo (Chemical Engineering, University of Bath, University of Bath, Bath, United Kingdom)

Miniature Enzymatic Fuel Cells for Healthcare Applications

10:05 to 10:20 page 133

Steffen Hardt (Center for Electrochemical Sciences, Analytical Chemistry, Ruhr-Universität Bochum, Bochum, Germany), Nicolas Plumeré, Adrian Ruff, Wolfgang Schuhmann

Cu-TPA-Based Redox-Polymers as Catalysts for the Oxygen Reduction Reaction

10:20 to 10:35 page 149

Yoo Seok Lee (School of Environmental Science and Engineering, GIST, Gwangju, Korea), Seungwoo Baek, In-Geol Choi, Hyeryeong Lee
Engineering of Glucose Dehydrogenase for Direct Electron Transfer via Site-Specific Gold Binding Peptide

10:35 to 11:05

Coffee Break

S4 Microbial fuel cells, biofilms, bioconversion of energy

Room: F4004

Chaired by: Frédéric Barrière

11:05 to 11:35 Keynote page 64

Caroline Ajo-Franklin (Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, USA), Moshe Baruch, Jose Cornejo, Lin Su
Creating and Using Electronically-Controlled Microorganisms

11:35 to 11:50 page 89

Alain Bergel (Laboratoire de Genie Chimique - CNRS, Toulouse, France), Marie-Line Délia, Luc Etcheverry, Annette Mosdale, Manon Oliot
Knowledge-Based Design of the Electrode-Separator Assembly Boosted Microbial Fuel Cell Power Density

11:50 to 12:05 page 138

Jarina Joshi (Central Department of Biotechnology, Kirtipur, Nepal), Rosy Chaulagai
An Approach to Treat Dairy Waste in Microbial Fuel Cell

Poster Presentations

S1 Electrochemistry of proteins, enzyme electrodes

- s1-001 page 231
Corina Andronescu (Analytical Chemistry, Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany), Jan Clausmeyer, Anna Muhs, Thomas Quast, Wolfgang Schuhmann
Needle Type Graphene-based Field Effect Transistor Sensors
- s1-002 page 232
Lucio Angnes (Departamento de Química, Universidade de São Paulo, São Paulo, Brazil), Marcos Cerqueira, Renato Matos
Process for simultaneous immobilization of two enzymes inside PMMA microchannels
- s1-003 page 233
Francisco Armijo (Química Inorganica, Pontificia Universidad Catolica de Chile, Santiago, Chile), Erik Castañeda, Maria del Valle, Mauricio Isaacs, Francisco Martinez
Development of an Electrochemical Immunosensor from Poly-(3,4-ethylenedioxythiophene) / Polydopamine
- s1-004 page 234
Andres Arrocha-Arcos (Instituto de Energías Renovables, UNAM, Temixco, Mexico), Margarita Miranda-Hernández
Hybrid system: Ag nanoparticles/carbonic anhydrase for CO₂ electroreduction.
- s1-005 page 235
Carole Baffert (Laboratoire de Bioénergétique et Ingénierie des Protéines, Université Aix-Marseille, CNRS, Marseille, France)
The [FeFe] hydrogenase Hnd from *Desulfovibrio fructosovorans*
- s1-006 page 236
Madalina Maria Barsan (National Institute of Materials Physics, Magurele, Romania), Andreea Costas, Victor C. Diclescu, Teodor A. Enache, Ionut M. Enculescu, Elena Matei, Nicoleta Preda
Nickel Nanoparticles as a New Tool in the Sensitive Sensing of Biomolecules of Interest

- s1-007 page 238
Anthony Blake (School of Chemistry, University of East Anglia, Norwich, United Kingdom), Julea Butt, Thomas Clarke, Lars Jeuken, Theo Laftoglou
Biophysical Characterisation of the CymA Quinol-Oxidase from *Shewanella oneidensis*.
- s1-008 page 241
Paolo Bollella (Chemistry and Drug Technologies, Rome, Italy), Riccarda Antiochia, Lo Gorton, Kenji Kano
The Influence of Divalent Cations and Ionic Strength on Enzymatic Activity, Structure and Catalytic Current of Fructose Dehydrogenase (FDH)
- s1-009 page 248
Melinda David (Faculty of Physics, University of Bucharest, Magurele, Romania), Monica Florescu
Development and Evaluation of Novel Sensitive Tyrosinase-based Biosensor for Selective Detection of Dopamine
- s1-010 page 251
Samantha Douman (School of Chemical Sciences, Dublin City University, Dublin, Ireland), Kellie Adamson, Sean Fitzgerald, Robert Forster, Emmanuel Iwuoha, Richard O'Kennedy
Highly Sensitive Electrochemiluminescence Signaling of Cardiac Troponin I based on Bipolar Electrochemistry
- s1-011 page 256
Giovanni Fusco (Biosystems Technology, Institute of Applied Life Sciences, Technical University of Applied Sciences Wildau, Wildau, Germany), Marco Allegrozzi, Sven Christian Feifel, Andreas Kapp, Fred Lisdat, Mario Piccioli, Kai Ralf Stieger, Paola Turano, Dennis Weber
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