Meeting Abstracts — MA 2010-01
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K. Rhodes, C. Daniel, E. Lara-Curzio and N. Dudney

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367 A Nanostructured Li$_2$S/Silicon Rechargeable Battery with High Specific Energy
Y. Yang, M. McDowell, A. Jackson, J. Cha, S. Hong and Y. Cui

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370 Investigation of Hydrogen Evolution During the Preparation of Anolyte for a Vanadium Redox Flow Battery  
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371 High Power Planar Sodium Metal Halide Battery  
J. Lemmon, G. Yang, X. Lu, G. Xia, V. Sprenkle and K. Meinhardt  
372 Nonaqueous Redox Flow Battery Employing Redox Couples Able to Transfer Multi Electrons  
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376 Enhanced Cyclic Performance of Surface Modified LiMn$_2$O$_4$ by Al$_2$O$_3$ Coating for Li-Ion Batteries  
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377 Application of Microporous Cu Foam Structure Prepared by Electrodeposition to Substrate of Sn Anode for Li-Ion Battery  
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384 A New Synthetic Route for Preparing Carbon-Coated LiFePO$_4$  
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385 A Dynamic Modelling of the All-Vanadium Redox Flow Battery  
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M. Cugnet and B. Liaw  
388 Cycle Life Prediction of Battery-Supercapacitor Hybrids Using Artificial Neural Network  
Q. Tian and K. Lian  
389 Performance Modeling of a Na/NiCl$_2$ Battery  
B. Ramamurthi, A. Shapiro and R. Sarraf-Nour
A Mathematical Model for All Solid-State Lithium-Ion Batteries Incorporating Mechanical Effects
K. Becker-Steinberger, S. Funken, M. Landstorfer and K. Urban

Thin-Film Battery Cell Modeling with Concentration Dependent Diffusion Coefficients
K. Becker-Steinberger, S. Funken, M. Landstorfer and K. Urban

Path Dependence of Aging in Commercial Li-Ion Cells Chosen for PHEV Duty Cycle Protocols
K. Gering, S. Sazhin, D. Jamison, C. Michelbacher, M. Dubarry, M. Cugnet and B. Liaw

Maximization of Energy Storage and Minimization of Capacity Fade in Lithium-Ion Battery Pack
R. Methkar, V. Ramadesigan, V. Subramanian and R. Braatz

B4 - Biological Fuel Cells 4

Energy Technology / Physical and Analytical Electrochemistry / Organic and Biological Electrochemistry

Advanced Glucose-Air Enzymatic Fuel Cell for Portable Applications
V. Svoboda, U. Lindstrom, S. Singhal, C. Lau and P. Atanassov

Microbial Fuel Cell Design Sufficient to Power a Hydrophone over a Several Month Period
K. Richter, D. Chadwick and L. Tender

Evolution of Sony's Biofuel Cell
H. Sakai, T. Nakagawa, H. Mita, H. Kumita and Y. Tokita

Potentially Implantable Glucose/Oxygen Biofuel Cells
S. Shleev

Microstructured Biological Fuel Cells for Automatic Series-Connection and Relay Systems
T. Miyake and M. Nisizawa

Protein Engineering for Bioelectrocatalysis: We Can Do More than Vmax
S. Banta

Rational Design of Cellobiose Dehydrogenase for Biosensor and Biofuel Cell Applications
R. Ludwig, C. Sygmund, W. Harreither, D. Haltrich and L. Gorton

Development of Thermostable Gluconate 5-Dehydrogenase for Biofuel Cell System
D. Yamaguchi, R. Matsumoto, Y. Goto, H. Sakai and Y. Tokita

Understanding the Mechanism of Mitochondrial Bioelectrocatalysis in Organelle Based Biofuel Cells
R. Arechederra and S. Minteer

Fluorescence Characterization of Immobilized Enzymes
G. Martin, C. Lau, S. Minteer and M. Cooney

In Situ and On-Demand Biocatalytic Hydrogen Production System for Microfuel Cells
A. Ranta, S. Kielosto, T. Noponen and A. Halme

Modeling Study of a Methanol Biofuel Cell Operating on Multi-Step Enzyme Kinetics and Mediated Electron Transfer
P. Kar and S. Calabrese Barton

Conversion of a Biofuel Cell to a Rechargeable Biobattery
P. Addo, R. Arechederra and S. Minteer

Novel In Situ Spectro-Electrochemical Methods for Newer Insights on Enzymatic Reaction Centers
T. Arruda, S. Mukerjee, D. Chakraborty and S. Calabrese Barton

Mechanism and Performance of an Inexpensive Monosaccharide Biofuel Cell
L. Chetty, J. Kim, N. Zhao, D. Scott and B. Liaw

Inhibition and Uncoupling Mechanisms in Mitochondrial Bioelectrocatalysis
M. Arechederra, C. Fischer, D. Wetzel and S. Minteer

Biofuel Cells Controlled by Logically Processed Biochemical Signals
E. Katz

Glucose Oxidase Enzymes Rationally Engineered for Direct Electron Transfer
T. Holland, S. Brozik, C. Lau, P. Atanassov and S. Banta
Calculation of Redox Potentials in Multi-Copper Oxidases: A Combined First Principles and Molecular Dynamics Study  
G. Hong, D. Ivnitski, G. Johnson, P. Atanassov and R. Pachter

Fluorescence Characterization of Enzyme Aggregation in the Immobilized State  
G. Martin, S. Minteer and M. Cooney

Complete Oxidation of Hexose by Using a Synthetic Thermophilic Enzymes Pathway for Enzymatic Biofuel Cells  
Y. Wang, G. Wu, X. Ye, S. Minteer and Y. Zhang

Characterization of Flow-Through Microbial Fuel Cells  
S. Higgins, M. Cooney, S. Minteer, P. Atanassov, C. Lau, A. Cheung, O. Bretschger and K. Nealson

DNA-Directed Assembly of Enzymes and Nanomaterials: Small Laccase-Carbon Nanotube Supramolecular Assemblies  

Incorporating Shewanella Oneidensis MR-1 in Silica Films Derived by Chemical Vapor Deposition  

Controlling the Orientation of Multicopper Oxidases for Direct Electron Transfer  
P. de la Iglesia, D. Ivnitski, C. Lau and P. Atanassov

Complete Glycerol Oxidation: Development of a Hybrid Enzymatic-Metallic Biofuel Cell  
A. Falase, C. Lau, P. Atanassov, R. Arechederra, Z. Zulic and S. Minteer

Measurement Setup to Study the Electrode Potentials Separately in a Printed Biofuel Cell  
S. Tuurala, M. Smolander, M. Valkiainen, A. Vaari, V. Ojala and M. Bergelin

Electrochemical Functionalization as a New Approach for Enzyme Immobilization  
M. Moumene and M. Mohamedi

Electricity Generation Capability of Various Carbonaceous Electrodes in Microbial Fuel Cell  
I. Park, G. Gnana Kumar, A. Kim, K. Nahm and P. Kim

Small Scale Microbial Fuel Cells and Different Ways of Reporting Output  
I. Ieropoulos, J. Winfield and J. Greenman

Toward Predicting the Power Output of Benthic Microbial Fuel Cells  
R. Snider, Y. Furukawa, J. Book, A. Quaid and L. Tender

Microbial Fuel Cells Based on Immobilized Bacteria Using Carbon Nanoparticles and Chemical Modification  
Y. Yuan and S. Kim

Bacterial Nanowires and Electricity Generation in Microbial Fuel Cells  
Y. Gorby, M. El-Naggar, G. Wanger, T. Yuzvinsky and K. Nealson

Electrochemical-Induced Growth of Biofilms in Microbial Fuel Cells  
D. Leech, K. Katuri, T. Catal, R. Saravanan, S. Boland and P. Kavanagh

Voltammetric Analysis of Biofilms Catalyzing Cathode Reactions and Implications for Solar Microbial Fuel Cells  
S. Strycharz, R. Snider and L. Tender

Cellular Encapsulation by Silica CVD: 'Artificial Biofilms' in Microbial Fuel Cells  
H. Luckarift, S. Sizemore, G. Johnson, G. Gupta, G. Lopez and P. Atanassov

Electrochemical and Metabolic Control of Electron Transfer in Biofilms  
H. Beyenal, A. Dewan, J. Babuta, H. Nguyen, R. Renslow and B. Cao

Electrochemical Quartz Crystal Microbalance to Monitor Biofilm Growth and Properties during BioElectrochemical System Inoculation and Load Conditions  
S. Brown, S. Read, A. Rowlands, B. Laycock, J. Cooper-White and J. Keller

Microbial Fuel Cells and Algae  
I. Ieropoulos, J. Greenman and M. Sauer

Voltammetric Analysis of Geobacter Sulfurreducens: Catalyzed Anode Reactions  
L. Tender, S. Strycharz and R. Snider
Design and Characterization of Nanostructured Laccase Electrodes
D. Ivnitski, H. Luckarift, C. Khripin, B. Halevi, G. Johnson and P. Atanassov

Development of Bioelectrocatalytic Multi-Component Films for Reduction of Oxygen and Hydrogen Peroxide
P. Kulesza, B. Kowalewska, A. Dobrzaniecka and K. Miecznikowski

Synergy Effect of Multiple Redox Enzymes at Carbon Nanocomposite Electrodes: Towards a High Potential Biocathode
L. Stoica, W. Jia, Y. Ackermann and W. Schuhmann

Air Diffusion Biocathode Based on Direct Electron Transfer-Type Bioelectrocatalysis
K. Kano and S. Tsujimura

Principal Component Analysis of In Situ Spectro-Electrochemistry Data for ORR Catalyzed by Laccase
K. Artyushkova, P. Atanassov, T. Arruda and S. Mukerjee

Development of High Performance Bio-Cathode
T. Nakagawa, H. Mita, H. Kumita, H. Sakai and Y. Tokita

Bilirubin Oxidase as a Highly Efficient Electrocatalyst for the Oxygen Reduction Reaction
L. dos Santos, C. Blanford, V. Climent, E. Gonzalez and F. Armstrong

Air-Breathing Enzymatic Cathode for Portable Biofuel Cells
C. Lau, P. Atanassov, V. Svoboda and S. Singhal

Cyclic Voltammetric Study of Glucose Oxidation in Alkaline Solution with the Presence of Viologen
J. Kim, N. Zhao, D. Scott, M. Dubarry and B. Liaw

Methylene Green Electrodeposited on SWNTs-Based "Bucky Papers" for NADH and L-Malate Oxidation.
C. Narváez Villarrubia, R. Rincón, P. Atanassov, V. Radhakrishnan and V. Davis

Characterization of Redox Hydrogel Thin-Film Electrodes for Precise Estimate of Hydrogel Transport Properties and Kinetic Parameters of Enzymes
D. Chakraborty and S. Calabrese Barton

Flow-Through 3D Biofuel Cell Anodes for NAD-Dependent Enzymes
R. Rincón, C. Lau and P. Atanassov

Poly(Methylene Blue) and Poly(Methylene Green): Comparison Between the Electrochemical and Chemical Syntheses, Chemical Properties and Application as an NADH Electrocatalyst
M. Arechederra, C. Jenkins, R. Rincón, K. Artyushkova, P. Atanassov and S. Minteer

Redoxpolymers and Nanostructured Electrode Surfaces: Design and Optimization of Biofuel Cell Electrodes
W. Schuhmann

Investigation of Conducting Polymers Containing Amino Reactive Groups for Enzyme Immobilization by Microencapsulation in Biofuel Cells
M. Hébert and D. Rochefort

Combining Mediator and Enzyme Libraries for Biocatalytic Fuel Cell Performance
D. Leech, P. Kavanagh, S. Boland, R. Saravanan and P. Jenkins

New Materials for Biofuel Cell Anodes Based on Linear Poly(ethylenimine) and Ferrocene
M. Meredith, D. Schmidtke and D. Glatzhofer

High-Surface-Area Bioanode Made of Redox Polymer Grafted Carbon and Glucose Oxidase
T. Tamaki, A. Hiraide, H. Ohashi, T. Ito and T. Yamaguchi

Engineering Enzymes for High Power Biofuel Cells
N. Mano

Carbon Nanotubes as a Conductive Interface for Enzymatic Fuel Cell Designs
H. Luckarift, R. Ramasamy, L. Barnes, D. Ivnitski, P. Atanassov, R. Pachter and G. Johnson

Bioelectrocatalytic Reaction of Fructose Dehydrogenase on Mesoporous Carbon Electrodes
S. Tsujimura, A. Nishina, Y. Hamano, S. Shiraishi and K. Kano
Effect of Nanostructured Carbon Electrode Surfaces on the Percentage of Adsorbed Redox Enzyme Molecules in Direct Electron Transfer Contact
F. Chekin, V. Coman, F. Tasca, M. Zafar, G. Safina, W. Harreither, R. Ludwig and L. Gorton

Nanobiocatalysis and Its Potential Applications in Biofuel Cells
J. Kim

Engineered Bio-Nano Materials for Improved Biofuel Cell Electrodes
N. Akers, W. Gellett, J. Schumacher, D. Le, W. Patterson and P. Atanassov

Use of Chitosan in the Development of Mesoporous Carbon Structures for Use in Bioelectrocatalysis
K. Sjöholm, R. Arechederra, E. Schwarz, M. Cooney and S. Minteer

Biofuel Cell Based on Printed Bioelectrocatalytic Layers
M. Smolander, A. Vaari, S. Tuurala, M. Valkiainen, H. Boer, A. Koivula, J. Keskinen, O. Kaukoniemi, J. Uotila and M. Bergelin

Development of Sol-Gel Bioelectrodes for Low Temperature Biofuel Cell: Covalent Immobilization of Glucose Oxidase and Laccase on Conductive Carbon-Chitosan Composites
C. La Rotta, G. Ciniciato and E. Gonzalez

B5 - Combinatorial Screening of Materials for Energy Conversion and Storage

Energy Technology / Battery / Industrial Electrochemistry and Electrochemical Engineering

Thermal, Electrical, and Electrochemical Properties of Scandium-Doped Ln0.6Sr0.4Co0.2Fe0.8O3-δ as Cathodes for IT-SOFC
Y. Yin, N. Yang, M. Xiong, Z. Tong, J. Feng, Z. Ma, E. Sun, Y. Jean and B. Jing

Scanning Electrochemical Microscopy Characterization of Pt-M (M: Pd, Ru, Ir) as Electrocatalysts for Hydrogen Oxidation
Y. Weng and C. Hsieh

Discovery and Characterization of Novel Direct Hydrazine Fuel Cell Anode Electrocatalysts

High Throughput Screening of Potential Ethanol Oxidation Catalysts for PEM Fuel Cells
D. Stevens, E. Marvel, R. Sanderson, E. Moreau and J. Dahn

Investigating the Liquid Water Transport in a PEFC by Electrochemical Impedance Spectroscopy and ESEM Imaging
R. Alink and D. Gerteisen

Screening of Ceria-Based Catalysts for Methane Reforming in Intermediate Temperature Single-Chamber SOFC
C. Gaudillère, P. Vernoux, C. Mirodatos and D. Farrusseng

Novel Copper-Zinc Oxide Nanoarchitectures as Microreformation Catalysts for Hydrogen Production
Y. Lin, Y. Hsu, Y. Lin, S. Chen, L. Chen and K. Chen

Optimization of Electrodes and Operating Conditions Using High-Throughput Electrochemistry for Low-Voltage Generation of Alkalinity for CO2 Sequestration
S. Gorer, M. Kostowskyj, R. Gilliam, N. Knott and B. Constanz

High Throughput Synthesis and Screening for Discovery of Improved Electrode Materials for Lithium-Ion Batteries
B. Li, F. Matsumoto, D. Greenburg, B. Howard, R. Olugbile, C. O'Neill and S. Kaye

High Performance Supercapacitor Based on MnO2 Nanosheet/CNx Nanotubes-Grown Carbon Cloth
Y. Chen, Y. Hsu, Y. Horng, L. Chen and K. Chen

A Combinatorial Approach to Discovery of Semiconducting Oxides for Solar Water Splitting
B. Parkinson

The Solar Hydrogen Activity Research Kit Project: Dedicated to Splitting Water with Sunlight
J. Schuttlefield, C. Markum and B. Parkinson
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   S. Ngamsinlapasathian, K. Onoda, T. Takayasu, T. Sagawa and S. Yoshikawa
474 Sensitization of Anatase TiO₂ Films by Adsorption of N719 Dye
   K. Lee, M. Gomez, S. Elouatik, C. Charbonneau, N. Parsi, G. Shan and G. Demopoulos

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   Energy Technology / High Temperature Materials

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   D. Rastler
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   P. Denholm
477 Sustainable Bioenergy Feasibility and Economics: A Case Study on the Yakama Nation
   A. Burke
479 The Economics of Materials for Energy Storage
   J. Whitacre
480 Assessing the Costs and Benefits of EV or HEV Usage Using Pattern Recognition and Vehicle Simulation
   M. Dubarry, C. Truchot and B. Liaw
481 Adoption of Micro-Fuel Cells
   J. St-Pierre and C. Hebling

B7 - Electrode Processes Relevant to Fuel Cell Technology
   Physical and Analytical Electrochemistry / Energy Technology

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   S. Knupp, M. Vukmirovic, P. Haldar and R. Adzic
483 Kinetics of Oxygen Dissociation on Pt(111)
484 Electrocatalytic Activity of (100) Preferentially Oriented Pt Nanostructure
   S. Garbarino, A. Ponrouch and D. Guay
485 On the Nature of Pt-O Species Observed with XANES and Implications for the Oxygen Reduction Reaction
486 Pt/C vs. PtₓFeᵧ/C and PtₓCoᵧ/C Catalysts for the Oxygen Reduction Reaction: Structure, Activity and Stability
   L. Chen, C. Bock, B. MacDougall and P. Mercier
487 Removing the Low Coordination Sites of Palladium Nanoparticles Using Bromide Adsorption to Enhance the Oxygen Reduction Reaction Kinetics
   Y. Cai and R. Adzic
488 PEM Fuel Cell Non-Noble Metal Catalysts: Challenges and Perspective
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489 Electrocatalytic Properties of Metal Nanoparticles for Selective Reduction of Oxygen
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Electrocatalytic Activity of Ta Compound Thin Film for Oxygen Reduction Reaction
K. Matsuzawa, A. Kikuchi, A. Ishihara, S. Mitsushima and K. Ota

Alloys of Platinum and Early Transition Metals as Oxygen Reduction Electrocatalysts

Photocatalytically Generated Bi- and Trimetallic Oxygen Reduction Catalysts Supported on Titanium Dioxide-Carbon Matrix

A New Two-Step Synthesis of CoFe-Based Nonprecious Metal ORR Catalysts
G. Wu, M. Nelson, C. Johnston and P. Zelenay

Ti-Co Catalysts Prepared by Polymerized Complex Method as Nonnoble Metal Cathode for PEFC
K. Takanabe, F. Yin, J. Kubota and K. Domen

Cu-Containing Oxygen Reduction Catalysts
A. Gewirth and M. Thorum

Nonprecious Metal Oxide Based Powder Using Group 4 and 5 Metals for PEFC Cathode
K. Ota, K. Matsuzawa, S. Mitsushima and A. Ishihara

Investigation on Niobium and Titanium Oxide Based Catalyst for PEFC
Y. Wakizaka, M. Horikita, T. Imai, R. Monden, C. Yu and K. Lee

Development of Less-Expensive Oxide Cathode Catalysts for PEFCs
Y. Takasu, Y. Hongsheng and W. Sugimoto

Electrocatalytic Oxygen Reduction and Oxygen Evolution on Manganese Oxide Surfaces
Y. Gorlin and T. Jaramillo

Mass Transport and ORR Kinetics in Solid Polymer Electrolytes
A. Mani, J. Peron, K. Shi and S. Holdcroft


X-Ray Absorption Spectroscopy Analysis of Nitrogen in Carbon-Based Catalyst for Polymer Electrolyte Fuel Cells

Electrochemical Oxygen Reduction on Carbon Nitride
S. Lyth, Y. Nabae, S. Moriya, S. Kuroki, M. Kakimoto, J. Ozaki and S. Miyata

Nitrogen Functionalized Mesoporous Carbon for PEM Fuel Cells
S. Shrestha and W. Mustain

Nitrogen-Doped Carbon Nanotubes as a Novel Catalyst Support for PEM Fuel Cells
Y. Chen, H. Liu, J. Wang, R. Li, A. Sun, S. Ye and S. Knights

Highly Active Carbon Nitride Electrocatalyst for the Oxygen Reduction Reaction in PEM Fuel Cell Applications
R. Hsu and Z. Chen

Pt- and Pd-Based Carbon Nitride ORR Electrocatalysts Supported on Conductive Nanoparticles for Application in PEMFCs
V. Di Noto and E. Negro

Interfacial Properties of Chalcogenide Metal Centers Towards the Oxygen Reduction Reaction
A. Gago Rodriguez, Y. Feng, L. Timperman and N. Alonso-Vante

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511 Effect of Synthesis Conditions on ORR Activity of Polyaniline-Fe-C Catalysts
G. Wu, K. Artyushkova, C. Johnston and P. Zelenay
512 A Surface Functionalization Approach to Fe-N/C Oxygen Reduction Catalysts
A. Pauric, E. Easton and B. MacLean
513 Novel Cathode Catalyst Development in a pH-Flexible Microfluidic Platform
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514 Highly Active Porous Carbon-Supported Nonprecious Metal-N Electrocatalyst for Oxygen Reduction
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J. Choi, R. Hsu and Z. Chen
515 The Importance of Catalyst Supports for the Improvement of PEM Fuel Cell Performance and Durability
S. Ye, A. Young, S. Knights and A. Sun
516 Electrocatalysis at Microelectrodes: Geometrical Considerations
H. Zhu, Y. Tolmachev and D. Scherson
517 Model of a Water-Filled Nanopore in an Ionomer-Free Cathode Catalyst Layer
K. Chan and M. Eikerling
518 High Performance Electrode for PEMFC Based on a Double-Layered Buckypaper
519 Modeling the Effect of Low Carbon Conductivity of the Cathode Catalyst Layer on PEM Fuel Cell
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M. Baghalha, M. Eikerling, J. Stumper and D. Harvey
520 Improved Performance of Oxygen-Reducing Biocathode in Biological Fuel Cells
K. Kano and S. Tsujimura
521 The Effect of Oxide Blocking on the ORR on Platinum in Alkaline Solution
G. Wiberg and M. Arenz
522 Nitrogen Doped Carbon Nanotube Thin Films as Efficient Oxygen Reduction Catalyst for Alkaline Anion
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D. Higgins and Z. Chen
523 Micromagnets in the PEMFC Catalyst Layer: Impacts on Adsorbate Kinetics
W. Gellett, S. Minteer, D. Dunwoody and J. Leddy
524 Recent Progress in Anode Materials for Solid Oxide Fuel Cells
Q. Li and V. Thangadurai
525 Carbon and Sulfur Poisoning in SOFC Anodes
J. Giorgi, S. Bukhari and J. O’Brien
526 Developing an Electrochemical Method to Assess SOFC Anode Losses during H2S Poisoning under
Polarization
S. Paulson, M. Sponiar and V. Birss
527 Electrochemical Promotion of CO Oxidation on Pt/YSZ: The Effect of Catalyst Potential on the Induction
of Highly Active Stationary and Oscillatory States
M. Tsampas, F. Sapountzi and C. Vayenas
528 Evaluation of Anode Architectures for Single-Chamber SOFC by Impedance Spectroscopy Coupled with
Gas Chromatography
C. Gaudillère, P. Vernoux and D. Farrusseng
529 Electrochemical Reactions at the Anode-Electrolyte Interface of Solid Oxide Fuel Cells: DFT Study
M. Shishkin and T. Ziegler
530 Performance and Stability of Cermet Supported SOFCs with an SDC Barrier Layer Prepared by Pulsed
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X. Zhang, D. Yang, M. Robertson and C. Decès-Petit
Rate Determining Step of High Temperature Cathode Reaction Studied by In Situ Electrochemical XAS

Electrochemical Performance of SmBaCo$_{2/3}$Fe$_{2/3}$Cu$_{2/3}$O$_{5+\delta} \cdot$Ce$_{1.9}$Gd$_{0.1}$O$_{1.9}$ Composite Cathodes for IT-SOFC
S. Lee, S. Jo, P. Muralidharan and D. Kim

Fabrication and Performance of Graded LSCF/GDC Cathode for Solid Oxide Fuel Cell
N. Li, A. Smirnova, A. Verma, P. Singh and J. Kim

Investigation of SOFC Cathode Kinetics by Means of Continuum Modeling and Well-Defined Electrodes
M. Lynch, X. Li, L. Yang, D. Mebane and M. Liu

Theoretical Investigation of Ammonia Oxidation Kinetics on Pt(111)
D. Daramola, A. Dugovics and G. Botte

Controlled Growth of Silver Nanostructures for Oxygen Reduction Reaction in an Alkaline Electrolyte
C. Chen, Y. Chang, P. Wu and P. Lin

3D Multiphase Modeling of PEMFC with Uneven Compression and Deformation of GDL
L. Qi, K. Jiao, A. Pereira and X. Li

Investigation of Gas Diffusion Electrodes for Electrochemical Oxygen Reduction
B. Schuster, N. Wagner and M. Schulze

Investigation of Leakages in PEFC Fuel Cells by Measuring Current Density Distributions and Raman Spectra
M. Schulze, E. Gülzow, K. Friedrich, P. Fischer and H. Bettermann

Prospective of Pd/MO$_x$ as Alternative Anode Pt Catalyst for Polymer Electrolyte Fuel Cell
E. Muhamad, T. Takeguchi, G. Wang, T. Yamanaka and W. Ueda

Fabrication and Characterization of High Activity Pt/C Electro催化剂s for Oxygen Reduction
B. Lim, J. Kim, S. Hwang, E. Cho, T. Lim and S. Kim

Electrochemical Preparation of Ternary Pt-Fe-Co Catalysts for the Oxygen Reduction Reaction: Size and Composition Dependent Activity
S. Hwang, S. Kim and T. Lim

Effects of Upper Potential Dwell Time, Transients and Relative Humidity on PEM Fuel Cell Cathode Catalyst Degradation
M. Dutta, N. Jia, S. Lu, V. Colbow and S. Wessel

Electrocatalytic Activity of 4A-Zeolite Modified Pt/C for Electrooxidation of Methanol in Alkaline Medium
Y. Liang, P. He, X. Yi, Y. Chen, J. Sun and Q. Jiang

Effect of Solvent on the Electrocatalytic Activity of Pt/C Catalyst for Methanol Electrooxidation
Y. Liang, P. He, X. Yi, Y. Chen, J. Sun and Q. Jiang

Impacts of Ru Dissolution and Crossover on PEMFC Performance and Anode Functionality
T. Cheng, V. Colbow and S. Wessel

On the Effect of Vanadium Doping in Lanthanum Strontium Chromite
S. Carré, E. Koep and J. Morante

High Performance Electrolyte for Carbonate Fuel Cell
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T. Ramos, K. Thydén and M. Mogensen

Increase of Anode Performance of SOFC by Reverse Current Treatment
D. Klotz, A. Leonide and E. Ivers-Tiffée

Effect of AFL Composition on IT-SOFC Electrochemical Performance and Quantitative Microstructural Analysis Using FIB/SEM
K. Lee, N. Vito, M. Camaratta, H. Yoon and E. Wachsman

Thermodynamic Reconsiderations on Electronic Properties of Pure- and Doped-Ceria
H. Yokokawa, Y. Xiong, H. Kishimoto, K. Yamaji, M. Brito and T. Horita

Molybdenum Based Perovskite Electrodes for Solid Oxide Cells
C. Graves, B. Sudireddy and M. Mogensen

Continuum and Kinetic Monte Carlo Modeling of Oxide Ion Diffusion under Reducing Conditions at Platinum/Yttria-Stabilized Zirconia Interface
X. Tian, J. Shim, J. Park, T. Gür and F. Prinz

Development of a High-Performance Composite Cathode, $Bi_2Ru_2O_7.Er_0.8Bi_1.6O_3$, for IT-SOFC Using Glycine-Nitrate Combustion and Investigation on Its Catalytic Activity Towards Oxygen Reduction
B. Lee, E. Armstrong, M. Camaratta and E. Wachsman

Preparation and Performance of Oxygen Electrode for Solid Oxide Electrolysis Cells
C. Yang, A. Coffin and F. Chen
719 Development of Cathodes for Low Temperature Solid Oxide Fuel Cells  
A. Lassman, A. Verma and P. Singh

720 Electrochemical Removal of NO_x-Gasses by Use of LSM and LSF Cathodes Impregnated with NO_x-Storage Compounds  
M. Traulsen and K. Kammer Hansen

721 Electrochemical Reduction of NO_x Gases on Spinel-Type Electrode Materials  
F. Braestrup and K. Kammer Hansen

722 Ionic and Electronic Conductivity of Nanometer Sized Samaria-Doped Ceria Ceramics  
E. Souza, W. Chueh, E. Muccillo and S. Haile

723 Significantly Enhanced Performance of the GdBaCo_{2}O_{5+δ} Cathodes with Active Ce_{0.8}Sm_{0.2}O_{1.9} Nanoparticles  
B. Wei, Z. Lü, D. Jia, T. Wei, X. Huang, Y. Zhang and W. Su

724 Local Charge Distribution Near Grain Boundaries of Nanocrystalline GDC  
W. Lee, M. Lee, H. Jung and F. Prinz

725 Mixed Conductivity and Surface Reaction Kinetics of Pr-Sr-Fe-Based Perovskite-Type Oxides  
Y. Nakashima and H. Takamura

726 Multidimensional Modeling of Thin Film Mixed Conductors: The Case of Ceria  
F. Ciucci, Y. Hao and W. Chueh

727 Opportunities and Limitations of Perovskite-Fluorite Composite Ceramic Electrodes  
M. Mogensen

728 Improvements in Atom Probe Tomography for Solid Oxide Fuel Cell Materials  
N. Vito, E. Wachman and K. Jones

729 Structural, Chemical and Electronic Inhomogeneities on La_{0.8}Sr_{0.2}MnO_{3} Dense Thin-Film Surfaces  
K. Katsiev, B. Yildiz, S. Krause, C. Heske, H. Du and P. Salvador

730 Electronic and Local Structures of Nd_{2}NiO_{4+δ} Epitaxial Thin Films Investigated by Depth-Resolved In Situ XAS  

731 Conductivity and Defect Chemistry Modeling of Oxygen Nonstoichiometry in Cr_{1+ε}Mn_{2-ε}O_{4} Spinels  
J. Ostby, P. Poulsen and T. Jacobsen

732 Defects and Ionic Conductivity in Single Crystal TiBr  

733 Synthesis and Li-Ion Transport Mechanism of Li_{1.4}[M_{0.4}N_{1.6}](PO_{4})_{3} (M= Al, Ga, ) (N= Ti, Ge, ) Electrolyte  
P. Rayavarapu and S. Adams

734 Ultrafast Lithium Migration by Heterogeneous Doping in Surface Modified Li_{x}FePO_{4}  
S. Adams and H. Choo

735 Preparation and Characterization of Fast Ion Conducting Lithium Thio-Germanate Thin-Films Grown by RF Magnetron Sputtering  
S. Martin and I. Seo

736 Spray-Drying Synthesis of Lithium-Excess Li_{4+x}Ti_{5-x-y}Nb_{y}O_{12} and Electrode Properties for Li-Ion Batteries  
N. Kumagai, D. Yoshikawa, Y. Kadoma and K. Ui

737 Interaction of Intercalated Li with Oxygen Vacancies in TiO_{2} and Its Effect on the Mobility of Li^+ and e^- Species  
P. Sushko and K. Rosso

738 Fabrication of Thin-Walled β"'-Alumina Electrolyte for Use in Na/NiCl_{2} Cells  
A. Mali and A. Petric

739 A 0-Dimensional Stationary Model for Anode-Supported Solid Oxide Fuel Cells  
A. Leonide, S. Hansmann and E. Ivers-Tiffée
Evaluating H₂O Electrolysis on Ceria with Thin-Film Electrodes
S. DeCaluwe, C. Zhang and G. Jackson

Reversible Solid Oxide Fuel Cells for Coproduction of Electricity and Hydrogen
N. Minh

Long Term Testing of Solid Oxide Fuel Cells and Cell Stacks with Yttria Stabilized Zirconia Electrolyte in the H₂O Electrolysis Mode
J. Schefold, A. Brisse and M. Zahid

Anomalous Transport of a Thermal Disturbance in a Planar SOFC Stack
A. Kulikovsky

A First-Principles-Based Comparison Between Ruthenium- and Neobium-Doped Titanium Dioxide as Catalyst Support for High-Temperature Polymer Electrolyte Membrane Fuel Cells
E. Dy, Z. Shi, R. Hui, J. Zhang, Z. Liu and D. Jones

**B12 - Metal/Air and Metal/Water Batteries**

Chemical and Electrochemical Processes in the Rechargeable Lithium Air Battery
K. Abraham, C. O'Laoire, M. Trahan and S. Mukerjee

Development of an Aqueous, Rechargeable Lithium-Air Battery Operating with Untreated Air
P. Stevens, G. Toussaint, G. Caillon, P. Viaud, P. Vinatier, C. Cantau, O. Fichet, C. Sarrazin and M. Mallouki

Li-Air Rechargeable Batteries Using Mesoporous α-MnO₂-Pd for Air Electrode
A. Thapa and T. Ishihara

Water-Stable Lithium Electrode with a Water-Stable Lithium Conducting Solid and a Composite Polymer Buffer Layer for Lithium-Air Batteries
N. Imanishi, T. Zhang, Y. Shimonishi, A. Hirano, Y. Takeda and O. Yamamoto

A Radical New Cell Design for Lithium-Air Technology
A. Dobley, C. Morein, R. Roark and T. Dillon

The Rechargeable Lithium/Oxygen Battery
V. Giordani, D. Larcher, L. Laffont, J. Tarascon and P. Bruce

Li-Air Batteries Using Buckypapers as Air Electrodes
G. Zhang, J. Zheng, R. Liang, M. Hendrickson and E. Plichta

Functionalized Carbon Nanofoam Electrode Architectures as Cathodes for Metal-Air Batteries
C. Chervin, J. Long, J. Wallace, J. Dysart and D. Rolison

Stability of Li Air Batteries in Open Environment
J. Zhang, W. Xu, J. Xiao, D. Wang and R. Williford

A First-Principles Study of the Nucleation of Lithium Oxides on Various Catalytic Materials
Y. Xu and W. Shelton

Silver-Polymer-Carbon Composite Air Electrodes for Metal-Air Batteries
A. Marschilok, S. Lee, P. Chen, C. Milleville, A. Subramanian, K. Takeuchi and E. Takeuchi

Development of a Rechargeable Zinc/Air Fuel Cell with a Zinc Foam Anode and a Polymer Membrane Electrolyte
J. Drillet, M. Adam, S. Barg, A. Herter, D. Koch, V. Schmidt and M. Wilhelm

Development of a Rechargeable Zinc-Air Battery
G. Toussaint, P. Stevens, F. Moureau, R. Rouget and F. Fourgeot

Morphology Control of Electrodeposited Zinc from Alkaline Zincate Solutions for Rechargeable Zinc Air Batteries
N. Shaigan, W. Qu and T. Takeda

Zinc as an Energy Carrier Material: Form and Property
G. Zhang
Low Temperature Pyrolysed CoTMPP/C and Its Applications as an Improved Catalyst for Metal-Air Batteries/Fuel Cells
A. Li, H. Wang, W. Qu, X. Li, Z. Jong and H. Li

Low Temperature Oxygen Reduction on Nasicon Glass-Ceramics Surfaces
B. Kumar, J. Kumar, S. Rodrigues and J. Fellner

Development of Carbon-Supported La_{0.5}Ca_{0.5}CoO_3 Material for ORR in Strong Alkaline Electrolytes and Its Implication in Rechargeable Metal-Air Alkaline Batteries
X. Li, A. Li, W. Qu, H. Wang, R. Hui and J. Zhang

Water Management Diagnosis and Auto-Recovery Methods for PEM Fuel Cell Stacks
P. Pei, X. Yuan and P. Chao

Microwave Synthesis of Metal Phthalocyanines on Carbon Substrates and its Effect on Li-Air Cell Performance
T. Hirai and E. Yamashita

Understanding Electrocatalysts for Rechargeable Lithium-Air Batteries
G. Veith, Y. Xu, W. Shelton, J. Hodges, J. Howe and N. Dudney

Influence of Solid Solution Elements on Electrochemical Corrosion Behavior of Mg Anodes
Y. Feng, R. Wang, C. Peng, N. Wang and K. Qiu

C1 - Electrochemistry in Medicine and Biomedical Applications
Organic and Biological Electrochemistry / Sensor / Physical and Analytical Electrochemistry

Electrochemical Sensors in Medicine: Meeting Needs for the 21st Century
M. Meyerhoff

The Need for Assaying Nitric Oxide in Cancer and Inflammation and Its Selective Assay Through Capture by Emeraldine Acid Polyradical
A. Murthy and A. Heller

Fluorescence Spectroelectrochemical Sensor for 1-Hydroxypyrene, a Biomarker for PAH Exposure
W. Heineman, T. Pinyayev and C. Seliskar

Single Cell Measurements of Genomic and Protein Biomarkers Using Microimmuno Sensors
S. Prabhulkar and C. Li

Electrochemiluminescent Array for Protein Cancer Biomarkers Using Single-Wall Carbon Nanotube Forests and [Ru-(bpy)_3]^{2+}-Doped Silica Nanoparticles
N. Sardesai, S. Pan and J. Rusling

Electrochemical Behavior of α-Lipoic Acid
C. Krishnan and M. Garnett

DNA Conformational Switches as Sensitive Electronic Biosensors for the Detection of Plasma Proteins
H. Yu

Spin Coupled DNA
M. Garnett, C. Krishnan and B. Jones

Scanning Electrochemical Microscopy of Individual Pancreatic Islets
J. Wilburn, M. Ciobanu and D. Cliffel

Electrochemistry-Based Dynamic Control of Cellular Adhesion and Functions
K. Nagamine and M. Nisizawa

Combined Chitosan Nano-Bead with Microfluidic-Microelectric Traps of Lead (II) Chelation in Continuous Bloodstream Flow
M. Wang

Silver Nanocrystal Synthesis under Controlled Microfluidic Mixing and in the Presence of Silver-Binding Proteins
C. Grosh, F. Baneyx and D. Schwartz
Synthesis, Characterization and Electrocatalytic Activity of Polymer-Stabilized Metal Nanoparticles  
E. Kalu, M. Daniel and M. Bockstaller

Electrochemical Analysis of Diamond and Platinum Electrodes for Neural Stimulation  
E. Hudak, J. Mortimer and H. Martin

In Situ Characterization of Stimulating Microelectrode Arrays: Study of an Idealized Structure Based on Argus II Retinal Implants  
V. Kandagor, C. Cela, C. Sanders, E. Greenbaum, G. Lazzi, D. Zhou, R. Castro, S. Gaikwad and J. Little

Titrating the Activity of Cholesterol at the Surface of Living Cells  
J. Burgess, R. West and S. Yuan

Perspectives on Lithium Batteries for Biomedical Applications  
E. Takeuchi, K. Takeuchi and A. Marschilok

Third Generation Glucose Biosensor Based on the Electrical Wiring of Cellobiose Dehydrogenase from Corynascus Thermophilus  
F. Tasca, M. Zafar, W. Harreither, R. Ludwig, G. Nöll and L. Gorton

Cyclic Biamperometry and Its Applications  
M. Rahimi and S. Mikkelsen

Solubilization and Neutralization of Chemical and Biological Warfare Agents Using Ionic Liquids  
T. Sutto, T. Wong, J. Taft and T. Duncan

Nanopore-Based Chemical Analyses  
H. White

Addressable Delivery Systems Based on Ion Bipolar Junction Transistors  
K. Tybrandt, K. Larsson, E. Gabrielson, E. Jager, A. Richter-Dahlfors and M. Berggren

Electrically Triggered Drug Delivery Using Nanoporous Electrodes  
D. Robinson, S. Gittard, C. Ha, C. Wu and R. Narayan

Impedance Spectroscopic Characterization of Tissue for Electrically Mediated Gene Delivery  
J. Llewellyn, J. Rey, R. Connolly, Y. Cruz, L. Heller, R. Gilbert and A. Hoff

Optical Molecular Imaging for Translational Surgery  
D. Farkas

Electrochemical Properties of TiO2 Coatings Grown on Beta-Ti Substrates by Micro Arc Oxidation  
K. Chiu, C. Chung, W. Lin and H. Tsou

Electrochemical Behavior and In Vitro Biocompatibility of an Implant Alloy  
E. Vasilescu, P. Drob, D. Iordachescu, A. Cimpean, C. Vasilescu and S. Drob

Electrochemical Testing of Some Materials for Biomedical Applications  
P. Drob, E. Vasilescu, M. Popa, C. Vasilescu, S. Drob and J. Mirza Rosca

Growth and Characterization of Zirconia Ceramic Film Formed by Plasma Electrolytic Oxidation on Biomedical ZrTa Alloy  
I. Branzoi, M. Iordoc, F. Branzoi, G. Sbarcea and V. Marinescu

Brain Cells Preservation by Thermoelectric Cooling  
K. Ananthathmakula, A. Kola, T. John, B. Mathew, M. DeCoster, H. Hegab and D. Davis

Electro-Organic Synthesis of 3-Hydroxy Oxindoles  
S. Makarem, A. Fakhari and A. Mohammadi

The Biological Compatibility of Porous Surface of Titanium Oxide  
P. Hsieh, Y. Lin and M. Chen

Bone-Like Apatite Formed on the Surface of Titanium via a Simulated Body Fluid by the Electro-Chemical Deposit Processing  
T. Kuo and M. Chen

In Vitro Evaluation of Osteoblast-Like Cell Adhesion and Proliferation on Titanium Oxide Film Formed by Sand-Blasted Titanium Anode Treatment Process  
Y. Lin and P. Hsieh
The Study of Corrosion Resistance of Magnesium with Apatite Film Forming by Electrochemical Deposition  
M. Chen and P. Hsieh

C2 - Manuel M. Baizer Award Symposium on Organic Electrochemistry

Organic and Biological Electrochemistry

Electrosynthesis of Organofluorine Compounds Toward Green Sustainable Chemistry  
T. Fuchigami

Competition Studies and Nitrogen-Trapping Groups: New Insights into the Anodic Olefin Coupling Reaction  
H. Xu and K. Moeller

T. Yamamoto, M. Kuroboshi and H. Tanaka

Stability of and Electron Transfer Through Self-Assembled Monolayers of Conformationally Constrained Peptides  
S. Antonello, P. Gobbo, I. Gurianov, M. Hesari, M. Zamuner and F. Maran

Iron Salt-Catalyzed One Pot Nazarov/Michael Reaction in an Ionic Liquid Solvent System  
T. Itoh, C. Ibara, M. Fujiwara, S. Hayase, M. Kawatsura and M. Nanjo

Boron-Doped Diamond Electrodes as Novel Tools for Electroorganic Synthesis  
S. Waldvogel

Electroreduction of Nitrocyclopropanes  
F. Couture-Martin, C. Cristea, A. Sardashti, J. Chapuzet and J. Lessard

Synthesis of Epoxyquinols via Anodic Oxidation and Evaluation of NF-κB Inhibitory Activity  

ArS⁺ Initiated Addition of ArSSAr to Dienes via Intramolecular C-C Bond Formation  
J. Yoshida, K. Matsumoto, S. Fujie, S. Suga and T. Nokami

Bithiophene Electropolymerization: Comparing the Effect of the Medium Acidity Level in Acetonitrile  
P. Espinoza-Montero and B. Frontana-Uribe

Electrochemical Transformation of α-Silylcarboxylic Acids into Novel Disilylalkanes  
A. Shtelman and J. Becker

Development of a Chemoselective Cross-Coupling Reaction System Using a Micro-Flow Reactor  
F. Amemiya, T. Fuchigami and M. Atobe

Further Exploration of the Redox Chemistry of Strained Hydrocarbons and the Pseudopterosins  
S. Yoo, W. Zhong, J. Mallory, D. Day, R. Jacobs and D. Little

Synthesis of 2-Aryl-3,3,3-Trifluoropropanoic Acids, β,β,β-Trifluorinated Analogues of Non-Steroidal Anti-Inflammatory Drugs, by Electrochemical Carboxylation of (1-Bromotrifluoroethyl)arenes  
H. Senboku, Y. Yamauchi and S. Hara

Electrochemical Reduction of 1-(2-Chloroethyl)-2-Nitrobenzene at Carbon Electrodes in Dimethylformamide  
P. Du and D. Peters

Catalytic Function of Polymer-Supported B12 Complex Utilizing Electron Transfer  
H. Shimaoshi, M. Nishi, A. Tanaka and Y. Hisaeda

Scope and Mechanistic Study of Electroreductive Intramolecular Cyclization of Haloaryl Ethers  
K. Mitsudo, Y. Nakagawa, J. Mizukawa, S. Suga, R. Akaba and H. Tanaka

Pd/TEMPO-Catalyzed Electrooxidative Coupling of Arylboronic Acids and Terminal Alkynes  
K. Mitsudo, T. Shiraga, J. Mizukawa and H. Tanaka

Long-Range Electron Transfer Mediated by Carbon-Carbon Bond Formation  
R. Akaba, Y. Okada and K. Chiba
Progress Toward a General Correlation of Structure with Redox Potential
A. Davis and A. Fry

Preparation of Pt-Pd Bimetal Material by Hydrogen Reduction and Electron Transfer Method
S. Maki, T. Saitoh and S. Nishiyama

Anodic Fluorination of Conjugated Polymers: Main-Chain and Side-Chain Modifications
S. Inagi, S. Hayashi and T. Fuchigami

Electrochemical Oxidation and Cation Radicals of All-Five and All-Six 1-Substituted Atranes (M = Si, Ge): Spectroelectrochemical Study
V. Jouikov

Voltammetric Investigations of Ketone Complexation by Lewis Acids
G. Cheek

Environmental-Friendly Emulsion Electrosyntheses Using Acoustic Emulsification
M. Atobe, S. Ikari, F. Amemiya, R. Asami and T. Fuchigami

Photo-Induced Dehalogenation Reactions Mediated by Hydrophobic Vitamin B₁₂
Y. Hisaeda, K. Tahara and H. Shimakoshi

Electrochemical Reduction of Molecules with More Redox Centers: Mono-, Di-, Tri- and Tetranitrocalix-[4]-arenes and Their Models
J. Ludvik and A. Liska

Novel Synthesis of 1,4-Dialkoxy-5,6,7,8-Substituted-2,3-Dicyanonaphthalenes Through Electron-Transfer from Mg-Metal and Development of New Naphthalocyanines
I. Nishiguchi, T. Miyazaki, A. Harada and H. Maekawa

Chemistry on Microelectrode Arrays: Developing New, Stable Porous Reaction Layers
L. Hu and K. Moeller

Trialkylammonium Thiocyanate Molten Salts Bearing Hydroxyl Group and Its Application to the Solid-State Dye-Sensitized Photovoltaic Cells
A. Konno

Electroreductive Block Copolymerization of Dichlorosilanes in the Presence of Disilane Additives
M. Ishifune, C. Sana and S. Kashimura

Electrochemical Bond Generation Between Fe, Ru and Group (XIV) Elements
S. Neuhold, J. Albering, M. Flock and C. Grogger

Electrochemical Determination of Bromoform in Water by Stripping Analysis
A. Peverly and D. Peters

Intramolecular Electron Transfer Through Non Conjugated Network: Probing by the Formation of Cyclobutane Ring
Y. Okada, R. Akaba and K. Chiba

C3 - Organic and Biological Electrochemistry General Poster Session

Electrochemical Copolymerization of Azulene and 3-Thiophene Acetic Acid
C. Lete, F. Teodorescu, M. Marin and N. Totir

Selective Permeation of Redox Probes in DMPC Supported Bilayers on Gold
M. Daza Millone, M. Vela, N. Tognalli, A. Fainstein and R. Salvarezza

Electropolymerization of Ferrocene-Modified Polypyrrole in Aqueous Micellar Solutions
D. Hickey, M. Meredith and D. Glatzhofer

Antioxidative Activity of Wines and Individual Phenolics Determined Using a Recently Developed Assay Based on DC Polarography
S. Gorjanović, N. Potkonjak, M. Novaković and D. Sužnjević

Effect of Electrical-Discharging on Surface Properties and Biocompatibility of Ti₆Al₄V Alloy
Y. Pan, P. Peng, H. Lin and K. Ou
D1 - Corrosion General Session

Corrosion

844  A Green Pathways: Investigation of Corrosion Inhibitors and Inhibitive Effect of Some Novel Organic Dyes on the Corrosion of 2S Aluminum in Alkaline Media
   P. Patel

845  The Explaining and Analysis of Metal Passivation with Electron Theory
   L. Li

846  Study of Corrosion Behavior of Ni-Cu-P- Nano Al₂O₃ Electroless Composite Coatings by EN Method and Comparison with EIS and Polarization Results
   H. Ashassi-Sorkhabi and H. Aminikia

847  Corrosion Inhibitory Effects of a New Synthetic Symmetrical Schiff-Base on Mild Steel In 1.0M HCl And 0.5M H₂SO₄ Media
   A. Dadgarinezhad and F. Baghaei Ravari

848  Inhibition of Aluminum Corrosion in 0.5 MH₂SO₄ Using the Propargyl Alcohol
   F. Baghaei Ravari and A. Dadgarinezhad

849  Synergistic Effect of Different Salts on the Inhibition Efficiency of a Cationic Surfactant on Steel Corrosion in Acid Medium
   D. Asefi, M. Arami and N. Mahmoodi

850  Corrosion Inhibition of Titanium in Acidic Media Containing Fluoride with Bixin
   J. Chauhan and D. Gupta

851  Decision of Corrosion Protection Potential for FSWed Dissimilar Aluminum Alloy via Slow Strain Rate Test
   S. Kim, J. Park, M. Han and S. Jang

852  Anodic Behavior of Iron in Hydrocarbonate Media with Addition of Nitrate- and Sulphate-Ions in Different Thermal Conditions
   S. Kaluzhina, N. Nafikova and N. Lapunina

853  Compute of the Diffusion Coefficient to the Alloy Fe - Ni, Using the Radless-Sevskik Correlation, in Basic NaOH Solutions Environment
   B. Martínez, A. Oropeza and C. Martínez

854  Formation of Anodic Oxidation Films on As-Cast Surface of AC2A Casting Al Alloy
   S. Moon, C. Yang and Y. Jeong

855  Modeling of Corrosion Resistance of Some Titanium Base Alloy in Aggressive Environments
   M. Popa, E. Vasilescu, P. Drob, C. Vasilescu, S. Drob and J. Mirza Rosca

856  Corrosion Resistance of a New Bioalloy in Physiological Fluids
   M. Popa, E. Vasilescu, P. Drob, C. Vasilescu, S. Drob and M. Popa

857  Studies on the Stability of Zn and Zn-TiO₂ Nanocomposite Coatings Prepared by Pulse Reverse Current
   A. Gomes, T. Frade and M. da Silva Pereira

858  High Temperature Corrosion Study for T22 Alloy Applying Electrochemical Techniques
   C. Cuevas-Arteaga

859  Deposition and Characterization of Corrosion-Resistant Amorphous Chromium Carbide Thin Films
Improved Boundary Effects in P-Type Macroporous Silicon
S. Zhang, J. Jiao, D. Ge and Y. Wang

Potentiodynamic Study of Titanium in Manganese-Containing Sulphuric Acid Solution
W. Utomo and S. Donne

The Synthesis and CMP Application of Ceria Powder
C. Hsu, S. Chen, M. Tsai and M. Tsai

Electronoptical Observations of Reanodized Film of Initial Porous Film Growth in 0.4 M Phosphoric Acid Electrolyte after Anodizing in Molten Melts
S. Han, H. Kim, Y. Heo, G. Yoon, J. Lee and G. Thompson

Electronoptical Observations of Reanodized Film in 0.1 M Ammonium Pentaborate Electrolyte after Anodizing in Molten Melts
S. Han, Y. Heo, G. Yoon, H. Kim and G. Thompson

Corrosion Inhibition of Aluminum by Organic Coatings Formulated with Hydrotalcite-Vanadate Pigments
J. Vega, D. de la Fuente and R. Buchheit

The Electrochemical Corrosion of Nickel in Sodium Chloride-Sulfuric Acid Solutions at Different Concentration Ratios Using an Electrochemical Method
B. Martínez, A. Oropeza and C. Martínez

Potential Distribution Study in a Metal/Coating System by SKP and FEM
J. Vega, R. Montoya, V. Barranco and D. de la Fuente

Step Polarization Test of Implant Biomedical Alloy in Physiologic Solutions
A. Igual Muñoz and C. Valero Vidal

Effects of Pre-Electrodeposition with Fe and Cu Before Annealing in Reducing Atmosphere on the Corrosion of Hot-Dip Galvanized and Galvannealed Steels
Y. Choi, M. Cho and C. Park

The Inhibitive Action of Some Polymeric Compounds on Mild Steels Corrosion in Cooling Waters Systems
V. Branzoi, F. Branzoi and L. Pilan

Characteristics on Hydrogen Embrittlement and Stress Corrosion Cracking with SSRT for STS 304
M. Han, S. Jang and S. Kim

Investigation on Corrosion Protection Potential by Electrochemical Experiment in Sea Water of 5052-O Al Alloy for Leisure Ship
S. Kim, J. Park and S. Chong

Evaluation of Electrochemical Characteristics for FSWed Dissimilar Al Alloy (5052-O: 6061-T6)
J. Park, M. Han and S. Kim

Spontaneous Grafting of Benzylphosphonic Acid on Steel Surface Through the Aryldiazonium Salt for Application in Corrosion Protection
X. Le and D. Bélanger

Corrosion Studies of Sump Operation for the Nuclear Power Plant Safety
P. Mast, R. Choromokos and J. Park

The Atmospheric Corrosion of Zinc: The Effects of Concentration, Droplet Size and Droplet Shape
T. Muster, A. Bradbury, A. Trinchi, T. Markley, D. Lau, S. Dligatch, A. Bendavid and P. Martin

Influence of Al and Hf Addition on the Oxidation Resistance of Nb-20Si-20Cr-5(Al, Hf) Alloys
A. Vasquez, D. Alvarez and S. Varma

Influence Of Environmental Factors on the Susceptibility to Stress Corrosion Cracking Of High-Strength Al-Zn-Mg Alloys
H. Ali Jawan

Acoustic Emission During Stress Corrosion Cracking of Aluminum Metal Matrix Composites
Z. Gasem

Performance of Alloy 625 under Combustion Gas Environments and Others Applications: A Review
C. Cuevas-Arteaga, D. Verhelst and A. Alfantazi
Assessment of Corrosion Resistance and Biocompatibility of Ti-Ta and Ti-Ta-Cr Alloys
P. Gill, N. Munroe, W. Haider, C. Pulletikurthi, S. Pandya and V. Tek

The Coefficient $\gamma$ is the Quantitative Characteristic of the Activating or Inhibiting Properties of Inorganic Oxidizing Agent
M. Reda

Effect of Current Density and Time on AC/DC Spark Anodization of Al-Cu Alloys
E. Alsrayheen, R. Rateick and V. Birss

On Time-Constant Distributions Associated with the Constant-Phase Element
B. Hirschorn, M. Orazem, B. Tribollet, V. Vivier, I. Frateur and M. Musiani

EIS Study on the Corrosion Behavior of CuFeS$_2$ Thin Film
A. Ghahremaninezhad, E. Asselin and D. Dixon

The Impact of Core-Shell Micelles on Steel Properties and Microstructural Characteristics in Reinforced Mortar after Corrosion and Cathodic Prevention
D. Koleva, J. Hu, K. van Breugel and N. Boshkov

Hybrid Composite Aggregates for Superior Corrosion Performance of Low-Carbon Steel in Model Solutions
D. Koleva, J. Hu, K. van Breugel, N. Boshkov, T. Radeva and V. Milkova

Preliminary Study on the Self-Healing of Steel, Resulting from the Presence of Nano-Aggregates in Cement Extract
J. Hu, D. Koleva, K. van Breugel and P. Petrov

The Bi-Layer Point Defect Model for Passive Films
D. Macdonald and G. Englehardt

Location and Estimation of Oxygen Reduction Reaction on a Corroding Metal Surface Covered with Metal Oxide: A Porous Electrode Model
M. Venkatraman, I. Cole and B. Emmanuel

New Scientific Definition of the Phenomenon of Passivity
M. Reda

The Role of Alumina in Aluminum Corrosion and Passivation
J. Skrovan, A. Alfantazi and T. Troczynski

Influence of Microstructure on Corrosion Performance of Cu-Lean 7003 Aluminum Alloy Extrusions
C. Krishnan and J. Kish

Ferromagnetic CoPt$_3$ Nanowires Using a Porous Anodic Alumina Template
R. Liu

High Temperature Corrosion of 625 Superalloy under Iron-Zinc Oxide/Lead Sulfate Salt Mixture
E. Mohammadi Zahrani, A. Alfantazi and D. Verhelst

Effect of Particle Angular Velocity on Erosion Enhanced Corrosion of 304 Stainless Steel
F. Mohammadi and J. Luo

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Improvement of Electrochemical Migration Resistance by Sn Coating on Cu Electrode in Printed Circuit Board

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More after Moore to Get More from Moore

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H. Ruda, J. Salfi, U. Philippose, C. de Souza, S. Nair, A. Saxena and C. Fernandes

Surface and Size Manipulation of the Magnetic Properties of CdSe Quantum Dots
R. Meulenberg, J. Lee, S. McCall, K. Hanif, D. Haskel, J. Lang, L. Terminello and T. van Buuren

Doped Nanoparticles for Optoelectronics Applications
M. Godlewski

Nanostructuring the Er$^{3+}$ and Si Nanoparticle Distributions to Enhance the 1.5 μm Emission in Codoped Al$_2$O$_3$ Thin Films
R. Serna, S. Núñez-Sánchez and P. Roque

Excitation Mechanism of Europium Ions Embedded into TiO$_2$ Nanocrystalline Thin Films

Investigation into the Photophysics of Water Soluble Quantum Dots Using Fluorescence Correlation Spectroscopy
R. Peters, S. Shehata and C. Fradin

Emission Quenching of Semiconductor Quantum Dots and its Application to Biosensing
S. Kuwabata, T. Uematsu and T. Torimoto

Synthesis and Photoluminescence Properties of InVO$_4$:Eu$^{3+}$ Phosphors Synthesized Using Sol-Gel Method
Z. Shi, H. Chen, Y. Tsai, S. Wu and Y. Chang

Combustion Synthesis and Photoluminescence Characteristics of Y$_{1-x}$CaAl$_2$O$_7$:xEu$^{3+}$ Nanophosphor
S. Khatkar, S. Han and M. Kumar

Tartaric Acid Assisted Sol-Gel Synthesis and Photoluminescence Characteristics of SrY$_{2(1-x)}$O$_4$:xTb Nanoparticles
V. Taxak and M. Kumar

Identification of Two Luminescence Sites of Sr$_3$SiO$_4$:Eu$^{2+}$ and (Sr,Ba)$_3$SiO$_4$:Eu$^{2+}$ Phosphors
H. Nguyen, I. Yeo and S. Mho
1104 Optical Properties of Eu\(^{3+, 2+}\) Ions Doped in NaCaPO\(_4\)
J. Yoon, K. Jang, M. Jayasimhadri, J. Jeong, H. Lee, S. Lee and J. Jeong

1105 Luminescent Properties of Eu\(^{3+}\)-Doped Y\((V_{(1-x)},Nb_{(x)})_4\) and \((Y_{(1-x)},Bi_{(x)})_3V_4\) Phosphors
R. Balakrishnaiah, D. Kim, S. Yi, S. Kim, K. Jang, H. Lee, B. Moon and J. Jeong

1106 Luminescent Properties of Ce\(^{3+}\)-Doped \((Y_{(1-x)},Gd_{(x)})_3V_4\) Phosphors
R. Balakrishnaiah, S. Yi, S. Kim, K. Jang, H. Lee and J. Jeong

1107 Preparation of \((Y,Gd)_{2.5}Al_{5.25}(Si,Mg)_{0.75}Ce\) Phosphor by Spray Pyrolysis: Effect of Precursor Type and Flux on Its Luminescence Characteristics
M. Maniquiz and K. Jung

1108 Luminescence Properties of Color-Tunable Oxynitrides Phosphor for White LED Applications
Y. Fang and S. Chu

1109 Fabrication of High Luminous Field Emission Display Using GaN Nanorods and Low Voltage Phosphor
Y. Wu, K. Lee, Y. Nien and I. Chen

1110 Synthesis and Photoluminescence Properties of Y\(_2\)O\(_3\):Eu\(^{3+} /SiO\(_2\) Nano Phosphor Core/Shell Particles
J. Han, J. Talbot and J. McKittrick

1111 CVD Preparation and Photoluminescence of ZnS Nanowires from Zn(TMHD)\(_2\)
J. Juarez and F. Juarez

1112 Si Nanocrystal MOSLEDs: From Materials to Transistors
B. Garrido, M. Perálvarez, Y. Berencén, J. Carreras and O. Jambois

1113 Electroluminescence in Metal-Oxide-Semiconductor Tunnel Diodes with a Silicon Nanolayer
M. Morita, K. Matsumura, R. Yamada, J. Uchikoshi and K. Arima

1114 High Performance Quantum Dot Microtube Lasers and Nanowire LEDs on Si
Z. Mi, Y. Chang, F. Li and J. Wang

1115 Coupling Silicon Nanocrystal Fluorescence to Optical Bottle Resonators
P. Bianucci, J. Veinot and A. Meldrum

1116 Dual Properties of NaF Ultrathin Film as Buffer Layer on Organic Light Emitting Devices
Y. Chen and S. Chu

E5 - Thermal and Plasma CVD of Nanostructures and their Applications
Dielectric Science and Technology / Fullerenes, Nanotubes, and Carbon Nanostructures

1117 (Invited) Directing Energy and Matter at Nanoscales in Plasma-Surface Interactions: Towards Sustainable Future
K. Ostrikov

1118 (Invited) Plasma Synthesis of Silicon Nanocrystal Inks and their Applications in Printed Silicon Technology and Hybrid Solar Cells
C. Liu, X. Pi and U. Kortshagen

1119 (Invited) Influence of Plasma Parameters on the Growth of Metal Oxide Nanowires
M. Mozetic and U. Cvelbar

1120 Electric Fields and Chemical Vapor Deposition
M. Warwick, R. Smith, N. Furlan, J. Crane and R. Binions

1121 Silicon Oxide Nanodots by Direct Plasma Synthesis
U. Cvelbar, I. Junkar, I. Levchenko and K. Ostrikov

1122 CF\(_4\) Plasma Treatment on Gd\(_2\)O\(_3\) Nanocrystal Memory for High Performance Nonvolatile Memory Application
C. Lin, J. Wang, C. Lai, J. Hsu and C. Ai

1123 A Combined Experimental with Computational Study of Precursor Stability and ALD Growth Mechanism in Tantalum Nitride Deposition
P. Pullumbi, A. Correia Anacleto, D. Cany-Canian, C. Ko, A. Zauner, J. Gatineau and M. Hugon
1124 Analysis of the Homogeneous Thermal Decomposition of the Tungsten Dimethylhydrazido Complex Cl₄(CH₃CN)W(NNMe₂) Using In Situ Raman Spectroscopy and DFT Calculations
J. Lee, D. Kim, O. Kim, T. Anderson, J. Koller and L. McElwee-White
1125 Phase-Change InSbTe Nanowires Grown In Situ at Low Temperature by MOCVD Method
J. Ahn, K. Park, H. Jung, S. Hur and S. Yoon
1126 (Invited) Rational Growth of 1D Carbon Nanostructures for Via Interconnect Applications
X. Sun, C. Li, J. Gao and C. Yang
1127 (Invited) Controlled Growth of Single-Walled Carbon Nanotubes with Metallic Conductivity
G. Sumanasekera
D. Staack
1129 Microplasma Reduction of Metal Cations Dispersed in Polymeric Films for Fabrication of Patterned Nanoparticles
S. Lee and R. Sankaran
1130 Bulk Production of Metal Oxide Nanowires Using an Atmospheric Microwave Plasma Reactor
V. Kumar, J. Kim, J. Jasinski and M. Sunkara
1131 Novel Surface-Wave-Excited PE-CVD System with Reciprocated Substrate Ambulation Mechanism
1132 Epitaxial Si Films by LPCVD and Their Application for TFT/NVM Devices
K. Jang, S. Jung, J. Cho, W. Lee and J. Yi
1133 Hot Wire Chemical Vapor Deposition of Ge₂Sb₂Te₅ Thin Films
D. Reso, M. Silinskas, B. Kalkofen, M. Lisker and E. Burte
1134 Effect of Boron Doping Concentration at the p/i Interface of the Thin Film Silicon Solar Cell Using Impedance Spectroscopy Analysis
S. Park, S. Lee, J. Park, Y. Kim, D. Yang and J. Yi
1135 Gallium Assisted PECVD Synthesis of Silicon Nanowires
A. Gewalt, B. Kalkofen and E. Burte
1136 The Effect of the Hydrogen Gas Ratio on p-Type Amorphous Silicon Suboxides Layer and Its Application to Amorphous Silicon Solar Cells

E6 - Wide-Bandgap Semiconductor Materials and Devices 11
Electronics and Photonics / Sensor / Luminescence and Display Materials

1137 Studies of Electron Trapping in ZnO Semiconductor
L. Chernyak and E. Flitsyian
1138 The Effect of Moisture on the Bias Illumination Temperature Instability in GIZO TFTs and the Associated Investigation on Passivation Systems
K. Lee, J. Jung, K. Son, J. Park, T. Kim, J. Kwon, B. Koo and S. Lee
1139 Aluminum-Doped Zinc Oxide Thin Films for Opto-Electronic Applications
N. Hirahara, B. Onwona-Agyeman and M. Nakao
1140 Investigation and Fabrication of Bottom Gate ZnO:Al TTFTs with Various Thicknesses of ZnO Buffer Layers
Y. Lin, H. Lee and C. Lee
1141 Solution Based Fabrication of ZnO Nanowires and Their Novel Heterostructures Array: Characterization and Applications
K. Yong
1142 High Responsivity Ultraviolet Photodetector Based on p-GaN/i-ZnO Nanorod/n-ZnO:In Nanorod
C. Chen, J. Yan and C. Lee
Fabrication of p-Cu₂O/n-ZnO Heterojunction Diode Using Electrodeposition Method
M. Fariza, J. Sasano and M. Izaki

Epitaxial Growth of ZnO on LiAlO₂ and LiGaO₂ Substrates by Chemical Vapor Deposition
C. Chen, L. Chang, M. Chou, J. Yu and T. Huang

GaN-on-Si Electronics
W. Johnson, A. Hanson and K. Linthicum

Control of Polarization Fields in III-Nitride Nanowire Devices
M. Mastro, B. Simpkins, J. Hite, C. Eddy Jr., J. Kim, J. Kim and J. Ahn

Light Extraction Enhancement of n-Side Up Light-Emitting Diodes Without Electrodes Covering by Wafer Bonding and Textured Surfaces
R. Horng, Y. Lu and D. Wuu

AlGaN/GaN HEMT Based Biosensor
S. Alur, T. Gnanaprakasa, Y. Wang, Y. Sharma, J. Dai, J. Hong, A. Simonian, M. Bozack, C. Ahyi and M. Park

Development of Enhancement Mode AlN/Ultrathin AlGaN/GaN HEMTs by Selective Wet Etching

Fabrication of the Metal-Oxide-Semiconductor Au/Ga₂O₃/GaN Nanowires
C. Hsieh and L. Chou

ZnO Nanorod/p-GaN Heterostructured Light-Emitting Diodes Passivated by Using a Photoelectrochemical Method
J. Yan, C. Chen and C. Lee

Grand Challenges in Silicon Carbide Material and Devices
K. Shenai

Etch Pits of 4H-Silicon Carbide Surface Formed Using Chlorine Trifluoride Gas
H. Habuka, K. Furukawa, K. Tanaka, Y. Katsumi, N. Takechi, K. Fukae and T. Kato

AlN Nano-Island Interlayers for High Efficiency GaN-Based Light-Emitting Diodes
S. Kim, H. Oh and J. Baek

A-Plane GaN for Hydrogen Sensing Applications
H. Kwang, W. Lim, S. Pearton, Y. Wang, F. Ren, J. Yang and S. Jang

The Application of Palladium Oxide-Based Silicon Carbide Gas Sensors for Aerospace Applications
G. Hunter, J. Xu, P. Neudeck, L. Chen, B. Ward and D. Makel

Passivation of Deep Levels at the SiO₂/SiC Interface

Analysis the Suppression of Ag Agglomeration by Mg Additive Atoms
Y. Song, J. Son and J. Lee

Formation of Self-Positioned Phosphor Layer for Angular Color Homogeneity of White Light-Emitting Diodes
K. Lee, S. Kim, J. Kim, S. Song and J. Moon

Dy³⁺ Emission from GaAlN Powder and Radio-Frequency Sputtered Thin Film
J. Tao, J. McKittrick and J. Talbot

Electron Paramagnetic Resonance Studies of Shallow Donors Behavior in Hydrogenated ZnO Films
L. Larina, N. Tsvetkov, J. Yang, K. Lim and O. Shevaleevskiy

Optical Properties of Pure and Doped Electrodeposited ZnO Films
I. Enculescu, E. Matei, N. Preda, M. Sima, M. Enculescu and R. Neumann

Formation Mechanism and Reliability of Cu/Ge/Pd Ohmic Contact to n-Type InGaAs
E. Chang, Y. Lin and S. Shie

InGaN Light-Emitting Diode Structure on a Photoelectrochemical Treated GaN:Si Layer
K. Chen, C. Lin and C. Lin

InGaN-Based Light Emitting Diodes with an AlN Sacrificial Buffer Layer for Chemical Lift-Off Process
C. Lin, J. Dai and M. Lin
Low-Resistivity and High-Transmittance Indium Gallium Zinc Oxide Films for UV Light-Emitting Diodes
H. Chang, K. Huang, S. Chen, L. Shan and M. Wu

Fabrication of IGZO Sputtering Target and Its Applications to the Preparation of Thin-Film Transistor Devices
C. Lo and T. Hsieh

Spatially Resolved Cathodoluminescence Spectroscopy of ZnO Microparticles
T. Hirai, Y. Harada, N. Ohno, Y. Sawada and T. Itoh

Drain Leakage Current in MuGFETs at High Temperatures
J. Giroldo Jr. and M. Bellodi

Study of the Number of Quantum Well Pairs for High Bright AlGaInP-Based Light Emitting Diodes
H. Oh, S. Kim, J. Kwak and J. Baek

npn Heterostructural Optoelectronic Switch with Collector Confinement Layer
D. Guo

pnnp and npn Heterostructural Optoelectronic Devices
D. Guo

Cuprous Oxide Solution Preparation and Application to Cu2O-ZnO Solar Cells
A. Du Pasquier, Z. Duan, N. Pereira and Y. Lu

Spray Pyrolysis Based CIGS Solar Cell
K. Song, J. Suh, C. Ham, J. Cho and E. Bae

Photovoltaic Properties of TiO2/Cu2O Hetero-Structure
J. Lu and D. Li

Indium and Gallium Incorporation Mechanism during Electrodeposition of Cu(In,Ga)Se2 Thin Film
J. Li, F. Liu, Y. Lai, Z. Zhang and Y. Liu

CIGSS Thin Film Solar Cells by Simple Powder Evaporation Process
J. Suh, K. Song, C. Ham, J. Cho and E. Bae

A Study on CdTe Thin Films for Photovoltaic Cells by a Solution-Based Continuous Flow Reactor Process
J. Lee, E. Bae, S. Han, C. Chang and S. Ryu

E7 - Graphene, Ge/III-V, and Emerging Materials for Post-CMOS Applications 2

Graphene RF Transistor Performance
K. Jenkins, Y. Lin, D. Farmer, C. Dimitrakopoulos, H. Chiu, P. Avouris and A. Grill

Graphene Process Integration for Post-CMOS Devices

Novel Device Concepts for Nanotechnology: The Nanowire Pinch-Off Fet and Graphene Tunnelfet

Growth Kinetics and Defects of CVD Graphene on Cu
L. Colombo, X. Li, B. Han, W. Cai, Y. Zhu and R. Ruoff

Transition Metal Catalyst-Assisted LPCVD and APCVD Syntheses of Large Area Mono- and Few Layer Graphene
S. Bhaviripudi, A. Reina, K. Kim, K. Zhang and J. Kong

Optimization of Wafer-Scale Graphene Epitaxy on SiC for High Frequency Devices
A. Grill, C. Dimitrakopoulos, Y. Lin, M. Freitag, S. Han, Z. Chen, K. Jenkins, Y. Zhu, T. McArdle, J. Ott, P. Avouris and R. Wisnieff

Spin Transport in Single- and Multilayer Graphene
M. Shiraishi
Formation and Transport of Correlated Electron States at Room Temperature in Graphene Bilayers

J. Shumway and M. Gilbert

Bilayer Graphene System: Transport and Reliability

T. Yu, E. Lee, B. Briggs, B. Nagabhira and B. Yu

Infrared Images of Heat Dissipation in Graphene Ambipolar Transistors

M. Bae, Z. Ong, D. Estrada and E. Pop

Extraordinary Thermal Conductivity of Graphene: Applications in Thermal Management

A. Balandin

Thermal Transport in Graphene Nanostructures

Y. Chen

Ultra-High Vacuum Processing and Characterization of Chemically Functionalized Graphene

M. Hersam

Advances in Graphene Metrology

A. Diebold, T. Zhang and F. Nelson

Characterization of a Single Metal Impurity in Graphene

E. Cockayne, G. Rutter and J. Stroscio

Noise Reduction in Graphene Transistors

A. Balandin

Scanning Tunneling Spectroscopic Studies of the Effects of Dielectric Gate Materials on the Local Electronic Characteristics of Graphene

N. Yeh, M. Teague, M. Bockrath, J. Velasco and C. Lau

Probing the Underlying Physics of Graphene with Raman Spectroscopy

I. Calizo, G. Cheng, J. Simpson and A. Hight Walker

Graphene Quantum Size Effect, Zigzag Edge States and Substrate Semitransparency

J. Lyding, K. Ritter, K. He, J. Koepke, S. Schmucker, J. Wood, Y. Xu and N. Aluru

Graphene as a Material for Nanoelectronics


Reconfigurable Graphene Logic

S. Tanachutiwat and W. Wang

Optical and Electrical Properties of Percolated Graphene Networks from Liquid Exfoliation of Graphite

J. Obrzut, D. Pristinski and M. Yoonessi

Electronic Transport Properties of Graphene pn Junctions and Its Electron Optics Devices

T. Low and M. Lundstrom

Dielectric Interfaces for Graphene-Based Devices

A. Pirkle, B. Lee, C. Floresca, S. McDonnell, L. Colombo, J. Kim, M. Kim, Y. Chabal and R. Wallace

Graphene Veselago Device: Fabrication and Characterization of Graphene p-n Junction Devices

J. Lee

High Mobility SiGe Channel NonPlanar Devices


Trap-Assisted Tunneling in Deep-Submicron Ge pFET Junctions


Tetragonal ZrO$_2$-Gated Ge MOS Capacitors Fabricated on Si Substrate

M. Wu, L. Chen, J. Wu and Y. Wu

The Effect of Applied Magnetic Fields on Silicon Transport in Liquid Phase Diffusion Growth of SiGe

N. Armour, A. Kidess and S. Dost
III-V Devices for Advanced CMOS

(Invited) Scaling of InGaAs MOSFETs into Deep-Submicron
P. Ye and Y. Wu

InGaAs HFETs for Beyond-the-Roadmap CMOS
D. Kim and J. A. del Alamo

Sputtering Behavior and Evolution of Depth Resolution upon Low Energy Ion Irradiation of GaAs

Novel Ga(NAsP)-Based Heterostructures for the Integration of Optoelectronic Functionalities on (001) Si-Substrate
B. Kunert, K. Volz and W. Stolz

Hetero-Epitaxy of III-V Compounds by MOCVD on Silicon Substrates
C. Tang, Z. Zhong and K. Lau

Growth of III/V Materials on Large Area Silicon
B. Schineller and M. Heuken

Merging Standard CVD Techniques for GaAs and Si Epitaxial Growth
A. Sammak, W. de Boer, A. van der Bogaard and L. Nanver

F1 - Dealloying Process and Related Synthetic Opportunities
Electrodeposition / Corrosion

The Role of Surface and Near-Surface Composition in Electrocatalysis
C. Wang, D. Strmcnik, P. Paulikas, D. van der Vliet, C. Lucas, A. Brownrigg, N. Markovic and V. Stamenkovic

Dealloyed Nanoporous Metals for Electrocatalysis
R. Wang and Y. Ding

Dealloyed Bimetallic PtM₃ Nanoparticle Electro catalysts
M. Oezaslan, Z. Liu and P. Strasser

Assessment of the Electrocatalytic Properties of Nanoporous Metals Formed by Dealloying Binary and Ternary Alloys
J. Snyder and J. Erlebacher

Electrodeposition of Pt-(Ni, Co, Cu, Pb) Alloys for Fuel Cell Applications

Stability of Pt Alloy High Surface Area Catalysts
K. Mayrhofer, K. Hartl and M. Arenz

Dealloying at the Nanoscale
K. Sieradzki

Nanoporous Gold: A Novel Catalyst with Tunable Properties
A. Wittstock, J. Biener and M. Bäumer

Size and Surface/Interface Controlled Properties of Nanoporous Gold

First Principles Studies of Metal-on-Metal Dissolution and Deposition
J. Greeley and D. Torres-Rangel

Recent Progress in Dealloying Studies of Cu₃Au(111)
F. Renner
Simulations of Morphological and Topological Coarsening of Dealloyed Nanoporous Metals
J. Erlebacher

Plastic Flow of Nanoporous Gold, and How It Relates to Electrochemistry
H. Jin and J. Weissmueller

In Situ X-Ray Diffraction and Small Angle Scattering of the Formation of Nanoporous Gold Via Dealloying
C. Dotzler, B. Ingam, B. Illy, M. Toney and M. Ryan

Dealloying Kinetics and Morphology in Engineering Alloys, and Comparison with Noble-Metal Alloys
S. Parida, D. Artymowicz, Z. Coull and R. Newman

Nanoporous Ni Electrodes Developed by Dealloying of Cu from Electrodeposited Ni-Cu Alloys for Supercapacitor Applications
J. Chang, Y. Li, S. Hsu, M. Deng, W. Tsai and I. Sun

Electrochemical BET or UPD of Metals in Surface Area Measurements
Y. Liu, S. Bliznakov and N. Dimitrov

In Situ STM Studies of Electrochemical Alloying-Dealloying of an Atomic Layer Deposited on Au(111)
A. Damian, F. Maroun and P. Allongue

Surface Alloying/Dealloying in UPD Systems: Pb/Au(111) and Pb/Cu(100)
N. Vasiljevic, J. Nutariya, J. Velleuer and W. Schwarzacher

Microstructure and Optical Properties of Nanoporous Metals Synthesized by Dealloying
M. Chen

Analytical Applications of Porous Gold Electrodes Prepared from Electrochemical Alloying/Dealloying Process
C. Tai, J. Chang, Y. Lin, W. Hsuei, W. Lo and I. Sun

Alloying Effects on the Selective Dissolution of CuZr-Based Metallic Glasses
Z. Wang and J. Wang

Origin of Interface Instability during the Initial Growth of Porous Anodic Oxide Films
K. Hebert and W. Hong

In Situ Mass and Stress Measurement during Sn Electrodeposition Using an Electrochemical Double Quartz Crystal Microbalance (E-DQCM) Technique
J. Li, X. Xiao, F. Yang and Y. Cheng

F2 - Electrochemical Engineering for the 21st Century (dedicated to Richard C. Alkire)

Water Transport in the Ionomer-Phase and Across Its Interfaces in Catalyst Coated Membranes for Proton Exchange Membrane Fuel Cells
V. Gurau and J. Mann

Surface Morphology of Lithium Metal Anodes
M. Karulkar and J. Adams

Continuum and Multiscale Modeling of Performance Curves and Capacity Fade in Lithium-Ion Batteries
V. Subramanian, V. Ramadesigan, R. Methkar, K. Chen and R. Braatz

Formation of Localized Corrosion-Relevant Surface Defects on Aluminum: Experimental Studies and Kinetic Monte Carlo Simulation
K. Hebert, G. Zhang, J. Ai and G. Stafford

Simulation of Three-Dimensional Solid-by-Solid Model and Application to Electrochemical Engineering
Y. Kaneko, Y. Hiwatari, K. Ohara and F. Asa

(Keynote) Electrochemical Engineering: The Need for Next-Generation Methods
R. Alkire
1246  (Keynote) An Algorithm for Simulation of Electrochemical Systems with Surface-Bulk Coupling Strategies
   M. Buoni and L. Petzold
1247  Characteristic Timescales in Multiscale Feature Metallization
   J. Adolf and U. Landau
1248  Adsorptive SPS Dissociation Within the c(2x2)-Cl Matrix on Cu(100) under Reactive Conditions: A Combined In Situ STM and DFT Study
   N. Hai, W. Reckien, A. Fluegel, M. Hahn, A. Wagner, D. Mayer, T. Bredow and P. Broekmann
1249  (Keynote) The Metallization of SAMs: Molecular Double Deckers
   F. Eberle, M. Manolova, D. Kolb, H. Boyen and M. Saitner
1250  Metallization of DNA Origami Templates for the Fabrication of Nanoelectronic Circuits
   J. Harb, J. Liu, Y. Geng, E. Pound, J. Ashton, S. Gyawali and A. Woolley
1251  Combined Electrochemical and In Situ STM Studies on the Redox-Activity of Leveler Additives
   A. Fluegel, N. Hai, M. Hahn, A. Wagner, D. Mayer and P. Broekmann
1252  Nanomanufacturing by Orchestrated Structure Evolution
   S. Kitayaporn, S. Abbasi, K. Böhringer and D. Schwartz
1253  Nanosheet Formation by Electrodeposition and Its Application to Miniaturized Reference Electrodes
   S. Safari-Mohsenabad, P. Selvaganapathy, A. Derardja and M. Deen
1254  Creating Metallic Conductivity in TiO₂ Nanotubes
   R. Hahn and P. Schmuki
1255  Density Functional Theory Study on the Oxidation Reactivity of Hypophosphite Ion as a Reductant for Electroless Deposition Process
   M. Kunimoto, H. Nakai and T. Homma
1256  Wet Etching Process on Semiconductors: A Typical Electrochemical Engineering Challenge
   A. Causier, M. Bouttemy, I. Gérard and A. Etcheberry
1257  Simulation of Cu Surface Morphology Evolution during Electropolishing
   J. Thomas and S. Brankovic
1258  Porosity of Electrodeposited Cobalt Hard Gold: Effects of Reversed Pulse Current
   Z. Liu, M. Zheng, R. Hilty and A. West
1259  Direct Copper Plating on a RuTa Substrate
   M. Nagar, A. Radisic, K. Strubbe and P. Vereecken
1260  (Keynote) Establishment of Electrochemical Device Engineering
   T. Osaka
1261  One-Dimensional Molecular-Junction Arrays Fabricated Using Anodic Aluminum Oxide Templates
   Y. song, J. Fang and Z. Chen
1262  Future Challenges in Electrochemical Engineering from Microelectronics to Solar Thin Films
1263  Analysis and Control of Plating Baths in the Electrodeposition of Copper Indium Gallium Selenide Films with Ion Chromatography
   J. Wang, S. Aksu and M. Pinarbasi
1264  Roughness Control of Electrodeposited CIS Thin Film
   H. Huang and C. Lin
1265  Preparing Electrochemical Engineers for the 21st Century - The Henry B. Linford Award Address of The Electrochemical Society
   D. Schwartz
1266  Microfluidic Platforms for Catalyst and Electrode Optimization
   F. Brushett and P. Kenis
1267  Electro-Oxidation on the Ti/SnO₂-Sb₂O₅ Anode for Wastewater Treatment
   Q. Ni, D. Kirk and S. Thorpe
Analysis of Coal-Extracts Using Electrochemical Techniques
A. Valenzuela-Muñiz and G. Botte

Effect of the Electroactive Area and Liquid Mass Flow on the Resident Time Distribution (RTD) in a FM01 Electrochemical Reactor
M. Cruz-Díaz, E. Rivero, F. Rivera and I. González

Fundamental Thermodynamic Limitations in Wagner's Equation in Solid State Electrochemistry
T. Miyashita

Surface Energy Effects on the Metallization of Nanoscale Features
J. Adolf and U. Landau

Investigation on Adsorption Characteristics of Organic Dyes during Via Filling by Copper Electrodeposition
R. Manu and S. Jayakrishnan

Structural and Protecting Properties of Functional Organic Coatings on Copper
M. Metikos-Hukovic and S. Omanovic

Surface Modification of Nitinol by Biocompatible Passive Films
J. Katić and M. Metikos-Hukovic

Electrodeposition and Thermoelectric Properties of BiSbTe Nanowires
R. Mannam, K. Varahramyan, D. Davis and M. Agarwal

Study the Diffusion Behavior of Li⁺ in the WO₃ Electrochromic Device by Electrochemical AC Impedance Spectroscopy
Y. Lu and F. Lien

Understanding and Predicting Metallic Whisker Growth as a Function of Electrodeposited Morphology
W. Yelton, D. Susan, J. Michael and D. Shore

Recrystallization of Electrodeposited Copper-Silver Thin Films
N. Alshawreh, M. Militzer and D. Bizzotto

Optimization of Fill Rate Uniformity for Dense Features
B. Buckalew, T. Ponnuswamy, J. Reid and Y. Takada

Seedless Copper Electrochemical Deposition on Barrier Materials as a Replacement/Enhancement for PVD Cu Seed Layers in HAR TSVs

Electrodeposition and Characterization of FePd Magnetic Thin Films
D. Pečko, K. Zužek Rožman, B. Pihlar and S. Kobe

(Keynote) Electrochemical Technology in Electronics: A Path from Art to Science
L. Romankiw

Electrochemical Processes for TSV/Bump Formation Without CMP and Lithographic Process
J. Lee, S. Kim and J. Lee

Effect of pH and Temperature of the Electrolyte on the Electrodeposition of CoWP Films Using Alkali-Metal-Free Precursors
Y. Son, H. Lee and C. Kim

Molecular Scale Growth of Electrolytic Copper Foils
K. Kondo

Additive Transport and Adsorption in Copper Metallization of Interconnects Focusing on TSV Scales
J. Adolf and U. Landau

(Keynote) Diffusion-Induced Stress, Charge-Transfer Resistance, and Materials Selection Criteria for Avoiding Crack Initiation of Insertion Electrode Particles
M. Verbrugge and Y. Cheng

Two-Port Transmission Line Technique for Dielectric Property Characterization of Polymer Electrolyte Membranes
Z. Lu, M. Lanagan, E. Manias and D. Macdonald
1289 A Generalized Multidimensional Mathematical Model for Li-Ion Intercalation Batteries
S. Pannala, S. Allu, J. Nanda and W. Shelton
1290 Low Temperature Studies of EC:DMC Mixture in Lithium-Ion System
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1291 Carbon Nanotube-Conﬁned MnO2 Nanocomposites for Electrochemical Capacitors
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   F. Torrens and G. Castellano
1471 Application of Multi-Walled Carbon Nanotubes/Ionic Liquid Mixture as an Electron Transfer Facilitator in Direct Electron Transfer and Biocatalytic Reactivity of Hemoglobin
   D. Asheghali, A. Khodadadi and A. Bayandori Moghaddam

**H2 - Molecular and Supramolecular Chemistry of Fullerenes and Carbon Nanotubes**

*Fullerenes, Nanotubes, and Carbon Nanostructures*

1472 Nanocarbon-Based Photoelectrochemical and Photovoltaic Devices
   H. Imahori
1473 Design and Electrochemical Properties of C_{60} Derivatives under Regioselective Control
   L. Echegoyen and A. Ortiz
1474 Complexation of Porphyrin-Fullerene Composites in Amorphous State Revealed by Solid-State NMR
   H. Hayashi, T. Yamada, S. Kang, T. Umeyama, Y. Matano, H. Kaji and H. Imahori
1475 [60]Fullerene with Malonic Esters and β-Keto Esters Promoted by Ferric Perchlorate
   F. Li and G. Wang
1476 New Highly Efficient Concave Receptors for Fullerenes
   N. Martín, E. Pérez, H. Isla and M. Gallego
1477 Periodically Rippled Graphene: An Electronically and Structurally Nanostructured Material
   B. Borca, S. Barja, M. Garnica, J. Hinarejos, A. Politano, M. Minniti, D. Farias, A. Vázquez de Parga and R. Miranda
1478 Organic Photovoltaic Devices Based on Fullerene Derivatives
   J. Delgado, C. Villegas, P. Bouit and N. Martín
1479 Porphyrin Counter Anion in Imidazolium Modified Graphene
   N. Tagmatarchis
1480 Applications of Functionalized Carbon Nanotubes
   M. Prato
1481 Single-Walled Carbon Nanotube Complexes with Conjugated Polyelectrolytes: Synthesis and Properties
   P. Imin, N. Rice, F. Cheng and A. Adronov
1482 Recent Advances in Fluorination of Fullerenes
   O. Boltalina, N. Shustova, I. Kuvychko, S. Strauss, Z. Mazej, Y. Chen and A. Popov
1483 Exploiting the Alkynyl Moiety to Modulate the Electronic of Novel Fullerene Derivatives
   J. Morin and S. Rondeau-Gagné
1484 Functionalization of Carbon Nanotubes by Innovative Methods
   M. Bonchio
1485 Synthesis and Functionalization of Carbon Nanoscrolls
   M. Maggini and R. Riccò
1486 Modulating Electronic Interactions Between Closely Spaced Complementary π-Surfaces: SubPc-C_{60} Conjugates
   D. González-Rodríguez, J. Guilleme, E. Carbonell, A. Medina, C. Claessens, D. Guldi and T. Torres
1487 One-Pot Synthesis of New Thio Derivatives of C_{60} with the Unexpected Formation of Thiazolidine Fulleropyrrolidine
   S. Yang, C. Chen and X. Li
1488 Supramolecular and Covalent [60]Fullerene Arrays
   A. Sastre-Santos, L. Martin-Gomis, F. Céspedes-Guirao and F. Fernandez-Lazaro
Supramolecular Recognition of Functionalized Carbon Nanotubes: A Route to Produce Versatile 2D Microstructures
M. Quintana, A. Llanes-Payas and M. Prato

A Click-Click Approach for the Preparation of Functionalized [5:1]-Hexaadducts of C_{60}
J. Nierengarten

Supramolecular Complexes Between C_{60} and Thiénylenevinylene Oligomers
R. Caballero, S. Islam, M. Holler, P. De La Cruz, J. Nierengarten, S. Fukuzumi and F. Langa

C. Cardona, B. Swain, J. Wall and S. Joslin

m-Phenylalkyne Bridged Oligothiénylene Vinylene: A Good Candidate as a Gated Molecular Wire for High-Efficient Electron Transfer in C_{60}-Porphyrin Systems
M. Urbani, S. Islam, S. Fukuzumi and F. Langa

Spectroscopic Signatures of Photogenerated Radical Anions in Polymer-[70]Fullerene Bulk-Heterojunctions
V. Dyakonov, S. Filippone, N. Martin, A. Sperlich, M. Liedtke, C. Deibel and O. Poluektov

Towards Large Openings in Fullerenes
S. Huang, S. Khan and Y. Rubin

In Pursuit of Fullerene Derivatives with New Structures: A Study of Chemical Modifications of Fluorofullerenes
O. Boltalina, I. Kuvychko, N. Shustova, J. Whitaker, S. Strauss, K. Seppelt and A. Popov

Redox Gradients in Hydrogen Bonded Complexes: Containing N,N-Dimethylaniline, Flavin and Fullerene

Rapid, Efficient Techniques in the Macromolecular Covalent Functionalization of Carbon Nanotubes
R. Chadwick and A. Adronov

Supramolecular Functionalization of Carbon Nanotubes Using Poly(2,7-carbazole)s
N. Rice and A. Adronov

H3 - Carbon Nanotubes and Nanostructures: Fundamental Properties and Processes
Fullerenes, Nanotubes, and Carbon Nanostructures

(Invited) Direct Growth of Metallic Single-Walled Carbon Nanotubes Thin Films
A. Harutyunyan

The Effect of Catalyst Composition on Chirality Distributions of As-Grown Single-Walled Carbon Nanotubes
W. Chiang, D. Dutta, V. Bhethanabotla and R. Sankaran

Synthesis, Characterization and Electron Transfer Properties of Sea Urchin Shaped Carbon Nanostructured Materials
A. Tabet-Aoul Benyoucef, Z. Hamoudi and M. Mohamedi

Pyrolytic Conversion of Organic Aerogels into Monolithic Meso- and Macroporous Carbon

(Invited) The Evolution of Populations of Nanotubes During Synthesis from Optical Imaging and Optical Spectroscopy
P. Finnie, A. Li-Pook-Than, P. Vinten, P. Marshall and J. Lefebvre

(Invited) Low-Energy Dynamics in Single-Walled Carbon Nanotubes
J. Kono

(Invited) Raman Spectroscopy of Chirality-Enriched Single Walled Carbon Nanotubes
1507  (Invited) Effects of Fullerene Encapsulation on Radial Breathing Mode Frequencies of Metallic Single-Wall Carbon Nanotubes
   T. Okazaki
1508  (Invited) Optical Properties and Energy Transfer in Carbon Nanotube-Polymer Nanohybrid Structures
   R. Nicholas
1509  (Invited) Ultrabright Photoluminescence of Individual Single-Walled Carbon Nanotubes
1510  (Invited) Exziton Dynamics in Novel Carbon Nanotube-Molecule Aggregates
1511  Emission Energy and Quantum Yield of Photo-Excited Single Walled Carbon Nanotubes: The Influence of Solvent and Surface Bound Molecules
   B. Larsen, P. Deria, M. Heben, M. Therien and J. Blackburn
1512  (Invited - Young Investigator Award) Preparation, Characterization, and Application of Monodisperse Carbon-Based Nanomaterials
   M. Hersam
1513  (Invited) Optical Detection of Heavy Metals Using DNA-Carbon Nanotube Hybrids
   W. Zhao, D. Deloach and A. Kamel
1514  (Invited) Ground and Excited State Charge Transfer Processes in Single-Walled Carbon Nanotubes
1515  (Invited) Preparation and Characterization of Carbon Nanotube Reference Materials
   J. Fagan
1516  (Invited) Novel Near-IR Photoluminescence from Oxidized Single-Walled Carbon Nanotubes
   S. Bachilo, S. Ghosh and R. Weisman
1517  (Invited) Squeezing Out Perfection from Single Walled Carbon Nanotubes
   F. Papadimitrakopoulos
1518  Emission Saturation of Single-Wall Carbon Nanotubes via Modulation of Surfactant Interaction at the Nanotube Surface
   J. Duque, C. Densmore and S. Doorn
1519  The Synergic Effect of Pulse and Pulse-Reverse Parameters with Various Surfactants on the Microstructure and Property of Ni-SWNT Composites
   M. Zheng, M. Sullivan and R. Hilty
1520  (Invited) DNA Sequence Motifs for Structure-Specific Recognition and Separation of Carbon Nanotubes
   X. Tu and M. Zheng
1521  (Invited) Optically Active Single-Walled Carbon Nanotubes
   N. Komatsu
1522  Advanced (n,m) and Enantiomeric Sorting of HiPco Single-Walled Carbon Nanotubes by Nonlinear Density Gradient Ultracentrifugation
   S. Ghosh, S. Bachilo and R. Weisman
1523  (Invited) Using SDS to Suspend Single-Walled Carbon Nanotubes: Love It or Hate It?
   K. Ziegler
1524  (Invited) (n,m)-Selected Single-Walled Carbon Nanotubes as Molecular Templates
   F. Henrich, S. Lebedkin, N. Stuerzl and M. Kappes
1525  (Invited) Controlling the Surface Features of Carbon Nanotubes Using Designed Reversible Cyclic Peptides
   G. Dieckmann, I. Musselman, S. Nielsen, A. Klimenko, P. Bajaj and C. Chiu
1526  (Invited) Advances in the Chemistry and Applications of Carbon Nanotubes and Graphene
   R. Haddon
1527 (Invited - Young Investigator Award) Electrochemically Controlled Transport of Water Through Carbon Nanotube Membranes
N. Koratkar

1528 (Invited) Current Saturation and Surface Polar Phonon Scattering in Graphene and Carbon Nanotubes
V. Perebeinos

1529 (Invited) Probing Defects in Carbon Nanotubes Through Multi-Gated Structures
J. Lee

1530 Influence of Surface Pretreatment of MWNT Support on PEFC Performance
S. Mohanapriya, P. Sridhar, S. Pitchumani and A. Shukla

Z. Chen and Z. Chen

1532 Diffusion-Controlled Growth Model for Electrodeposited Cobalt Nanowires in Highly Ordered Aluminum Oxide Membrane
A. Ghahremaninezhad and A. Dolati

1533 Effects of Quantum Confinement on Interrelation Between DOS Spectrum and C(V) Dependencies of Si Nanowire-Based MOS Structure
V. Ligatchev and S. Chin

1534 Oxygen Reduction on Multiwalled Carbon Nanotube Modified HOPG Electrodes in Alkaline Solution
I. Kruszenberg, M. Marandi, V. Sammelselg and K. Tammeveski

1535 Static Inelastic-Elastic Properties of Carbon Nanotubes and Polypropylene
A. Onanko, O. Lyashenko, G. Prodaivoda, S. Vigva and Y. Onanko

1536 Nanocarbon Synthesis Using Oxidized Diamond-Supported Metal Catalysts
K. Nakagawa, H. Gamo, M. Nishitani-Gamo, T. Ando and H. Oda

1537 Templated Carbons from Bio-Derived Sources for Energy Storage
R. Mayes, D. DePaoli and S. Dai

H4 - Carbon Nanotubes and Nanostructures: Applications and Devices
Fullerenes, Nanotubes, and Carbon Nanostructures

1538 (Invited) Tumor Targetable, Self-Assembling Theranostic Carbon Nanotubes
D. Scheinberg, M. McDevitt, C. Villa, A. Ruggiero and W. Deen

1539 (Invited) Fullerene Immunoconjugates for Cancer Imaging and Treatment
S. Berger, L. Wilson, R. Bolskar, J. Collier, M. Rosenblum and W. Marks

1540 (Invited) Carbon Nanostructures: Chemistry and Biological Applications
T. Da Ros

1541 Radiofrequency Induced Heating of Single-Walled Carbon Nanotubes/Materials
M. Cheney, Y. Mackeyev, S. Curley and L. Wilson

1542 (Invited) Biological Studies with Structurally Sorted SWCNTs
R. Weisman, S. Ghosh, D. Tsyboulski, G. Bartholomeusz and M. Weiss

1543 C_{60} and PCB Decoration of Lipid Bilayers
A. Gewirth, T. Spurlin and A. Campbell

1544 (Invited) Aligned Arrays of Single Walled Carbon Nanotubes: Growth and Implementation in RF Electronics
J. Rogers

1545 (Invited) Characterization of CNT-FETs by Scanning Probe Microscopy
T. Mizutani and T. Takahashi

1546 (Invited) Avalanche, Hysteresis, and Energy Dissipation in Carbon Nanotube Devices
E. Pop, A. Liao, D. Estrada, Z. Ong and S. Dutta
Patterned Networks of Single-Walled Carbon Nanotubes for Electronic Devices
B. Omrane, Y. Chen and C. Papadopoulos

Electrolyte-Gated Nanotube/Silicon Solar Cell
P. Wadhwa and A. Rinzler

(Invited) Individual Suspended Carbon Nanotubes under Applied Gate and Bias Potentials
S. Cronin, A. Bushmaker, V. Deshpande and M. Bockrath

(Invited) Carbon Nanotube Exciton Dissociation and Charge Transfer at Semiconductor Heterointerfaces: Driving Forces and Relevance to Photovoltaics
D. Bindl and M. Arnold

(Invited) Defects, Phonon Softening, and Resonant 1/f Noise in Carbon Nanotubes
M. Shim

(Invited) Absorption Saturation Effects and Exciton Decay Dynamics in Carbon Nanotubes
A. Walsh, J. Schneck, M. Harrah, L. Ziegler and A. Swan

(Invited) Wrinkling and Strain Softening in Membranes of Pristine Single-Wall Carbon Nanotubes on Stretched Polymer Substrates

The Charging of Single Walled Carbon Nanotubes in Contact with Thiophene and Aniline Oligomers and Polymers
M. Kalbáč, E. Dmitrieva, L. Kavan, I. Rabelo de Moraes and L. Dunsch

Gas (H2 and NO2) Sensor of ZnO Nanorods in Vacuum
H. Lim, H. Jo, J. Kim, S. Jeong, S. Kang, J. Yun and Y. Shin

Graphane and Graphite Fluoride: Structure and Layer Interactions from First Principles
V. Artyukhov and L. Chernozatonskii

Amperometric Biosensing Using Vertically Aligned Multiwalled Carbon Nanotubes
S. Mantha, V. Davis and A. Simonian

Experimental Study of the Resonance Energy Transfer Rate Between Rare Earth Ions and Carbon Nanotubes
T. Ignatova, H. Najafov and S. Rotkin

(Invited) Terahertz Spectroscopy of Large-Area Graphene
L. Ren, T. Arikawa and J. Kono

(Invited) Graphene-Based Materials and their Applications
R. Ruoff

(Invited) Wafer Scale Chemical Vapor Deposition of Graphene and Its Applications
C. Zhou

(Invited) Bio-Applications with Free-Standing Graphene
A. Banerjee and H. Grebel

(Invited) Thermal Management in Heterogeneous Carbon Nanoelectronics
S. Rotkin and A. Petrov

(Invited) Selective Growth of Well Aligned Semiconducting Single-Walled Carbon Nanotubes
L. Ding, W. Zhou, T. McNicholas, Y. Cheng and J. Liu

(Invited) Vertically Aligned Carbon Nanofiber Synthesis and Process Integration for Cellular Interfacing Applications
A. Melechko, T. McKnight, D. Hensley, R. Pearce, R. Clearfield, S. Retterer, P. Rack and M. Simpson

Self-Assembly of Carbon Nanotubes into Two-Dimensional Geometries Using DNA Templates
M. Bockrath, H. Maune, S. Han, R. Barish, W. Goddard III, P. Rothemund and E. Winfree

Electrodeposition of Gold, Silver on Carbon Nanotube Thin Films
S. Lam, G. Scott and Z. Zhou

Decoration of Surface of Carbon Nanotubes with Iron-Cobalt (FeCo) Alloy Using a Two-Step Electroless Deposition Technique
E. Kalu, L. Wilson and M. McHenry
Nanoporous Carbon Engineering by Chemical Vapor Deposition onto Active Carbon Fiber Electrodes for Selective Water Desalination
D. Aurbach, M. Noked, E. Avraham and A. Soffer

(Invited) Nanotube-Peptide Interactions on a Silicon Chip
P. Burke, L. Zheng and D. Jain

Fluorescent Single-Walled Carbon Nanotubes in Ultra Low Density Silica Aerogels for Optical Sensing Applications

Integration of Uniform Arrays of Carbon Nanotube-Based Biosensors and CMOS Signal-Processing Circuits into a System-on-a-Chip

Electrochemical Detection of Nitric Oxide by Carbon Nanopipettes
F. Li, N. Dementev, R. Ghavami, R. Singhal, Y. Gogotsi and E. Borguet

A Carbon Nanotube-Nafion Composite Twin Microsensor for Vapor Phase Detection of a Ketosis Product in Breath and Urine
C. Felice, K. Santhanam and L. Fuller

Thin-Film Field-Effect Transistors Based on Composites of Semiconducting Polymer and Carbon Nanotubes
Z. Liu, Z. Zhang, M. Qu, J. Li, A. López Cabezas, L. Zheng and S. Zhang

Field Emission Properties of Metal-CNT Composite Films Prepared by Electrodeposition Techniques
S. Arai, E. Shinada, Y. Todoroki and M. Endo

Electrodeposition of Copper on GaAs Nanowires
C. Liu, O. Einabad, S. Watkins and K. Kavanagh

Pulsed Electric Fields for Fabrication of Copper/Carbon Nanotube and Carbon Nanotube Films
H. McCrabb, E. Taylor, M. Inman, C. Devlin and M. Leines

A New Method for Supersolubilization of Ultrapure Carbon Nanotubes
N. Dementev and E. Borguet

Electrochemically Reduced Graphene Oxide Films for Electrochemical Supercapacitor
X. Peng, X. Liu, D. Diamond and K. Lau

(Invited) Tunable Bandgaps and Excitons in Doped Semiconducting Carbon Nanotubes Made Possible by Acoustic Plasmons
C. Spataru and F. Leonard

(Invited) Molecular Transport in Carboneous Nanochannels: Drag, Electro-Osmosis, Switches, Sieves
P. Kral, B. Wang, A. Titov, E. Vokac, L. Vukovic and K. Sint

(Invited) Casimir Interactions Between Scatterers in Carbon Nanotubes
D. Zhabinskaya

Counterion Condensation on a Polyelectrolyte in the Presence of an Electronically Responsive Cylinder in an Electrolyte Solution
O. Malysheva, T. Tang and P. Schiavone

Two-Dimensional Hexagonally Ordered Mesoporous Carbon Synthesized Via a One-Step Method for Supercapacitors
T. Zhou, F. Jiang, N. Xia, J. Chen and D. Yuan

Carbon Nanostructured Supercapacitors with Large Areal Capacitances
J. McDonough, J. Choi, Y. Yang, F. La Mantia, Y. Zhang and Y. Cui

Stretchable Supercapacitors from Carbon Nanotubes
B. Wei, C. Masarapu, J. Rong, C. Yu and H. Jiang

Design of Carbon Nanotube-Based Hybrid Catalyst for Nonhumid Fuel Cell
T. Fujigaya, M. Okamoto, K. Matsumoto and N. Nakashima
Multifunctional Graphitic Nanotube/Nanofiber Compositions for the Sorption and Catalytic Degradation of Vapor-Phase Toxins

High Density Directly-Grown Carbon Nanotube Layer for Proton Exchange Membrane Fuel Cell Application
H. Du, C. Wang, S. Yen, L. Chen and K. Chen

Transport and Electrochemical Properties of Nanocomposite Polyelectrolyte Membranes Based on Nafion Ionomer and Functionalized Carbon Nanotube
M. Hasani-Sadrabadi, S. Ghaffarian, E. Dashtimoghadam and F. Majedi

(Invited) New Vistas in Fullerene Endohedrals and Single-Walled Carbon Nanotubes
M. Yamada, T. Tsuchiya, T. Akasaka, Y. Maeda and S. Nagase

H5 - Endofullerenes and Carbon Nanocapsules
Fullerenes, Nanotubes, and Carbon Nanostructures

Theoretical Study of Scandium Carbide Endohedral Metallofullerenes
N. Mizorogi, T. Akasaka and S. Nagase

Regioselective Exohedral Functionalization of La@C₈₂ / 1,2,3,4,5-Pentamethylcyclopentadiene and La@C₈₂ / Adamantylidene Adducts

Host-Guest Interactions in Azafullerene (C₅₉N)-Single-Wall Carbon Nanotube Peapod Hybrid Structures

Functionalization of Endohedral Fullerenes
M. Mackey, J. Phillips and S. Stevenson

Synthesis and Electrochemical Properties of Sc₃N@I₅-C₈₀ Donor Acceptor Systems
J. Pinzón, T. Torres and L. Echegoyen

Synthesis of Endohedral Fullerene Derivatives for Quantum Information Processing
K. Porfyrakis

Bis-Carbene Adduct of La₂@C₈₀

Organic Synthesis of an Endohedral C₆₀ Encapsulating a Small Molecule
K. Kurotobi and Y. Murata

Yields in the X@C₇₄ and Z@C₈₂ Series
Z. Slanina, F. Uhlík, T. Akasaka and S. Nagase

Comparisons of Structural Features of Endohedral Fullerenes from Recently Obtained Crystallographic Data
A. Balch, H. Yang, Z. Liu, B. Mercado, M. Olmstead and C. Beavers

An Endohedral Titanium (III) in a Clusterfullerene: Putting a Nongroup-III Metal Nitride into the C₈₀-I₅ Fullerene Cage
S. Yang, C. Chen, A. Popov, W. Zhang, F. Liu and L. Dunsch

Production and Characterization of Single-Wall Carbon Nanotubes Encapsulated Fluorescent Molecules
T. Okazaki

New Metal Encapsulated Heterofullerenes
H. Dorn

Metallic Nitride Fullerenes in Films and Coatings
J. Phillips
The Importance of the Pyracylene Motif for Understanding the Properties and Stability of Endohedral Metallofullerenes
T. Fuhrer and H. Dorn

Free Metal Atom Endohedral Fullerene Structures: Sm@C₈₀, Tm₂@C₈₂ and Others
C. Beavers, B. Mercado, M. Olmstead, A. Balch, H. Yang, Z. Liu, L. Echegoyen, T. Zuo and H. Dorn

Perfluoroalkylated Endometallofullerenes
N. Shustova, I. Kareev, A. Popov, M. Mackey, C. Coumbe, V. Bubnov, S. Lebedkin, Y. Chen, J. Phillips, S. Stevenson, S. Straus and O. Boltalina

Recent Advances in OxoMetallic Fullerenes and Metallic Nitride AzaFullerenes
S. Stevenson

Molecular Structures and Bonding Situation in Endohedral Metallofullerenes
A. Popov and L. Dunsch

A Pseudoatom in a Cage: Trimetallofullerene Y₃@C₈₀ Mimics Y₃@C₈₀ with Nitrogen Substituted by a Pseudoatom
A. Popov, L. Zhang and L. Dunsch

¹³C NMR Relaxation Study in Endohedral Fullerenes: Interaction of the Nitride Cluster and the Cage Carbons
S. Klod and L. Dunsch

Structural Determination and Computational Analysis of Nanocapsules and Endohedral Metallofullerenes

The Source of Nitrogen in Metal Nitride Cluster Fullerene Production
L. Dunsch, S. Yang, L. Zhang, A. Svitova and A. Popov

**H8 - Porphyrins and Supramolecular Assemblies**
*Fullerenes, Nanotubes, and Carbon Nanostructures*

(Invited) Bis-Porphyrinic Tweezers for the Molecular Recognition of Bidentate Bases of Various Sizes: Towards the Purification of Polluted Effluents
R. Rein and N. Solladié

(Invited) From the Porphyrin-Based Supramolecular Chirogenesis Towards the Metal-Based Chiral Material
V. Borovkov, T. Kizawa, T. Osawa, S. Ikeda, T. Kitamura and Y. Inoue

(Invited) Nanostructured Films Based on Lutetium BispHALOcyanines and Tyrosinase as Biosensors for the Detection of Antioxidants
C. Apetrei, P. Alessio, J. Constantino, J. de Saja and M. Rodriguez-Mendez

(Invited) Novel Electron Donor Acceptor Nanocomposites
D. Guldi

(Invited) Catalytic Decomposition of Reactive Oxygen and Nitrogen Species by Corrole Metal Complexes
Z. Gross

(Invited) 'Clickable Porphyrins': A Versatile and Rapid Route Towards Porphyrin Libraries
S. Mohnani and D. Bonifazi

(Invited) Phthalocyanines as Efficient Sensitizers in Photorefractive Polymer Composites
M. Diaz-Garcia, F. Gallego-Gomez, J. Quintana, J. Villalvilla, L. Martin-Gomis, F. Fernandez-Lazaro and A. Sastre-Santos

(Invited) Porphyrin Assemblies for Chemical Sensors Development

(Invited) Synthetic Strategies for Unsymmetrical Porphyrins
M. Senge
Supramolecular Structures and Photoelectrochemical Properties of Self-Assembled Porphyrin Nanotubes Including Fullerenes

(Invited) Porphyrin Conjugated Copolymers for Bulk Heterojunction Solar Cells
H. Imahori

(Invited) Polypeptides with Functionalized Pendant Porphyrins for Self-Assembling Processes and the Elaboration of Novel Type of Glues
N. Solladié

(Invited) Optical Sensing Properties of Distributed Porphyrins Layers

(Invited) Generation of Porphyrin Nanotube and Its Light-Harvesting Function
Y. Kobuke and A. Satake

(Invited) Design and Synthesis of Porphyrin Frameworks for Multidimensional Molecular Materials
C. Aurisicchio, D. Stassen, V. Corvaglia, C. Fabbro and D. Bonifazi

(Invited) High and Low Potential Porphyrin and Phthalocyanine Sensitizers for Splitting Water to Hydrogen and Oxygen Using Solar Energy
B. Sherman, S. Pillai, J. Bergkamp, J. Tomlin, A. Moore, G. Devens and T. Moore

(Invited) Synthesis and Photophysical Properties of Hydrogen-Bonded Phthalocyanine and Subphthalocyanine-Perylenediimide Assemblies
W. Seitz, A. Jimenez, E. Carbonell, B. Grimm, A. Medina, C. Claessens, S. Rodríguez-Morgade, D. Guldi and T. Torres

(Invited) Gas-Phase Chemistry of Cationic Porphyrins
C. Ramos and M. Santana-Marques

Self-Assembled Porphyrin for Organic Photovoltaics
O. Yoshikawa, Y. Kobuke and S. Yoshikawa

(Invited) Photoinduced Electron Transfer in Supramolecular Assemblies Based on a Doubly Protonated and Saddle-Distorted Porphyrin
T. Kojima, T. Honda, T. Nakanishi, K. Ohkubo and S. Fukuzumi

(Invited) Copper-Free Rotaxanes and Catenanes Decorated with Porphyrin and Fullerene Moieties
J. Megiatto Jr. and D. Schuster

(Invited) Enhancement of Electron-Transfer Oxidation of Zinc Phthalocyanine Coupled with Formation of π-Dimer Radical Cation
K. Ohkubo, R. Iwata and S. Fukuzumi

(Invited) Optical Spectroscopy of Molecular and Supramolecular Porphyrin Assemblies
S. Costa, P. Paulo, R. Teixeira and S. Andrade

H9 - Nanostructures for Energy Conversion

Fullerenes, Nanotubes, and Carbon Nanostructures / Energy Technology

(Invited) The Performances of the WO₃/BiVO₄ Photoelectrode Modified with Au Nanoparticles for Water Oxidation under Visible Light Irradiation
C. Ponchio, A. Nosaka and Y. Nosaka

Effects of ZnO Electrode Structure on Photoelectrochemical Properties

(Invited) Femtosecond Diffuse Reflectance Transient Absorption to Measure Dye-Sensitized Solar Cells under Operational Conditions
(Invited) Rapid Synthesis of Silver Shells on Gold Nanorods
Y. Niidome

Electrochemical Elaboration and Characterization of the Morphology of Bis-Thiophene Carbazole-Fullerene Double-Cable Polymer Films
N. Berton, C. Ottone, F. Chandezon and S. Sadki

(Invited) Plasmon-Assisted Photo-Energy Conversion in Organic Monolayer System
K. Ikeda, K. Takahashi, T. Masuda and K. Uosaki

Graphene Oxide as 2-D Carbon Support to Anchor Semiconductor and Metal Nanoparticles
I. Lichtcap and P. Kamat

(Invited) Tungsten(VI) Oxide Flake-Wall Film Electrodes for Photoelectrochemical Oxygen Evolution from Water
F. Amano, D. Li and B. Ohtani

Mechanism of Light Energy Conversion in Gold-TiO$_2$ Nanostructures: Importance of Electric Field Enhancement by Plasmon
A. Furube, L. Du, K. Hara, R. Katoh and M. Tachiya

Hybrid Solar Cells with Bulk Heterojunction Between Conjugated Polymer and PbS Nanocrystals
S. Woo, Y. Han, K. Kim, H. Lyu and Y. Kim

Free-Base Porphyrin-Fe Porphyrin Based Supramolecular Solar Cells
F. D'Souza, N. Subbaiyan and E. Maligaspe

Low Temperature Sintering for Plastic Dye-Sensitized Solar Cell Using Electrospray Method

Nanostructured TiO$_2$ Electrode by Electrospray for Dye-Sensitized Solar Cells
D. Hwang, H. Lee, S. Jang, D. Kim and D. Kim

Shape Control of Highly Crystallized Titania Nanorods
M. Adachi, K. Yoshida, T. Kurata, K. Tsuchiya, Y. Mori and F. Uchida

(Invited) Nanostructures to Probe and Drive Electrocatalytic Reactions
I. Yagi, A. Hayashi, K. Kimijima, H. Notsu and N. Ohta

Preparation of Nanosheets Bismuth Trioxide as Supercapacitance Materials
N. Xia, J. Chen, T. Zhou, S. Mo and D. Yuan

(Invited) Structural Control of Metal Sulfide and Plasmonic Metal Nanoparticles for Energy Conversion
T. Teranishi

Synthesis and Study of Pd-Based Nanomaterials for Electrosorption of Hydrogen
B. Adams, S. Chen, C. Ostrom and A. Chen

(Invited) Stacked-Structure-Dependent Photoluminescence Properties of CdTe-Au Multilayer Films
T. Torimoto, T. Kameyama, Y. Ohno, T. Kurimoto, K. Okazaki, T. Uematsu and S. Kuwabata

Dual Ionic and Electronic Transport in Nanostructured Poly(ionic liquid)
S. Lee, G. Becht and M. Firestone

(Invited) Effective Photon Scattering from a Single-Molecule at Plasmonic Metal Nano-Gap
K. Murakoshi

Energy Level Alignment at Organic-Organic Interfaces in Bulk Heterojunction Solar Cells
P. Sehati, S. Braun, L. Lindell, X. Liu and M. Fahlman

(Invited) Plasmon-Assisted Photocurrents in Gold- and Silver-Nanostructures
S. Yamada and T. Akiyama

Tuning Electrocatalysis: Platinum-Based Trimetallic Nanostructures from Sequential Electrodeposition and Surface-Limited Redox-Replacement Reactions
T. Mkwizu, M. Mathe and I. Cukrowski

(Invited) Nanoparticle Plasmon-Assisted Photochemical Reactions
H. Misawa, K. Ueno, N. Murazawa and Y. Yokota

Probing Polymer Photovoltaics: Imaging Photocurrents in Organic Solar Cells
R. Giridharagopal, O. Reid and D. Ginger
1665  (Invited) Charge Separation Induced by Near-Infrared Light at the Anisotropic Ag Nanoparticle-TiO₂ Interface
   T. Tatsuma, K. Matsubara, E. Kazuma, I. Tanabe and N. Sakai

1666  Preparation of Nanoporous Titanium Oxide Electrode by Screen Print and Its Application to Dye-Sensitized Solid-State Solar Cell
   A. Konno

1667  (Invited) Fabrication of Metal and Semiconductor Nanostructures Based on Ordered Nanohole Array in Anodic Porous Alumina
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1668  A New Functional Layer Based on Highly Crystalline Inverse Opal for Application in Dye-Sensitized Solar Cells
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1669  Formation Mechanism of Highly Crystallized Titania Nanorods
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1672  On the Meaning of Electrode Potentials Measured by Kelvin Probe on Coated and Bare Metal Surfaces
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1673  High Sensitivity Permeation Measurement Set-Up Based on Scanning Kelvin Probe
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   M. Anderson

1678  Electropolymerization of Phenol on FTO Modified ZrO₂ Nanoelectrode Arrays: Morphology and Electrochemical Properties
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1682  Cyclic Versus Staircase Voltammetry in Electrocatalysis: Theoretical Aspects
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1683  Vaporization Exchange Model for Water Distribution and Fluxes in the Cathode Catalyst Layers of Polymer Electrolyte Fuel Cells
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1684  Dynamic Electrochemical Impedance of the Electrochemical Behavior of Platinum and Palladium in Acidic Solutions
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1685  Density-Functional Theory Study of Interactions Between Water and CO Adsorbed on Pt and Pt-Ru Alloy under Electrochemical Conditions
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(In Memory of E. B. Yeager)

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1822 Comparison Between Nafion and Polybenzimidazole (PBI) Membranes for Fuel Cell CO Sensor
K. Mochizuki, T. Kikuchi, M. Sudoh, Y. Ishiguro and T. Suzuki
1823 A Comprehensive Study on the Effect of Thin Film Microstructure on Vapor Sensing Behavior of Carbon-Based Polymeric Conductive Nanocomposites
P. Molla-Abbasi, E. Danesh and S. Ghaffarian
1824 Proton Motion in a Polyelectrolyte: A Probe for Wireless Humidity Sensors
O. Larsson, X. Wang, M. Berggren and X. Crispin

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1825 Novel DNA-Hybridization Biosensors for Studies of DNA Underwinding Caused by Herbicides and Pesticides
M. Stobiecka, K. Coopersmith, S. Cutler and M. Hepel
1826 Designing a New Generation of Electrochemical Biosensors for the Detection of *Pseudomonas aeruginosa*
Y. Enríquez, Y. Negrón and A. Guadalupe
1827 Highly Sensitive Amperometric Biosensors for Phenols Based on Polyaniline/carbon Nanotube Composite Modified Electrodes
V. Branzoi, F. Branzoi, B. Cioaca and L. Pilan
1828 Comprehensive Study of Pd/GaN Metal-Semiconductor-Metal Hydrogen Sensors with Metal-Oxide Mixture
T. Huang, S. Chen, K. Huang, Y. Chu, H. Chang, Y. Lee, C. Wu, W. Lour and M. Wu
1829 Cadmium-Free Quantum Dots for Cell Imaging
H. Xu, L. Li, Z. Aguilar, H. Wei and Y. Wang
1830 Multilayer Silver Nanoparticles Modified Optical Fiber Tip for High Performance SERS Remote Sensing
M. Fan, G. Andrade and A. Brolo
1831 Spectroelectrochemical Investigation of the Heterogeneity of DNA Monolayers on Gold Using In Situ Fluorescence Microscopy
J. Murphy, A. Cheng, H. Yu and D. Bizzotto
1832 Evaluation of Electrochemiluminescent Metabolic Toxicity Screening Arrays with Multiple Compounds
S. Pan, L. Zhao and J. Rusling
1833 Design Tools for Characterization of Microeddy Hydrodynamic Tweezers
T. House, V. Lieu, B. Lutz and D. Schwartz
1834 Nanomaterial Interfaces at Electrochemical Carbon-Based Sensors for DNA Damage Detection
J. Labuda, D. Simkova, K. Benikova, A. Ferancova and V. Vyskocil
1835 Morphological Study and Utilization of Galvanostatically Deposited Ultra-thin Polypyrrole-Glucose Oxidase Film for Potentiometric Detection of Glucose
J. Ayenimo and S. Adeloju
Enhancement of Electrocatalytic Activity of DNA-Conjugated Gold Nanoparticles and Its Application to DNA Detection
J. Das, K. Jo and H. Yang

Impedance-Based Sensor Using Gold Nanoparticle-Ara h 2-2 Film for Detection of Anti-Peanut IgE Allergy Biomarkers
H. Liu, R. Malhotra, M. Peczuh and J. Rusling

Direct Electrochemistry Based H₂O₂ Biosensors
C. Li, C. Guo and S. Bao

Glassy Carbon Paste Composite Electrodes for the Electroanalytical Determination of Ciprofloxacin Antibiotic
A. Alsharaa

Electrochemical Biosensor Utilizing Nitrogen-Incorporated Nanodiamond Ultra-Microelectrode Array
S. Raina, W. Kang, J. Davidson and J. Huang

Size- and Shape-Dependent Electrochemical Stability and Biosensing Properties of Surface-Attached Metal Nanostructures
F. Zamborini, O. Ivanova and S. Beeram

Nanofabrication of Robust Nanoelectrodes for Electrochemical Applications
K. Dawson, J. Strutwolf, D. Arrigan, A. Quinn and A. O'Riordan

Graphene Nanosheet Composed Functional Electrodes for Biosensing Applications
S. Alwarappan and C. Li

Electrochemical Gene-Function Analysis for Single Cells with Addressable Microelectrode/Microwell Arrays
T. Matsue, Z. Lin, Y. Takahashi, K. Ino and H. Shiku

Multianalyte Microphysiometry: Electrochemistry in Very Small Volumes
D. Cliffel, J. McKenzie and L. Hiatt

Magnetic Bead Detection Spin Valve Sensors for Cellular Analysis
J. Suh, K. Song, C. Chae, J. Kang and K. Kim

SERS Sensor Design for Extracellular Product Detection
I. Nwaneshiudu, Q. Yu and D. Schwartz

Microeddy Single-Cell Trapping with Embedded SERS Nanosensors for Extracellular Product Detection
V. Lieu, I. Nwaneshiudu, T. House, Q. Yu, B. Lutz and D. Schwartz

Growth of ZnO Nanorods and Its Potential Application as Intracellular Potentiometric Selective Ion Sensor
M. Asif, N. Alvi, O. Nur, M. Willander, P. Strålfors and F. Elinder