Book of Abstracts of the

7th Spring Meeting of the
International Society of Electrochemistry

Szczyrk, Poland
22-25 March, 2009
Organising Committee

Chairman
Pawel J. Kulesza
University of Warsaw, Warsaw, Poland

Local Organising Committee
Zbigniew Stojek
University of Warsaw, Warsaw, Poland

Renata Bilewicz
University of Warsaw, Warsaw, Poland

Pawel Krysinski
University of Warsaw, Warsaw, Poland
Sunday 22 March 2009 – PM

Welcome Session

12:00 🍽️ Lunch

Location: Room F

Chair: P.J. Kulesza, R. Hillman

13:00 to 13:40  
Michael Grätzel (Laboratory for Photonics and Interfaces, Swiss Federal Institute of Technology, Lausanne, Switzerland)  
Electrochemistry and Energy, Power from the Sun by Mesoscopic Solar Cells

13:40 to 14:20  
Dieter M. Kolb (Institute of Electrochemistry, University of Ulm, Ulm, Germany)  
Preparation and Characterization of Reactive Surfaces

14:20 to 15:00  
Richard McCreery (Department of Chemistry, University of Alberta, Edmonton, Alberta, Canada), Sudip Barman, Adam Bergren, Andrew Bonifas, Jing Wu, Haijun Yan  
Electron Transport and Redox Reactions in Molecular Electronic Junctions

15:00 to 15:30  
Daniel Scherson (Department of Chemistry, Case Western Reserve University, Cleveland, USA), Youjiang Chen  
Ohmicsroscopy

15:30 to 16:00  
Shelley Minteer (Department of Chemistry, Saint Louis University, St. Louis, USA), Robert Arechederra  
Direct Bioelectrocatalysis of Glycerol for Biofuel Cell Applications

16:00 to 16:30  
Coffee Break
Chair: M. Mastragostino, Z. Stojek

16:30 to 17:10  
**Joachim Lewerenz** (Division of Solar Energy, Helmholtz Center Berlin for Materials and Energy, Berlin, Germany)  
Photoelectrocatalysis: Principles, Nanoemitter Applications and Envisaged Biomimetic Structures

17:10 to 17:50  
**Krishnan Rajeshwar** (The University of Texas at Arlington, Arlington, USA)  
Materials Chemistry in the Service of Solar Energy Conversion and Fuel Cells

17:50 to 18:30  
**Andrzej Wieckowski** (Department of Chemistry, Urbana, USA), Hung Duong, Adam Lewera, Matt Rigsby  
Oxygen reduction (ORR) on fuel cell catalytic electrodes

18:30 to 19:00  
**Vito Di Noto** (Department of Chemical Sciences, University of Padova, Padova, Italy), Enrico Negro  
Development of Plurimetallic Nano-electrocatalysts based on Carbon Nitride Supports for the ORR Processes in PEM Fuel Cells

19:00 to 19:30  
**Elena Savinova** (LMSPC-UMR 7515 du CNRS-ULP, Ecole de Chimie, Matériaux de Strasbourg, Université Louis Pasteur, Strasbourg, France), Matthieu Houillé, Cuong Pham Huu, Pavel S. Ruvinsky, Pavel A. Simonov  
Carbon Materials as Supports for Electrocatalysis

19:30 to 19:50  
**Pawel Kulesza** (Department of Chemistry, University of Warsaw, Warsaw, Poland), Piotr J. Barczuk, Beata Dembinska, Aneta Kolary-Zurowska, Adam Lewera, Roberto Marassi, Krzysztof Miecznikowski, Iwona A. Rutkowska, Sylwia Zoladek, Artur Zurowski  
Activation of Reactive Sites in Electrocatalysis by their Modification with Ultra-Thin Films of Metal Oxides and Related Polyoxometallates

20:00  
Welcome Reception – Dinner
Monday 23 March 2009 – AM
Dedicated to Prof. Galus

Location: Room F

8.00 – 08.20
Introduction: P. J. Kulesza and J. Lipkowski

08:20 to 08:40
Robert Hillman (Department of Chemistry, University of Leicester, Leicester, United Kingdom), Krzysztof Biernacki, Joana Fonseca, Cristina Freire, Steven Gurman, Alexandre Magalhães, Joao Tedim
XAS and Electrochemical Characterization of Cu and Pd salen Type Conducting Polymer Films With Potential Catalytic Application

08:40 to 09:00 Invited
Jacek Lipkowski (Department of Chemistry, University of Guelph, Guelph, Canada), Julia Kunze, Jay Leitch, Vlad Zamlynny, Izabella Zawisza
In situ Polarization Modulation Infrared Reflection – Absorption Spectroscopy of the Electrode – Solution Interface

09:00 to 09:20
W. Ronald Fawcett (Department of Chemistry, University of California, Davis, USA), Daniel Misicak
Copper deposition and its replacement by Platinum on a Gold electrode surface

09:20 to 09:40
Marek Orlik (Faculty of Chemistry, The University of Warsaw, Warsaw, Poland), Rafał Jurczakowski, Katarzyna Pekala
Electrocatalysis and Oscillatory Chemical Reactions: the Potentiometric Response of Different Inert Electrodes in the H₂O₂-Containing Media

09:40 to 10:10 Keynote
Galina Tsirlina (Department of Electrochemistry, Moscow University, Moscow, Russian Federation)
Tungsten and Platinum Mutual Relations in Electrocatalysis

10:10 to 10:30 Invited
Mikhail Vorotyntsev (ICMUB - UMR CNRS 5260, DIJON Cedex, France), Magdalena Graczyk, Anna Lisowska-Oleksiak, Aleksandra Rajchowska, Magdalena Skompska
Synthesis and Characterization of Hybrids Materials: Conducting Polymer/Incorporated Ag Nanoparticles

10:30 to 10:50
Coffee Break
Chair: D. Kolb, G. Jerkiewicz

10:50 to 11:20 Keynote

Piotr Zelenay (Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA), Hoon T. Chung, Gang Wu
New Non-precious Oxygen Reduction Catalysts for Polymer Electrolyte Fuel Cells

11:20 to 11:50 Keynote

Enrique Herrero (Instituto de Electroquímica, Universidad de Alicante, Alicante, Spain), Víctor Climent, Juan M. Feliu, Vitali Grozovski
Intrinsic Activity for Formic Acid Oxidation on Single Crystal Platinum Electrodes

11:50 to 12:20 Keynote

Ulrich Stimming (Department of Physics E19, Technische Universität München, Garching, Germany), Rainer Bußar
Influences of Substrate Material and Particle Morphology on Electrocatalytic Activity

12:20 to 12:50 Keynote

Nicolas Alonso-Vante (Laboratory of Electrocatalysis, UMR-CNRS 6503, University of Poitiers, Poitiers, France)
Cathode Materials for Oxygen Reduction Reaction: Metal Center and Substrate Effects

13:00 🔴 Lunch
Monday 23 March 2009 – PM
Dedicated to Prof. Galus

Location: Room F

Chair: E. Frackowiak, M. Jouini

14:00 to 14:20

Gregory Jerkiewicz (Dept. of Chemistry, Queen’s University, Kingston, Canada)
Analysis of the Origin of Catalytic Activity of Platinum in Electrochemical Reactions Involving Hydrogen

14:20 to 14:40 Invited

Sebastian Fiechter (Dept. Solare Energetik, Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany), Peter Bogdanoff, Iris Dorbandt, Iris Herrmann, Gerald Zehl
Chalcogen Modified Ruthenium Catalysts for Fuel Cells and Water Oxidation

14:40 to 15:10 Keynote

Dominic Gervasio (Center for Applied Nanobioscience, Biodesign Institute, School of Materials, Arizona State University, Tempe, USA)
Electrochemistry in Ionic Liquid Electrolytes

15:10 to 15:30 Invited

Roberto Marassi (Department of Chemistry, University of Camerino, Camerino, Italy), Andrea Di Cicco, Sonia Dsoke, Giorgia Greco, Aneta Kolary - Zurowska, Pawel J. Kulesza, Emiliano Principi, Agnieszka Witkowska, Artur Zurowski
Pt-doped insoluble salts of Keggin type heteropolyacids as catalysts for ORR, HOR or alcohol oxidation

15:30 to 15:50 Invited

Naoki Toshima (Department of Materials Science and Environmental Engineering, Tokyo University of Science, Yamaguchi, SanyoOnoda-shi, Japan), Hideo Naohara, Takahiro Yoshimoto
Nafion® Protected Metal Nanoparticles: Preparation, Structure and Electrocatalytic Activity

15:50 to 16:10 Invited

San Ping Jiang (School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore, Singapore), Xin Wang, Shuangyin Wang
Polyelectrolyte-Functionalized Pt/CNTs as Effective Electrocatalysts for Low Temperature Fuel Cells

16:10 to 16:30 Invited

Ludwig Kibler (Institute of Electrochemistry, University of Ulm, Ulm, Germany)
Tayloring Bimetallic Electrodes

16:30 to 16:50
Coffee Break
16:50 to 17:20 Keynote  page 64

K. Andreas Friedrich (Institute of Technical Thermodynamics, Deutsches Zentrum für Luft- und Raumfahrt, Stuttgart, Germany), Elena Aleksandrova, Renate Hiesgen, Matthias Loster, Emil Roduner

Fundamental Aspects of Fuel Cell Technology

17:20 to 17:40  page 84

Andrzej Lasia (Departement de Chimie, Université de Sherbrooke, Sherbrooke, Canada), Daniel Guay, Marie - Lise Tremblay

Cavity Microelectrodes for Fast Screening of the Electrocatalytic Materials

17:40 to 18:00 Invited  page 76

Mohamed Jouini (Interfaces, Traitements, Organisation et Dynamique des Systèmes, UMR 7086, Université Paris Diderot, Paris 7, Paris Cedex 13, France), Salah Aeiyach, Christophe Bucher, Sylvie Chardon, François Maurel, Mourad Mechouet, Christian Perruchot

Mixed Valence Compounds: Supramolecular Control of Electron Transfer and Comproportionation Reactions.

18:00 to 18:20 Invited  page 83

Alexander Kuhn (University Bordeaux, Pessac, France), Marie-Hélène Delville, Jumras Limtrakul, Valérie Ravaine, Chompunuch Warakulwit

Electrocatalytic dissymetric metal deposition on carbon nanotubes

18:20 to 18:40 Invited  page 88

Enn Lust (Institute of Chemistry, University of Tartu, Tartu, Estonia), Indrek Kivi, Rainer Kängas, Priit Möller, Gunnar Nurk, Kadi Tamm

Electroanalysis of Porous \(\text{Lx}_{0.6}\text{Sr}_{0.4}\text{CoO}_3-\delta\) cathodes and Ni-\(\text{Ce}_{1-x}\text{Gd}_x\text{O}_2-\delta\) Anodes for Medium Temperature SOFC

18:40 to 19:00 Invited  page 138

Sergey Pronkin (University of Louis Pasteur, ECPM-ULP-CNRS, LMSPC (UMR-7515), Strasbourg, France), Pierre Bernhardt, Antoine Bonnefont, Fernando Godinez, Elena Savinova

Titania-supported Pt nanoparticles: manifestation of metal-support interaction

19:10 to 20:30  

Chair: E. Lust, A. Lasia, K. Skorupska

Poster Session: Electrocatalysis  
s01-P-001 to s01-P-048

20:30  ⚪️ Dinner
Tuesday 24 March 2009 – AM

I Electrocatalysis

Chair: D. Kolb, P. Zelenay

Location: Room F

08:30 to 08:50

Abd El Aziz Abd El Salehin (University of Bonn, Bonn, Germany), Helmut Baltruschat
Electrooxidation of Ethanol on Pt (332) and Ru Modified Pt (332) Electrodes: DEMS Study

08:50 to 09:10 Invited

Peter Bogdanoff (Helmholtz Zentrum Berlin, Berlin, Germany), Irmgard Abs-Wurmbach, Sebastian Fiechter, Iris Herrmann, Ulrike Kramm
Structure-Activity Correlation in Pyrolysed Transition Metal Porphyrines for the Oxygen Reduction

09:10 to 09:30 Invited

Petr Krtil (J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic)
Electrocatalysis on Nanocrystalline Oxides with Rutile Structure – The Relationship Between Short Range Order and Electrocatalytic Activity and Selectivity in Oxygen and Chlorine Electrochemistry

09:30 to 09:50

Mikolaj Donten (Department of Chemistry, University of Warsaw, Warsaw, Poland), Marianna Gniadek, Zbigniew Stojek
Composites of Conductive Polymer with Metal Nanocrystals as Electrode Materials for Electrocatalysis

09:50 to 10:10

Elzbieta Frackowiak (Poznan University of Technology, Poznan, Poland), Grzegorz Lota
Role of the Catalyst Support for Fuel Cell Reactions

10:10 to 10:30

Coffee Break
Chair: A. Wieckowski, U. Stimming

10:30 to 11:00
M.V. Martínez-Huerta (Instituto de Catálisis y Petroleoquímica (CSIC), Madrid, Spain), J.L.G. Fierro, M.A. Peña, N. Tsiouvaras
Electrochemical activation of nanostructured carbon-supported PtRuMo electrocatalyst for methanol oxidation

11:00 to 11:20
Elena Pastor (Dpto. Química Física, Universidad de La Laguna, La Laguna, Spain), Jonathan Flórez, Gonzalo García, Gabriel A. Planes, José Luis Rodríguez
Methanol Electrooxidation at Bimetallic PtX Mesoporous Electrodes. CO₂ Efficiency as Studied by TLFC-DEMS

11:20 to 11:40
Jakub Jirkovsky (Chemistry Department, University of Liverpool, Liverpool, United Kingdom), David J. Schiffrin
Au Nanoparticles Size Effects on the Electrocatalytic Reduction of Oxygen

11:40 to 12:00 Invited
Genady Ragoisha (Physico-Chemical Research Institute, Belarusian State University, Minsk, Belarus), Alexander Bondarenko, Akihiro Iiyama, Shyam Kocha, Nikolai Osipovich, Jianbo Zhang
Analysis of Platinum Potentiodynamic Multi-Frequency AC Response in Solutions of Sulphuric and Perchloric Acids

12:00 to 12:20
Otavio Brandao Alves (Institute of Surface Chemistry and Catalysis, Ulm, Germany), Rolf - Juergen Behm, Harry Ern Hoster
Electrochemical Oxygen Reduction at UHV-prepared PtₓRu₁₋ₓ/Ru(0001) Surface Alloys

12:20 to 12:40
Jean Lessard (Département de chimie, Université de Sherbrooke, Sherbrooke, Canada), Martin DeBlois, Gregory Jerkiewicz, Maja Obradovic
New Insight into the Electrocatalytic Hydrogenation of Model Unsaturated Organic Compounds

13:00 Lunch
Bioelectrocatalysis

Location: Room E

Chair: S. Minteer, L. Gorton

08:00 to 08:30 Keynote

Wolfgang Schuhmann (Anal. Chem. - Elektroanalytik & Sensorik; Ruhr-Universität Bochum, Bochum, Germany)
Scanning electrochemical microscopy in catalyst optimization and development

08:30 to 08:50

Aurélien Habrioux (LACCO “Equipe Electrocatlyse” UMR 6503 CNRS-Université de Poitiers, Poitiers, France), Boniface Kokoh, Karine Servat, Sophie Tingry
Au_xPt_y nanoparticles as an alternative anode catalyst for glucose oxidation in a membrane-less glucose/O_2 biofuel cell

08:50 to 09:10

Renata Bilewicz (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), J. F. Biernat, E. Jablonowska, E Nazaruk, K.P. Roberts, K. Sadowska, K. Stolarczyk, R. Wiser
Carbon Nanotubes Derivatized with Mediators for Biofuel Cell Applications

09:10 to 09:30

Hanna Elzanowska (Department of Chemistry, Warsaw University, Warsaw, Poland), Ersan Abu-Irhayem, Viola Birrs, Amit Jhas, H Sebastian
Nanoparticulate Ir Oxide as a Biosensor Matrix

09:30 to 09:50

Woonsup Shin (Department of Chemistry, Interdisciplinary Program of Integrated Biotechnology, and Inorganic and Biological Materials Center of BK21, Sogang University, Seoul, Korea), Junghyun Lee, Rajaram Nagarale, Durai Saravanakumar
Copper Complex Containing Polymer Modified Electrode for Oxygen Reduction Reaction in Neutral Aqueous Media

09:50 to 10:10

Michael Bron (Analytische Chemie-Elektroanalytik & Sensorik, Ruhr-Universität Bochum, Bochum, Germany), Ayodele Okunola, Thorsten Schilling, Wolfgang Schuhmann
Electropolymerised Metalloporphyrines for Electrocatalytic Applications

10:10 to 10:30

Coffee Break
Chair: R. Bilewicz, W. Schuhmann

10:30 to 11:00 Keynote  
Lo Gorton (Dept. of Analytical Chemistry, Lund University, Lund, Sweden), Vasile Coman, Dietmar Haltrich, Wolfgang Harreither, Roland Ludwig, Gulnara Safina, Federico Tasca  
Cellulobiose Dehydrogenase an Interesting Enzyme for Electrochemical and Biosensor/Biofuel Cell Studies

11:00 to 11:20  
Gilbert Van Bogaert (Separation and Conversion Technologies, VITO - Flemish Institute for Technological Research, Mol, Belgium), Mark De Smet, Ludo Diels, Deepak Pant, Karolien Vanbroekhoven  
Use of novel permeable membrane and air cathodes in acetate microbial fuel cell

11:20 to 11:40 Invited  
Arkady Karyakin (Chemistry Faculty of M.V. Lomonosov Moscow State University, Moscow, Russian Federation), Fedor Fedotenkov, Elena Karyakina, Stanislav Trashin, Darya Vinogradova, Oleg Voronin  
Limiting characteristics of enzymes in bioelectrocatalysis

11:40 to 12:00  
Katarzyna Szot (Department of Electrode Processes, Institute of Physical Chemistry, Polish Academy of Sciences, Warszawa, Poland), Martin Jönsson-Niedziolka, Frank Marken, Joanna Niedziolka-Jönsson, Wojciech Nogala, Carolina Nunes-Kirchner, Marcin Opallo, Jerzy Rogalski, Günther Wittstock  
Hydrophilic Carbon Nanoparticles-Laccase Thin Film Electrode for Mediatorless Dioxygen Reduction: SECM Mapping and Application in Zinc-Dioxygen Battery.

12:00 to 12:20  
Wojciech Nogala (Institute of Physical Chemistry, Polish Academy of Sciences, Warszawa, Poland), Anna Celebanska, Marcin Opallo, Katarzyna Szot, Gunther Wittstock  
Bioelectrocatalytic Dioxygen Reduction on Ceramic Carbon Electrode Modified with Bilirubin Oxidase

12:20 to 12:40  
Jukka-Pekka Spets (Dept. Energy Technology, Helsinki University of Technology (TKK) Espoo, Finland), Yohannes Kiros, Maunu Arne Kuosa, Markku Juhani Lampinen, Jyri Rantanen, Kari Saari  
Bioorganic Materials as a Fuel Source for Low-Temperature Direct-Mode Fuel Cells

13:00 Lunch
Tuesday 24 March 2009 – PM

I Electrocatalysis

Location: Room F

Chair: R. McCreery, A. Friedrich

14:20 to 14:40

Gunther Wittstock (Faculty of Mathematics and Science, Center of Interface Science (CIS), Department of Pure and Applied Chemistry and Institute for Chemistry and Biology, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany), Wiebke Maier, Yan Shen, Markus Träuble
Detection of Hydrogen Peroxide Produced during Electrochemical Oxygen Reduction Using Scanning Electrochemical Microscopy

14:40 to 15:00

Maria Wesselmark (Applied Electrochemistry, KTH School of Chemical Science and Engineering, Stockholm, Sweden), Carina Lagergren, Göran Lindbergh
Activity and Stability of Thin Model Electrodes with Platinum and Metal Oxides for PEMFC Cathode

15:00 to 15:20

Markus Rauber (Department of Material- and Geo-Sciences, Darmstadt University of Technology, Darmstadt, Germany), Thomas Cornelius, Wolfgang Ensinger, Daniel Huzel, Sven Müller, Reinhard Neumann, Oliver Picht
Controlled Synthesis of 2-D and 3-D Platinum Nanowire Networks by Ion Track Template Electrodeposition

15:20 to 15:40

Natalia Lebedeva (Energy Research Centre of the Netherlands (ECN), Petten, Netherlands), Gaby Janssen, Victor Rosca
CO Oxidation and CO₂ Reduction on Carbon Supported PtWO₃ Catalyst

15:40 to 16:00

Katrin Kortsdottir (KTH-Royal Institute of Technology, Dept. of Chemical Engineering and Technology, Applied Electrochemistry, Stockholm, Sweden), Göran Lindbergh, Rakel Wreland Lindström
Influence of hydrocarbon impurities on the performance of PEM fuel cells; electro-chemical oxidation of toluene in a fuel cell environment

16:00 to 16:20

Paola Quaino (Institute of Theoretical Chemistry, Ulm University, Ulm, Germany), Elisabeth Santos, Wolfgang Schmickler
Hydrogen Electrode Reaction: Electrocatalytic Activity of Metal Surfaces
16:20 to 16:40

Artur Zielinski (Department of Electrochemistry, Corrosion and Materials Engineering, Gdansk University of Technology, Gdansk, Poland), Kazimierz Darowicki, Michael Szocinski
Dynamic impedance spectroscopy in scanning probe microscopy

16:40 to 17:00

Coffee Break

Chair: A. Kuhn, L. Kibler

17:00 to 17:20

Tetsuya Mashio (Nissan Research Center, Nissan Motor Co., Ltd., Yokosuka, Japan), Kourosh Malek, Atsushi Ohma, Kazuhiko Shinohara, Kouichi Yamaguchi
Molecular Dynamics Study of Catalyst Layers for PEM Fuel Cells

17:20 to 17:40

V. Barsukov (Kiev National University of Technologies & Design, Kiev, Ukraine), V. Khomenko, K. Likhnitskii
Advanced Non-noble Catalysts for Oxygen Reduction

17:40 to 18:00

Jong-Sung Yu (Department of Advanced Materials Chemistry, Jochiwon, Korea), Baizeng Fang, Minsik Kim, Minwoo Kim, Jung Ho Kim
Hierarchical Nanostructured Carbon as a Highly Efficient Catalyst Support in Proton Exchange Membrane Fuel Cell

18:00 to 18:20

Paramaconi Rodriguez (Leiden Institute of Chemistry, Gorlaeus Laboratories, Leiden, Netherlands), Juan Miguel Feliu, Marc T. M Koper
Unusual adsorption state and electroxidation of carbon monoxide on gold electrodes in alkaline media

18:20 to 18:40

Fabrice Micoud (LEPMI, UMR 5631, CNRS-Grenoble-INP-UJF, Saint Martin d’Hères, France), Antoine Bonnefont, Marian Chatenet, Frédéric Maillard
Unique CO-tolerance of Pt/WO₃ materials for PEMFC anodes

18:40 to 19:00

Georgi Topalov (Solid State Electrolytes, Institute of Electrochemistry and Energy Systems, Sofia, Bulgaria), Gerald Ganske, Evelina Slavcheva
Estimation of the Catalytic Activity of Co-Sputtered Platin-Iridium Catalysts Toward Oxygen Reduction Using Rotating Disc Electrode

20:30 Dinner
Photoelectrocatalysis

Chair: J. Lewerenz, J. Augustynski

13:50 to 14:20 Keynote

Markus Niederberger (Laboratory for Multifunctional Materials Department of Materials, ETH Zurich, Zurich, Switzerland)
Nonaqueous Sol-Gel Routes to Metal Oxide Nanostructures: Formation Mechanisms, Assembly and Applications

14:20 to 14:40 Invited

Svein Sunde (Department of Materials Science and Engineering, NTNU, Trondheim, Norway), Ingrid Anne Lervik, Lars-Erik Owe, Mikhail Tsypkin
Characterisation of Catalysts for the Oxygen Evolution Reaction in PEM Water Electrolysis

14:40 to 15:00

Katarzyna Skorupska (Helmholtz Center Berlin for Materials and Energy, Berlin, Germany), B. Jaiser, H.J. Lewerenz, T. Vo-Dinh
Semiconductor-Enzyme Interactions at Nanostructured Surfaces

15:00 to 15:20 Invited

Patrik Schmuki (Uni-Erlangen, Erlangen, Germany)
Self-Organized Titanium Oxide Nanotube-Layers: Applications in Electrocatalysis and Photoelectrocatalysis

15:20 to 15:40

Renata Solarska (Laboratory for High Performance Ceramics, Empa, Dubendorf, Switzerland), Bruce Alexander, Jan Augustynski, Artur Braun, Thomas Graule, Michael Stiefel
Modeling of Porosity and Transparency of WO₃ Films with Substitutional Cation Doping

15:40 to 16:00

Maria Valnice Boldrin Zanoni (Department of Analytical Chemistry, Institute of Chemistry - UNESP, Araraquara, Brazil), Krishnan Rajeshwar, Marly E. Osugi
Degradation of Disperse Dyes by Photoelectrocatalysis on Bicomponent W/WO₃/TiO₂ Electrodes

16:00 to 16:20

Sachio Yoshihara (Graduate School of Engineering, Utsunomiya University, Utsunomiya, Japan)
Preparations of Visible Light Sensitive TiO₂ Photocatalytic films by Electrophoretic Sol-Gel Deposition
16:20 to 16:40  

**Mihaela-Claudia Tertis** *(Babes-Bolyai University of Cluj-Napoca, Faculty of Chemistry and Chemical Engineering, Associated Francophone Laboratory, Cluj-Napoca, Romania)*, Florina Ionescu, Maria Jitaru  

Photo-electro Fenton Treatment of Synthetic Wastewater Containing Nitrophenolic Pollutants

16:40 to 17:00  

Coffee Break

Chair: K. Rajeshwar, V. Di Noto

17:00 to 17:20  

**Andrés G. Muñoz** *(Division of Solar Energy, Helmholtz-Centre for Materials and Energy, Berlin, Germany)*, Michael Kanis, Hans-Joachim Lewerenz, Michael Lublow, Katarzyna Skorupska, Thomas Stempel  

Early stages of electrodeposition of noble metal nano-islands onto Si(111) surfaces. A synchrotron radiation photoelectron spectroscopy.

17:20 to 17:40  

**Yusuf Dilgin** *(Science & Arts Faculty, Çanakkale Onsekiz Mart University, Department of Chemistry, Çanakkale, Turkey)*, Delia Maria Gligor, Lo Gorton  

Photoelectrocatalysis of NADH with Electropolymerized Modified Electrodes

17:40 to 18:00  

**Luca Samiolo** *(ISOF-CNR c/o Department of Chemistry, University of Ferrara, Ferrara, Italy)*, Rossano Amadelli, Alexander Velichenko  

Photo-(electro)-catalytic Oxidation of Alcohols on Visible Light-Absorbing Semiconductor Materials

18:00 to 18:20  

**Ushula Tefashe** *(Faculty of Mathematics and Science, Department of Pure and Applied Chemistry and Institute of Chemistry and Biology of the Marine Environment, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany)*, Thomas Löwenstein, Derck Schlettwein, Gunther Wittstock  

Incident light intensity and wavelength dependence of the kinetics of redox reactions at dye-sensitized ZnO electrodes investigated by SECM

18:20 to 18:40  

**Gilbert Nöll** *(Organic Chemistry, Siegen University, Siegen, Germany)*, Bernhard Dick, Günter Hauska, Peter Hegemann, Karin Lanzl, Tanja Nöll, Madlene von Sanden-Flohe  

Photochemical Reduction of Flavoproteins
18:40 to 19:00

**Hidenori Yahiro** *(Department of Materials Science and Biotechnology, Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan)*, Yamamura Hiroyuki, Asamoto Makiko, Yamaguchi Syuhei, Miyamoto Takaaki, Fukura Tomohiro

Photocatalytic Partial Oxidation of $\alpha$-methylstyrene over Titanium Dioxide Supported on Zeolites

19:00 to 19:20

**Abdulgalim Isaev** *(Department of Chemistry, Daghestan State University, Makhachkala, Russian Federation)*, Naida Adamadzieva, Zazav Aliev, Naida Alieva, Guljanat Magomedova, Shamsiyat Rasulova

Photocatalytic, Photoelectrocatalytic and Electrocatalytic Oxidation of Azodye at High Oxygen Pressure

19:30 to 20:30

**Main Hall**

*Chair: P. Schmuki, C. Li, P. Bogdanoff*

**Poster Session:**

Photoelectrocatalysis, Bioelectrocatalysis, General Session

s02-P-001 to s02-P-013
s03-P-001 to s03-P-013
s04-P-001 to s04-P-021

20:30  
Dinner
Wednesday 25 March 2009 – AM

I Electrocatlysis

Chair: G. Wittstock, V. Barsukov

Location: Room F

08:20 to 08:40

Jian Chen (Dalian Institute of Chemical Physics, Dalian, China), Xin Liu, Gang Liu, Yuanwei Ma, Huamin Zhang, Yi Zou
Preparation and Characterization of Supported Pt/TiO$_2$/C Electro catalyst for PEMFC Cathode

08:40 to 09:00

Kaido Tammeveski (Institute of Chemistry, University of Tartu, Tartu, Estonia), Heiki Erikson, Ave Sarapuu
Oxygen reduction on carbon-supported gold catalysts

09:00 to 09:20

Renato Garcia Freitas (DQ - UFSCar, Sao Carlos, Brazil), Ernesto Chaves Pereira
The Giant Multilayer Electrocatlytic (GME) Effect of Pt/Bi/Pt Nanostructured Metallic Multilayers Towards CO and Methanol Electrooxidation

09:20 to 09:40

Akimitsu Ishihara (Yokohama National University, Yokohama, Japan), Koichi Matsuzawa, Shigenori Mitsushima, Ken-ichiro Ota
Tantalum Oxide-based Compounds as New Non-precious Cathodes for PEFC

09:40 to 10:00

Holger Wolfschmidt (Department of Physics E19, Technische Universität München, Garching, Germany), Rainer Bußar, Ulrich Stimming
Electrocatalytic Activity of Pt/Au(111) and Pd/Au(111) Towards HER/HOR, ORR and MOR – Similarities and Differences

10:00 to 10:40

Coffee Break
Chair: S. Fiechter, P. Kysinski

10:40 to 11:00  page 50
Matthias Arenz (Physikalische Chemie, Technische Universität München, Garching, Germany), Katrin Hartl, Viktorija Juhart, Karl Mayrhofer
New insights on the stability of Pt-based high surface area catalysts

11:00 to 11:20  page 67
Geir Martin Haarberg (Department of Materials Technology, Norwegian University of Science and Technology, Trondheim, Norway), Kenji Kawaguchi, Masatsugu Morimitsu
Anodic Behaviour of Iridium and Tantalum Oxides Coated Titanium Electrodes in Sulphate Electrolytes

11:20 to 11:40  page 115
Lourdes Vazquez Gomez (IENI-CNR, Padova, Italy), Sandro Cattarin, Paolo Guerriero, Marco Musiani, Lourdes Vazquez Gomez
Activation of porous Ni electrodes by (co)deposition of noble metals or noble metal oxides

11:40 to 12:00  page 96
Ievgen Obraztsov (Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Francis D’Souza, Wlodzimierz Kutner, Krzysztof Noworyta, Channa A. Wijesinghe
Structural Effects in Electrocatalytic Dioxygen Reduction by the Electrochemically Synthesized Polymer of a Cobalt Porphyrin Derivative

12:30  Lunch
II Electrocatalysis

Location: Room E

Chair: N. Alonso-Vante, J. San Ping

08:00 to 08:20

Ichizo Yagi (FC-Cubic, National Institute of Advanced Industrial Science and Technology, Tokyo, Japan), Akari Hayashi, Ken’ichi Kimijima, Junichi Miyamoto

Oxygen Transfer and Storage in Mesopores of Pt/Mesoporous Carbon Catalyst Thin Film Electrode

08:20 to 08:40

Ken’ichi Kimijima (FC-Cubic, National Institute of Advanced Industrial Science and Technology (AIST), Tokyo, Japan), Akari Hayashi, Junichi Miyamoto, Ichizo Yagi

Development of Mesoporous Carbon Materials for Electrode Catalysts and their Electrochemical Properties

08:40 to 09:00

Jose Solla-Gullon (Instituto de Electroquimica, Alicante, Spain), Antonio Aldaz, Juan M. Feliu, Enrique Herrero, Ana Lopez-Cudero, Francisco J. Vidal-Iglesias

Formic acid electrooxidation on adatom-decorated shape-controlled Pt nanoparticles

09:00 to 09:20

Fakhradin Mirkhalaf (Sonochemistry Centre, Faculty of Heath and Life Sciences, Coventry University, Coventry, United Kingdom)

Electrocatalytic Reduction of Oxygen on Gold Nanoparticles Attached to Glassy Carbon

09:20 to 09:40

Leandro Moreira de Campos Pinto (Faculdade de Ciências, UNESP, Bauru, Brazil), Antonio Carlos Dias Ângelo

Periodic DFT Studies on Intermetallic Phases of Au and Pt used as Electrocatalysts for Fuel Cells Reactions

09:40 to 10:00

Elena Shembel (Enerize Corporation, Coral Springs, USA), Timothy Pastushkin, Volodymyr Redko, Oxana Redko

Non-Destructive Test Methods of Initial Materials, Semi- and Final Products in Batteries, Supercapacitors and Solar Cells Industry

10:00 to 10:20

Coffee Break
Program

10:20 to 10:40  page 51

Makiko Asamoto (Department of Materials Science and Biotechnology, Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan), Shinji Miyake, Hidenori Yahiro, Hiroyuki Yamaura, Yuka Yonei

Electrochemical Performances of Proton-Conducting SOFC with La-Sr-Fe-O Cathode Fabricated by Electrophoretic Deposition Techniques

10:40 to 11:00  page 104

Hendrik Schulenburg (Paul Scherrer Institut, Villigen, Switzerland), Helmut Bönnemann, Guram Khelashvili, Elisabeth Müller, Thomas Roser, Günther G. Scherer, Alexander Wokaun

Heat-treated PtCo$_3$ nanoparticles as oxygen reduction catalyst

11:00 to 11:20  page 69

Ting He (Honda Research Institute USA, Columbus, USA), Eric Kreidler, Qingmin Xu

The Durability of Pt and Pt Alloys as Fuel Cell Catalysts for Oxygen Electroreduction

11:20 to 11:40  page 49

Catia Arbizzani (Dipartimento di Scienza dei Metalli, Elettrochimica e Tecniche Chimiche, University of Bologna, Bologna, Italy), Sabina Beninati, Marina Mastragostino, Alberto Varzi

New supported electrocatalysts for DMFCs

11:40 to 12:00  page 80

Vladimir Komanicky (Faculty of Sciences, P. J. Safarik University, Kosice, Slovakia), Kee-Chul Chang, Daniel Hennesy, Hakim Iddir, Goran Karapetrov, Andreas Menzel, Hoydoo You, Peter Zapol

Designing Platinum Catalysts and Their Shape-Specific Electro-chemical Reactivity

12:30 Lunch
Poster Presentations

Electrocatalysis

s01-P-001 page 147
Determination of rate-determining step and activation volume for CO oxidation
Helmut Baltruschat (University of Bonn, Bonn, Germany), Hanchun Wang

s01-P-002 page 148
Development of multifunctional catalysts for electrooxidation of organic fuels
Piotr Barczuk (Department of Chemistry, University of Warsaw, Warsaw, Poland), Pawel J. Kulesza, Adam Lewera, Krzysztof Miecznikowski

s01-P-003 page 149
Platinum Nanosensor Array Electrode for Electrochemical Studies
Maryam Bayati (University of Louis Pateau, Strasbourg, France), Elena Savinova

s01-P-004 page 150
Electrochemical and spectroscopic (UV-Vis) investigations of perrhenate ions in acidic media
Maciej Chotkowski (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Andrzej Czerwinski, Zbigniew Rogulski

s01-P-005 page 151
Allowing for Interferences of the Support in Electrocatalysis
Alessandra Colombo (Department of Physical Chemistry and Electrochemistry, University of Milan, Milan, Italy), Edoardo Guerrini, Sergio Trasatti

s01-P-006 page 152
Multifunctional Pt-free Electrocatalytic Systems for Oxygen Reduction
Beata Dembinska (Department of Chemistry, University of Warsaw, Warsaw, Poland), Pawel Kulesza

s01-P-007 page 153
Enhanced Electro-oxidation of Formic Acid at Manganese Oxide Nanorod-Modified Pt Electrodes
Mohamed El-Deab (Institute of Electrochemistry, Ulm, Germany), Ludwig Kibler, Dieter Kolb
Electrocatalytic Oxidation of 1, 2-propanol on Nickel Modified Oxy-Hydroxide Electrode

Zahra Fattahi (Chemistry Department of K.N.T. University of Technology, Tehran, Iran), Iman Danaee, Majid Jafarian, Mohammad Ghasem Mahjani

Direct Protein Electrochemistry in 3D-Mesoporous ITO Electrodes

Stefano Frasca (Institute for Biochemistry and Biology, University of Potsdam, Golm, Germany), Markus Antonietti, Bernd Smarsly, Arne Thomas, Ulla Wollenberger

CO and Ethanol Electrooxidation using Ti/(RuO$_2$)$_x$ Pt$_{1-x}$ Electrodes Prepared by the Polymeric Precursor Method

Renato Garcia Freitas (DQ - UFSCar, Sao Carlos, Brazil), Luis Fernando Quintino Marchesi, Robson Tadeu Sousa Oliveira, Ernesto Chaves Pereira, Mauro Coelho Santos

Electrochemical and Surface Science Characterization of Nickel Foams

Michal Grden (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Gregory Jerkiewicz

Electrocatalytic Effects Induced by Laser Irradiation and Atom Bombardment on RuO$_2$ Electrodes

Edoardo Guerrini (Department of Physical Chemistry and Electrochemistry, University of Milan, Milan, Italy), Alessandra Colombo, Sergio Trasatti

Development and Characterization of Stainless Steel-Based Electrodeposits for Hydrogen Evolution Reaction

Isaac Herraiz-Cardona (Universidad Politecnica de Valencia. Dpto. Ingenieria Quimica y Nuclear, Valencia, Spain), Emma Ortega, Valentin Perez-Herranz

Electrocatalysis on Nanofaceted Ir-Surfaces

Ludwig A. Kibler (Institute of Electrochemistry, University of Ulm, Ulm, Germany), Wenhua Chen, Timo Jacob, Payam Kaghazchi, Theodore E. Madey, Felice C. Simeone, Khaled A. Soliman, Hao Wang
Keggin-type heteropolyacid salts as a new stable matrix for Pt-based catalyst for oxygen reduction

Aneta Kolary-Zurowska (Department of Chemistry, University of Warsaw, Warsaw, Poland), Sonia Dsoke, Pawel J. Kulesza, Roberto Marassi, Artur Zurowski

Electrochemical reduction of oxygen on different carbon nanomaterials in alkaline solution

Ivar Kruusenberg (Institute of Chemistry, University of Tartu, Tartu, Estonia), Mati Arulepp, Jaan Leis, Kaido Tammeveski

RuSe₅ Nanoparticles with Tungsten Oxide Modified Carbon-Supports as Bifunctional Electrocatalytic Systems for Oxygen Reduction

Miecznikowski Krzysztof (Department of Chemistry, University of Warsaw, Warsaw, Poland), Peter Bogdanoff, Iris Dorbandt, Sebastian Fiechter, Aneta Kolary-Zurowska, Pawel Kulesza, Adam Lewera

Supported Core-Shell Structures for Electrocatalytic Applications

Christian Kulp (Analytische Chemie - Elektroanalytik & Sensorik, Ruhr-Universität Bochum, Bochum, Germany), Michael Bron, Wolfgang Schuhmann

Fabrication of Fine Metallic Patterns through Potential Pulsation Method

Joo-Yul Lee (Department of Surface Technology, Korea Institute of Materials Science, Changwon, Korea), Man Kim

Formation of Ce₀.₂Sm₀.₈O₁.₉ (SDC) Nanoparticles and Electrophoretic Deposition (EPD) on Non-Conducting Substrates for Solid Oxide Fuel Cell Application

Kyeongseop Lee (Chemical Engineering, Jeonju, Korea), Sadia Ameen, Yun Kyung Lee

Investigation on the Electrochemical Characteristics of Ta₂O₅-IrO₂ based Metal Oxide Electrode

Joo-Yul Lee (Department of Surface Technology, Korea Institute of Materials Science, Changwon, Korea)
The electrochemistry and catalytic behaviour of nitric oxide synthase on a nanoparticles modified electrode

Katrin Lettau (Analytical Biochemistry, University Potsdam, Potsdam, Germany), Ulla Wollenberger

Electronic Properties of Non-supported Pt/Sn Nanoparticles Modified with Polytungstate Ions

Adam Lewera (Department of Chemistry, University of Warsaw, Warsaw, Poland), Piotr Barczuk, Ralf Hunger, Wolfram Jaegermann, Pawel Kulesza, Krzysztof Miecznikowski, Andrzej Wieckowski

To Study the Electrochemical Oxidation of Dissolved Carbon Monoxide in Limiting Currents Condition by Using Rotating Disk Gold Electrode

Andrew Lin (Dept. of Chemical and Materials Engineering, Chang Gung University, Taoyuan, Taiwan), Vivien Chailloux, Shane Lee

Rapid Catalytic-Adsorptive Determination of Zeptomole Quantities of Cu$^{2+}$ with the Mercury Monolayer Carbon Fiber Electrode

Grigore Munteanu (Centre for Research In Electroanalytical Technologies (CREATE), Department of Science, Institute of Technology Tallaght, Dublin, Ireland), Eithne Dempsey, Tim McCormac

Electrooxidation of Saccharose on Nickel Electrode in Alkaline Media

Ali Naeemy (Department of Chemistry, K. N. Toosi University of Technology, Tehran, Iran)

Electrochemical Study of Vanadium (V)-substituted Polyoxometalates

Jun-ichi Nambu (Faculty of Science, Kochi University, Kochi, Japan), Gianluca Bernardini, John Boas, Alan Bond, Si-Xuan Guo, John Pilbrow, Tadaharu Ueda

Electrocatalytic Oxidation of Methanol and Ethylene Glycol by Nickel Ion Dispersed into Poly (o-aminophenol) Film Prepared in the Presence of Sodium Dodecyl Sulfate

Reza Ojani (Department of Chemistry, Chalous, Iran), Shahla Fathi, Jahanbakhsh Raoof
Investigation of Hydrogen-Related Reactions on Pt-Nanostructured Cu Surfaces

**Odysseas Paschos** *(Department of Physics E19, Technische Universität München, Garching, Germany)*, Rainer Bußar, Ulrich Stimming, Holger Wolfschmidt

Carbon-Support Effect on CO, Ethanol and Acetaldehyde Electrooxidation using PtRh Materials as Electrocatalysts

**Elena Pastor** *(Dpto. Química Física, Universidad de La Laguna, La Laguna, Spain)*, Olmedo Guillén-Villafuerte, Mª Jesús Lázaro, William H. Lizcano-Valbuena, José Luis Rodríguez, David Sebastián

Hydrogen evolution reaction at AuPd(111) alloy surfaces

**Yvonne Pluntke** *(Institute of Electrochemistry, University of Ulm, Ulm, Germany)*, Ludwig Kibler, Dieter Kolb

Trends in the Electrocatalytic Activity of Nanostructures of Pd on Au(111) Electrodes

**Paola Quaino** *(Institute of Theoretical Chemistry, Ulm University, Ulm, Germany)*, Kay Pötting, Paola Quaino, Elisabeth Santos, Wolfgang Schmickler

Formaldehyde Electrooxidation on Carbon Paste Electrode Modified by Nickel Ions Dispersed into Poly (N-methylaniline) in Alkaline Medium

**Jahan Bakhsh Raoof** *(Analytical Chemistry, Mazandaran University, Babolsar, Iran)*, Reza Ojani, Abdollah Omrani, Fatemeh Monfare

Electrochemical Oxidation of Saccharose at Copper Electrode in Alkaline Media

**Mehdi Rashvand Avie** *(Department of Chemistry, K. N. T. University of Technology, Tehran, Iran)*, Iman Danaee, Majid Jafarian, Mohammad Ghasem Mahjani

Ethanol Electrooxidation on Pt/C Electrocatalysts: An “In situ” Raman Spectroelectrochemical Study

**Mauro Coelho Santos** *(CCNH-UFABC, Santo André, Brazil)*, Marcelo Calegaro, Rodrigo de Souza, Herculano Martinho, Erico Neto, Edson Santos
s01-P-036  
Pt-Ag Co-deposits as Catalysts for Oxygen Reduction in Hydrochloric Acid  
**Stefanie Schwamborn** (Analytische Chemie Elektroanalytik & Sensorik, Ruhr-Universität Bochum, Bochum, Germany), Michael Bron, Wolfgang Schuhmann

s01-P-037  
Analysis of the EQCM response during oxidation of carbon oxides adsorption products on platinum group metals and alloys  
**Hanna Siwek** (Industrial Chemistry Research Institute, Warsaw, Poland), Andrzej Czerwinski, Mariusz Lukaszewski

s01-P-038  
Electroanalysis with Catalytic Network Films of Carbon Nanotubes Modified with Ultra-Thin Films of Polyoxometallates, Metalloporphyrins and Conducting Polymers  
**Magdalena Skunik** (Department of Chemistry University of Warsaw, Warsaw, Poland), Pawel J. Kulesza

s01-P-039  
Gold-supported catalytic layer: A new approach to understand its electrochemical properties  
**Jose Solla-Gullon** (Instituto de Electroquimica, Alicante, Spain), Antonio Aldaz, Eduardo Exposito, Ana Lopez-Cudero, Vicente Montiel, Alfonso Saez

s01-P-040  
Comparison of anode electrodes with and without SnO₂ supported DMFCs  
**Minwu Song** (Chemical Engineering, Jeonju, Korea), Chul GI Jo, Young Soon Kim, Kyeongseop Lee

s01-P-041  
Catalytic Behavior of Electrogenerated Iron(I) Complexes with Salen-ligands  
**Tadaharu Ueda** (Faculty of Science, Kochi University, Kochi, Japan), Alan Bond, Si-Xuan Guo, Masashi Hojo, Naoko Inazuma, Ayumu Onda, Haruki Yasuzawa

s01-P-042  
Amperometric sensor for H₂O₂ based on poly(3,4-ethylenedioxythiophene) modified by metal hexacyanoферратes  
**Monika Wilamowska** (Department of Chemical Technology, Chemical Faculty, Gdansk University of Technology, Gdansk, Poland), Anna Lisowska - Oleksiak, Andrzej P. Nowak, Jakub Synak

s01-P-043  
Hydrogen Reactions on Sub-monolayers of Platinum on HOPG  
**Holger Wolfschmidt** (Department of Physics E19, Technische Universität München, Garching, Germany), Tine Brülle, Ulrich Stimming
Bifunctional Electrocatalysis on Iodate and Hydrazine by Polyoxometalate-based Multilayer Films Electrode

Lin Xu (Dept. of Chemistry, Northeast Normal University, Changchun, China), Weihua Guo, Bingbing Xu, Yanyan Yang

Electrodeposited Ni nanostructure for hydrogen evolution reaction in alkaline water electrolysis

Youngmi Yi (Department of Environmental Science and Engineering, Gwangju, Korea), Jae Kwang Lee, Joungmin Lee

Synthesis of Hierarchical Nanostructured Hollow Core, Mesopore Shell Carbon for Electrochemical Hydrogen Storage

Jong-Sung Yu (Department of Advanced Materials Chemistry, Korea University, Jochiwon, Korea), Baizeng Fang, Minsik Kim, Minwoo Kim, Jung Ho Kim

Electrocatalytic Properties of Network Films Utilizing Supports of Gold Nanoparticles Modified with Polyoxometallates and Conducting Polymers

Sylwia Zoladek (Department of Chemistry, University of Warsaw, Warsaw, Poland), Pawel Kulesza, Iwona A. Rutkowska

Insoluble salts of Keggin-type heteropolyacids as a new material for matrix for methanol and ethanol oxidation reaction

Artur Zurowski (Department of Chemistry, University of Camerino, Camerino, Italy), Sonia Dsoke, Aneta Kolary - Zurowska, Pawel J. Kulesza, Roberto Marassi

Photoelectrocatalysis

Preparation and Photo-Electrocatalytic Behaviour of Composite PbO$_2$-TiO$_2$ Materials

Rossano Amadelli (ISOF-CNR, clo Department of Chemistry, University of Ferrara, Ferrara, Italy), V.A. Knysh, T.V. Lukynenko, L. Samiolo, A.B. Velichenko

I-V Properties of a P-N Junction Diode Prepared from PANI/ZnO and PANI/ZnO/TiO$_2$ Films

Sadia Ameen (Chemical Engineering, Jeonju, Korea), Chul Gi Jo, Young Soon Kim, Rizwan Wahab
TiO\textsubscript{2} Thin Film Electrodes: Correlation between Photocatalytic Activity and Electrochemical Properties  
Clarissa Baumanis (Institut für Technische Chemie, Leibniz Universität Hannover, Hannover, Germany)

A ppm-level oxygen sensor, based on the photo-electrochemical behaviour of iron oxalate containing conducting polymers  
Gábor Bencsik (Institute of Physical Chemistry, University of Szeged, Szeged, Hungary), Zsófia Lukács, Csaba Visy

Electrochemical-supported degradation of benzoic acid and salicylic acid by means of Fenton’s reagent and different electrode materials  
Claire Bertoia (Research Group Electrochemical and Surface Engineering, Vrije Universiteit Brussel, Brussels, Belgium)

Studies of stoichiometry of electrochemically grown CdSe deposits  
Bartosz Maranowski (Department of Chemistry, Warsaw University, Warsaw, Poland), Krzysztof Bieńkowski, Marcin Strawski, Marek Szklarczyk

Synthesis and characterisation of iron vanadate for solar hydrogen production  
Craig Morton (The University of Greenwich, Chatham Maritime, United Kingdom), Bruce Alexander, Michael Thomas

Photo-Assisted Electrochemical Degradation of the Pesticide Carbaryl  
Geoffroy Roger Pointer Malpass (Instituto de Química de São Carlos, Universidade de São Paulo, São Carlos, Brazil), Douglas Waychi Miwa, Artur de Jesus Motheo, Adriana Cristina Poli Miwa, Sergio Antonio Spinola Machado

SnO\textsubscript{2}/RuO\textsubscript{2}-based materials for electrochemical and photo-assisted electrochemical pesticide degradation  
Geoffroy Roger Pointer Malpass (Instituto de Química de São Carlos, Universidade de São Paulo, São Carlos, Brazil), Douglas Waychi Miwa, Artur de Jesus Motheo, Adriana Cristina Poli Miwa, Sergio Antonio Spinola Machado

Photoelectrochemical Activities of Electrodeposited PbS  
Fatemeh Razzaghi (Chemistry Department, K.N.T. University of Technology, Tebran, Iran), Majid Jafarian, Mohammad Ghasem Mahjani
The New Material - TiO$_2$ N-doped, Sensitive at Visible Light

**Katarzyna Szybowska** (Department of Chemical Technology, Chemical Faculty Gdańsk University of Technology, Gdańsk, Poland)

Electrocatalysts Based on Lead Dioxide: Electrosynthesis, Physico-Chemical Properties and Electrocatalytic Activity

**Alexander Velichenko** (Department of Physical Chemistry Ukrainian State University of Chemical Technology, Dnepropetrovsk, Ukraine), Felix Danilov, Larisa Dmitrikova, Valentina Knysh, Tatiana Luk’yanenko, Alexander Velichenko

Hydrogen absorption studies in zinc oxide nanostructures

**Rizwan Wahab** (Chemical Engineering, Jeonju, Korea), Young-Soon Kim, Kyeongseop Lee, Minwu Song

Bioelectrocatalysis

Electrochemical Detection of Plasmid DNA

**Hanna Elzanowska** (Department of Chemistry, Warsaw University, Warsaw, Poland), Blanka Kepska, Magdalena Maj-Zurawska, Adrianna Palinska, Krzysztof Staron

Synthesis of the thiolated peptide derivatives and their self-assembly on gold electrodes

**Joanna Juhaniewicz** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Slawomir Sek

Enzymatic Carbon Nanotube Based Bioelectrocatalytic Systems for Biofuel Cell Applications

**Barbara Kowalewska** (Department of Chemistry, University of Warsaw, Warsaw, Poland), Pawel J. Kulesza

Voltammetric Probing of Model Phospholipid Membranes in the Presence of Perfluorinated Compounds

**Dorota Matyszewska** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Renata Bilewicz

Electrocatalysis of NADH Oxidation at Lignin-Thionine Modified Electrodes

**Grzegorz Milczarek** (Institute of Chemistry and Technical Electrochemistry, Poznan, Poland)
Influence of Derivatized Carbon Nanotubes on Catalytic Efficiency of Electrodes Modified with Enzymes in Lipidic Cubic Phase Film

Ewa Nazaruk (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Jan Biernat, Renata Bilewicz, Grazyna Ginalska, Jerzy Rogalski, Kamila Sadowska

Bioelectrocatalytic Properties of Agrocybe Aegerita Peroxygenase

Lei Peng (Institute of Biochemistry and Biology, Potsdam, Germany), Matin Hofrichter, Katrin Scheibner, Frieder W. Scheller, René Ullrich, Ulla Wollengerger

Immobilization of β-Lactoglobulin on Au Polycrystalline Surfaces by Multilayer Assembly

Hiléia Karla Silva de Souza (Chemical Engineering Department, Faculty of Engineering, University of Porto, Porto, Portugal), José M. Campiña, Maria do Pilar Gonçalves, Fernando Silva

Probing of Enzyme Reactivity using in-situ EC-STM

Ulrich Stimming (Department of Physics E19, Technische Universität München, Garching, Germany), Claudia Baier

Comparison of Modified Carbon Nanotubes for Reduction of Oxygen Catalyzed by Laccase

Krzysztof Stolarczyk (Faculty of Chemistry, Warsaw University, Warsaw, Poland), Jan F. Biernat, Renata Bilewicz, Jerzy Rogalski, Kamila Sadowska

Electrocatalytic Oxidation of Dopamine in Presence of Uric Acid at Poly(Eriochrome Black T) Modified Graphite Pencil Electrode

B.E. Kumara Swamy (Industrial Chemistry, Shimoga, India), Umesh Chandra, Ongera Gilbert, Bailure Sheena Sherigar

Electrode-Supported Rotaxane Threads - Tetraazamacrocyclic Complexes of Cu(II) and Ni(II)Self-Assembled on Gold Electrodes

Urszula E. Wawrzyniak (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Renata Bilewicz, Bohdan Korybut-Daszkiewicz, Jaroslaw Kowalski, Elwira Maicka, Mateusz Wozny
s3-P-013  page 220
Tryptophan repressor-binding proteins (WrbA) from *Escherichia coli* and *Archaeoglobus fulgidus* as a new biosensor for NADH oxidation


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### General Session

s4-P-001  page 221
Electrochemical Growth of $\beta$-Ni(OH)$_2$ and NiOOH on Ni Electrodes at Well-defined Polarization Potential, Polarization Time, and Temperature Conditions

**Mohammad Alsabet** (*Chemistry Department Queen's University, Kingston, Canada*)

s4-P-002  page 222
Impedance analysis of iron hexacyanoferrate layer

**Adam Andrearczyk** (*Department of Electrochemistry, Corrosion and Materials Engineering, Faculty of Chemistry, Gdansk University of Technology, Gdansk, Poland*), Kazimierz Darowski

s4-P-003  page 223
Synthesis Electrochemical of Polyaniline Nanofibers

**Maliheh Behboodi** (*Department of Chemistry, K.N.T. University of Technology, Tehran, Iran*), Majid Jafarian, Mohammad Ghasem Mahjani

s4-P-004  page 224
Microwave-assisted nonaqueous sol-gel routes to metal oxide nanoparticles

**Idalia Bilecka** (*Department of Materials, ETH Zürich, Zürich, Switzerland*)

s4-P-005  page 225
Dopamine Studies at a $\beta$-CD Modified Au Polycrystalline Electrode

**José Miguel Campiña** (*Chemistry Department, Science Faculty, Porto University, Porto, Portugal*), Ana Maria Martins, Fernando Silva

s4-P-006  page 226
Mechanistic Study of the Borohydride Oxidation Reaction (BOR) on Gold by Electrochemical Impedance Spectroscopy (EIS)

**Marian Chatenet** (*LEPMI, Grenoble-INP, Saint Martin d’Hères, France*), Jean-Paul Diard, Belen Molina Concha, Gaëlle Parrou

s4-P-007  page 227
The interfacial capacitance of a palladium electrode in an alkaline electrolyte

**Michal Grden** (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*)
Conducting-polymer based electrode with magnetic behavior: electrochemical synthesis of poly(3-thiophene-acetic-acid) / magnetite nanocomposite thin layers

Csaba Janáky (Department of Physical Chemistry, University of Szeged, Szeged, Hungary), Ottó Berkesi, Etelka Tombácz, Csaba Visy

Hydrogen electrosorption in Pd–Ag and Pd–Cu alloys

Katarzyna Klimek (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Andrzej Czerwinski, Anna Pytel

Voltammetry-based estimation of diffusion coefficients of weak acids in solutions with low ionic strength

Marek Kowski (Chemistry Department Warsaw, University, Warsaw, Poland), Marcin Palys

Conjugated Polymers from New 3,5-Dithienylpyridines, their N-Methyl Salts and Complexes with Ruthenium Phthalocyanines

Michal Krompiec (Institute of Chemistry, University of Silesia, Katowice, Poland), Stanislaw Krompiec, Piotr Kus, Mieczyslaw Lapkowski

Physicochemical Characterization of Electrochemically Prepared Ni-B Layers

Joo-Yul Lee (Department of Surface Technology, Korea Institute of Materials Science, Changwon, Korea), Man Kim

Study on the Tri-/Hexa-Chromium Electrodeposited Layer Prepared from Nano-sized Inorganic Powder

Joo-Yul Lee (Department of Surface Technology, Korea Institute of Materials Science, Changwon, Korea), Thi Nam Hoang, Man KIM, Sik Chol Kwon, Viet Hue Nguyen

Study of the size effects in thin electrodeposited polycrystalline nanowire

Hadria Medouer (Physics, Batna, Algeria), Rebai Chouchane, Mosbah Daamouche, Saci Messaadi

A study on the electrodeposition of Ni_{50}Fe_{50} alloy thin films using chronopotentiometry

Saci Messaadi (L.E.P.C.M, Department of Physics, Faculty of Sciences, Batna, Algeria), Rebai Chouchane, Mosbah Daamouche, Hadria Medouer, Kafia Oulmi
Conducting Polymer-based Zn$^{2+}$ Potentiometric Sensor

Jan Migdalski (University of Science and Technology, Krakow, Poland), Teresa Blaz, Andrzej Lewenstam

Application of Multi-electrode, Maintenance and Internal Solution-free Galvanic Cells for Determination of Selected Ions in Pharmaceutical Samples

Jan Migdalski (University of Science and Technology, Krakow, Poland), Boguslaw Bas, Teresa Blaz, Jerzy Golimowski, Andrzej Lewenstam, Barbara Zralka

Study of electro oxidation of phenol in different electrodes

Emma Ortega (Universidad Politecnica de Valencia, Dpto. Ingenieria Quimica y Nuclear, Valencia, Spain), Andrea Moura Bernardes, Jane Zopps Ferreira, Emma Ortega, Valentin Perez-Herranz, Jose Lus Neves Xavier

Curie Paramagnetism Behavior in Organic Conjugated Discotic Molecular Material

Christian Perruchot (Laboratoire ITODYS, UMR 7086 Université Paris Diderot, Paris 7, Paris Cedex 13, France), Salah Aeiyach, Souad Ammar, Mohamed Jouini, Mathieu Lazerges

Application of electrochemical/chemical processes of material degradation for preparation of selective catalysts from rapidly quenched Cu- or Ni-based alloys

Marcin Pisarek (Institute of Physical Chemistry PAS, Warsaw, Poland), Maria Janik-Czachor, Mariusz Lukaszewski

Simultaneous impedance and ellipsometry characterization of anodic titanium oxide films

Jacek Ryl (Department of Electrochemistry, Corrosion and Materials Engineering, Gdansk University of Technology, Gdansk, Poland), Robert Bogdanowicz, Kazimierz Darowicki

ZnO Anticorrosive Coatings by MOCVD

s4-P-023  
Corrosion Resistance of Sol-Gel coatings deposited on Commercial Carbon Steel  
M. A. Domínguez-Crespo (Instituto Politécnico Nacional, Altamira, Mexico), A. García-Murillo, E. Onofre-Bustamante, C. Yáñez-Zamora and F. J. Carrillo-Romo

s4-P-024  
Preparation of Ni Nanoparticles and Evaluation of their Electrochemical Performance as Potential Electrode Materials on HER  
M. A. Domínguez-Crespo (Instituto Politécnico Nacional, Altamira, Mexico), E. Ramírez-Meneses, V. Montiel-Palma and A.M. Torres Huerta

s4-P-025  
Laccase Encapsulation in Polypyrrole Microcapsules  
Agata Krywko-Cendrowska (Department of Chemistry, University of Warsaw, Warsaw, Poland) Maciej Mazur, Paweł Krysinski

s4-P-026  
Tailoring surfaces and supports for enzyme mediation, with application to biosensor and biopower device development  
P. Kavanagh (School of Chemistry, National University of Ireland, Galway, Ireland), S. Boland, K. Foster, J. Hajdukiewicz, P. Jenkins and D. Leech

s4-P-027  
Impedance studies of nickel oxide based electrode for electrochemical capacitors  
Karolina Andreczyk (Department of Electrochemistry Corrosion and Materials Engineering, Gdansk University of Technology, Gdansk, Poland) Kazimierz Darowicki, Katarzyna Lota, Grzegorz Lota, Paweł Slepski