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**216<sup>th</sup> ECS Meeting**  
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- 197 A Multiscale Modeling Methodology for the Electro-activity Prediction of Nanostructured PEM Fuel Cell Catalysts  
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- 198 Extreme Ultraviolet Interference Lithography for Generation of Platinum Nanoparticles on Glassy Carbon  
A. Savouchkina, A. Foelske-Schmitz, R. Kotz, A. Wokaun, G. Scherer, C. Padeste, V. Auzelyte and H. Solak
- 199 CO Electro-Oxidation on RuO<sub>2</sub> Supported Pt Nanoparticles: Evidence of a Co-catalytic Effect  
E. Ciapina and E. Rafael Gonzalez
- 200 Methanol and Glucose Oxidation Catalyzed by PtWO<sub>3</sub> Nanoparticles Supported on Well Defined Mesoporous Carbon Structures  
N. van der Laak, C. Yang, S. Ting, F. Li and K. Chan

### **A3 - Michael Faraday: The First Nanotechnologist? - An Invited Symposium**

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D. Gooding
- 202 Faraday's Gold Colloids: Nanoscience in 1856  
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- 203 How Faraday Ceased to Be a Chemist  
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- 204 Play, Invention and Doubt: Re-emerging Ways of Faraday's Creative Exploring  
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### **A4 - Tutorials in Nanotechnology: Focus on Physical and Analytical Electrochemistry - An Invited Symposium**

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- 206 Nanoscience, Nanotechnology, and Analytical Methods: A Selective Tutorial  
M. Ratner

- 207 Application of Electrochemical and Electrogenenerated Luminescence Methods to Studies of Metallic and Semiconductor Nanoparticles  
A. Bard
- 208 Electrochemistry at the Nanoscale: Building Blocks and Techniques  
H. Abruna
- 209 Into the Nanoscale with Scanning Electrochemical Microscopy?  
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H. Wolfschmidt, T. Brulle, O. Paschos and U. Stimming

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- 211 Polymeric Gel Electrolyte Containing Ionic Liquid and Alkylmagnesium Complex for Rechargeable Magnesium Batteries  
N. Yoshimoto, N. Nishimura, M. Egashira and M. Morita
- 212 Power Density Profile of Marine Biofilm Battery Using a TiO<sub>2</sub> Anode  
S. Motoda, M. Strom and S. Dexter
- 213 Towards the 3-D Microfabrication and Integration of a Complete Power Unit Used for Energy Autonomous Wireless System  
T. Pichonat, C. Iethien, D. Hourlier and P. Rolland
- 214 Microstructural Control and Optimization of Manganese Oxide Nanostructures for Electrochemical Applications  
S. Pang and B. Wee
- 215 A Novel High Energy Density Rechargeable Lithium-Air Battery  
N. Imanishi, T. Zhang, Y. Shimonishi, S. Hasegawa, A. Hirano, Y. Takeda and O. Yamamoto
- 216 High Energy Rechargeable Li-S Cells for EV Application: Status, Remaining Problems, and Solutions  
Y. Mikhaylik, I. Kovalev, R. Schock, K. Kumaresan, J. Xu and J. Affinito
- 217 New Conductive Salts as Potential Lithium Battery Electrolytes Tested in PC and Gel-PC System  
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- 218 On the Structure-Conductivity Relationship in Poly(oxyethylene)-Based Electrolytes  
J. Syzdek, M. Armand, C. Masquelier, J. Tarascon and W. Wieczorek
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- 220 Composite Solid Electrolytes (1-x)Li<sub>n</sub>X - xMgO (X<sup>n-</sup> = ClO<sub>4</sub><sup>-</sup>, SO<sub>4</sub><sup>2-</sup>) for Intermediate Temperature Lithium Batteries and Supercapacitors  
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- 221 Combined Study of Li<sub>2</sub>FeSiO<sub>4</sub> Obtained by Different Synthesis Routes  
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- 1524 The Opportunity of Using Mesoporous Thin Films as Interface in SOFC Devices  
C. Laberty-Robert, J. Hierso, O. Sel, A. Ringuede, L. Bianchi and C. Sanchez
- 1525 Fabrication of Trilayered Structure for Solid Oxide Fuel Cells by Electrophetic Depositions  
H. Tsai, Y. Chang, P. Wu and P. Lin
- 1526 Influence of Thermal Treatment during Cell Manufacturing on the Performance of Tape Cast Solid Oxide Fuel Cells  
W. Schafbauer, N. Menzler and H. Buchkremer
- 1527 Preparation of Thin Functional Layers for Anode Supported SOFC by Roll Coating Process  
O. Büchler, M. Bram, R. Mücke and H. Buchkremer
- 1530 Co-extrusion / Phase Inversion / Co-sintering for Fabrication of Hollow Fiber Solid Oxide Fuel Cells  
N. Droushiotis, M. Othman, U. Doraswami, K. Li and G. Kelsall
- 1532 Current Instability in Solid Oxide Fuel Cells  
I. Burmistrov and S. Bredikhin
- 1533 Determination of Global/Local Fuel Utilization via Variation of Fuel Utilization  
A. Reinert and T. Strohbach
- 1534 Effect of Flowfield Design on Solid Oxide Fuel Cell Performance  
M. Kornely, A. Leonide, A. Weber and E. Ivers-Tiffée
- 1535 Numerical Modeling and Performance Study of a SOFC Button Cell  
Y. Mollayi and A. Raoufi
- 1536 Performance Analysis of a Tubular SOFC Using a Comprehensive Thermoelectrochemical Model  
J. Ghanadan, Y. Mollayi Barzi and M. Ghassemi
- 1537 Near-Infrared Imaging of SOFCs with Methane and Propane Fuels  
M. Pomfret, D. Steinhurst, D. Kidwell and J. Owrutsky
- 1538 Electrochemical Properties of Electrode-Supported  $\text{La}_{0.75}\text{Sr}_{0.25}\text{Ga}_{0.8}\text{Mg}_{0.16}\text{Fe}_{0.04}\text{O}_{3-\delta}$  Solid Oxide Fuel Cells  
J. Yu and S. Woo
- 1539 Effects of Clamping Load on the Thermal Stress Distribution in a Planar SOFC with Compressive Sealing  
C. Lin, L. Huang, L. Chiang and Y. Chyou

- 1540 Thermal Analysis of a Microtubular Solid Oxide Fuel Cell Using Electrochemical Impedance Spectroscopy  
H. Nakajima, T. Konomi and T. Kitahara
- 1541 Uncertainty Analysis in SOFC Performance Testing  
A. Momma, K. Takano, Y. Tanaka and T. Kato
- 1543 Development of Reformate-Model-Gas Generator for SOFC Testing  
Y. Tanaka, K. Kato, A. Negishi, K. Nozaki and T. Kato
- 1544 Development of Testing ZIG for Tubular SOFC Cell  
H. Choi, Y. Jee, S. Lha and S. Cha
- 1545 A Correction for Impedance Measurements Using the Three Point Electrode Technique in SOFCs  
J. Escobar, S. Pakalapati, I. Celik and H. Finklea
- 1546 Carbon Deposition and Power Density in Rechargeable Direct Carbon Fuel Cells with Gadolinium Doped Ceria and Scandium Stabilized Zirconia  
Y. Tagawa, F. Ohba, C. Takei and M. Ihara
- 1547 Study on Electrolyte-Supported Single Chamber Solid Oxide Fuel Cell Stack  
Z. Lu, J. Wang, B. Wei, X. Huang, Z. Wang and W. Su
- 1548 Single Chamber Solid Oxide Fuel Cells (SC-SOFCs) Based on a Proton Conducting Electrolyte  
A. D'Epifanio, E. Fabbri, E. Di Bartolomeo, S. Licoccia and E. Traversa
- 1549 IDEAL-Cell, Innovative Dual mEmbrAne fuel-Cell: Fabrication and Electrochemical Testing of First Prototypes  
S. Presto, A. Barbucci, M. Viviani, Z. Ilhan, A. Ansar, D. Soysal, A. Thorel, J. Abreu, A. Chesnaud, T. Politova, K. Przybylski, J. Prazuch, Z. Zhao, D. Vladikova and Z. Stoynov
- 1550 Proton Conducting IT-SOFC Utilizing Internally Steam Reformed Alcohol Fuels  
M. Azimova and S. McIntosh
- 1551 Performance of Protonic Ceramic Fuel Cell Based on Yb-Doped BaZrO<sub>3</sub> Electrolyte  
J. Park, J. Lee, H. Lee and B. Kim
- 1552 Effect of Anode Composition on the Performances of Cathode Supported Microchannel SOFCs  
T. Yamaguchi, S. Shimizu, T. Suzuki, Y. Fujishiro and M. Awano
- 1553 Performance of 30W-Class SOFC Module Using Anode Supported Microtubular Cells  
T. Otake, F. Okada, Y. Mizutani and Y. Funahashi
- 1554 Fabrication and Characterization of LSC/GDC Composites as Current Collecting Materials for Microtubular SOFCs  
J. Yin, K. Murata, T. Misono and T. Fukui
- 1555 Atomic Layer Deposition of Ceria-Based Thin Films as Interlayer in the Application of Solid Oxide Fuel Cells  
Z. Fan and F. Prinz
- 1556 Inherent and Induced Conduction in PSZ Cells with Nanocomposite Electrodes  
I. Prokhorov
- 1557 Effect of Cathode Porosity on the Performances of Cathode Supported Honeycomb SOFCs  
S. Shimizu, T. Yamaguchi, T. Suzuki, Y. Fujishiro and M. Awano
- 1558 Faturan Glass Ceramic: A Substrate for Power Delivering Freestanding  $\mu$ -SOFC Membranes  
R. Toelke, A. Bieberle-Hutter, J. Rupp and L. Gauckler
- 1560 Miniaturized Low-Temperature Solid Oxide Fuel Cells with an Ytria-Stabilized-Zirconia Foil Electrolyte  
A. Evans, A. Bieberle-Hutter, L. Bonderer, P. Chen, D. Hodel, J. Rupp and L. Gauckler
- 1561 Agglomeration of Pt Thin Films, a Model System for Micro-SOFC Anodes  
H. Galinski, T. Ryll, P. Elser, J. Reuteler, J. Rupp, A. Bieberle-Hutter and L. Gauckler
- 1562 The Use of Conventional SOFC Electrodes in High Temperature Water Electrolysis Mode: An Electrochemical Study of Ni-Cermet and LSM  
D. Grondin, N. Grunbaum, J. Deseure, A. Brisse, M. Zahid and P. Ozil

- 1563 Development of Tubular Solid Oxide Electrolysis Cells for Hydrogen Production  
T. Kato, N. Sakaki, A. Negishi, T. Honda, L. Nguyen, Y. Tanaka, A. Momma, K. Kato and Y. Iimura
- 1564 Non-Ionic Conduction Phenomena in Yttria Stabilized Zirconia Electrolyte in SOFC Operated in the Electrolysis Mode  
J. Schefold, A. Brisse and M. Zahid
- 1565 Preparation and Performance of CuO-GDC Anode Supported Unit Cells for Direct Utilization of Hydrocarbon Fuels  
J. Lee, J. Myung, H. Ko and S. Hyun
- 1567 Performance Improvement of Oxide Catalyst-Doped Anode Supported SOFCs for Methane Fuel  
J. Myung, J. Lee and S. Hyun
- 1569 On the Development of an Electrochemical Sensor to Measure SOFC Fuel Gas Compositions  
Y. Wu and Y. Zhen
- 1572 Effect of Buffer Layer on Electrochemical Performance for Metal-Supported SOFC  
Y. Kim and J. Bae
- 1573 The Influence of Water Vapor and SO<sub>2</sub> on the Durability of Solid Oxide Fuel Cell  
R. Liu, S. Kim, Y. Shiratori, T. Oshima, K. Ito and K. Sasaki
- 1574 Fabrication and Characterization of Cathode Support Tubes for Microtubular SOFC Application  
H. Luebbe, J. Van herle, S. Diethelm, H. Hofmann, P. Bowen and F. Snijkers
- 1575 Field Testing of SOFC at CMR Prototech  
I. Warnhus
- 1576 Development of Anode Supported Tubular SOFC Components  
M. Seabaugh, S. Cummings, A. Miller and S. Menzer
- 1577 Effect of Nano Ion Conductor Infiltration on the Performance of Anode Supported Solid Oxide Fuel Cells  
C. Timurkutluk, B. Timurkutluk, M. Mat, B. Ibrahimoglu, I. Pamuk and I. Pamuk
- 1578 Degradation Studies on Tubular Metal Supported SOFC  
L. Rodriguez-Martinez, L. Otaegi, M. Rivas, N. Gomez, M. Alvarez, A. Zabala, N. Arizmendiarieta, I. Antepara, I. Villarreal and A. Laresgoiti
- 1579 Degradation of Symmetrical Cathode-Interlayer-Electrolyte Cells  
A. Martinez-Amesti, A. Larrañaga, L. Rodriguez-Martinez, M. No and M. Arriortua
- 1580 Novel Oxidative Fuel DeSulfurization System  
G. Alptekin, A. Jayaraman, R. Cook, M. Dubovik, M. Schaefer and J. Monroe
- 1581 Three-Dimensional Modeling of Anode-Supported Planar SOFC with Direct Internal Reforming  
Z. Qu, P. Aravind, H. Ye, N. Dekker, N. Woudstra and A. Verkooijen
- 1582 Physically Based Model-Predictive Control for SOFC Stacks and Systems  
T. Vincent, B. Sanandaji, A. Colclasure, H. Zhu and R. Kee
- 1583 Connected Three Phase Boundary Length in Modeled Sintered Composite Solid Oxide Fuel Cell Electrodes  
C. Metcalfe, O. Kesler, T. Rivard, F. Gitzhofer and N. Abatzoglou
- 1584 Design and Optimization of SOFC System Components Using a Trio Approach: Measurements, Design of Experiments, and 3D Computational Fluid Dynamics  
M. Peksen, R. Peters, L. Blum and D. Stolten
- 1585 SOFC Modeling Considering Internal Reforming by a Global Kinetics Approach  
M. Andersson, J. Yuan and B. Sundén
- 1586 3D Electrode Microstructure Reconstruction and Modeling  
B. Rüger, J. Joos, T. Carraro, A. Weber and E. Ivers-Tiffée
- 1587 Numerical Simulation of Reactive Transport Phenomena in the Hexis SOFC System  
Y. Safa and T. Hocker
- 1588 Detailed Modeling of an Anode-Supported Solid Oxide Fuel Cell Using a Fully Three-Dimensional Approach  
T. Ho, P. Kosinski, A. Hoffmann and A. Vik

- 1589 Modeling Potential, Current and Gas Velocity Distributions in Hollow Fiber SOFC Stacks  
U. Doraswami, N. Droushiotis and G. Kelsall
- 1590 Coupling Complex Reformer Chemical Kinetics with Three-Dimensional Computational Fluid Dynamics  
G. Goldin, H. Zhu, K. Katte, A. Dean, R. Braun, R. Kee, D. Zhang and O. Deutschmann
- 1591 Physics of Failure Based Damage Modeling for SOFC Development and Validation  
G. Gassner, F. Langmayr and P. Prenninger
- 1592 High Volume Component Fabrication of Ready-to-Stack Components for Planar SOFC Concepts  
A. Venskutonis, M. Brandner, W. Kraussler and L. Sigl
- 1594 Oxidation and Creep Studies of Porous E-Brite for Solid Oxide Fuel Cell Interconnects  
J. Scott and D. Dunand
- 1595 Thermal Spray Processes and Materials for Coating Applications of SOFC Components  
M. Gindrat, A. Refke and H. Höhle
- 1260 Influence of the Processing Method on the Quality of the Protective Coatings for SOFC Applications  
C. Comminges, M. Zahid, I. Larring and F. Tietz
- 1596 Novel Method for Measuring Chromia Evaporation from SOFC Interconnect Materials  
M. Casteel, P. Willson, T. Goren, P. O'Brien and D. Lewis
- 1597 Reduction of Chromium Evaporation with Manganese-Based Coatings  
R. Trebbels, T. Markus and L. Singheiser
- 1598 Interface Resistance between FeCr Interconnects and  $\text{La}_{0.85}\text{Sr}_{0.15}\text{MnO}_3$   
L. Mikkelsen and P. Vang Hendriksen
- 1599 New Glass Ceramic Sealants for SOFC  
D. Goedeke, J. Besinger and B. Ruedinger
- 1600 High Temperature Glass-Ceramic Seals for SOFC Applications  
C. Liu, T. Yung, K. Lin, R. Lee and S. Wu
- 1601 Gas Sealing Reliability of Glass/Ceramic Composite Seals under SOFC Working Conditions  
S. Suda, K. Kawahara, K. Jono and Y. Mizuta
- 1602 Materials Development for SOFC Applications  
M. Seabaugh, M. Day, M. Beachy and S. Ibanez
- 1603 Development of a Lower Temperature SOFC  
E. Wachsman
- 1506 2R-Cell: Reliability upon Multi Thermo and Redox-Cycles  
R. Ihringer
- 1501 Performance Map of the Staxera Integrated Stack Module with Partly Internal Reforming  
S. Kluge, O. Posdziech, B. Mai and J. Lawrence
- 1604 Investigation of the Oxygen Exchange Reaction on Pt/YSZ: The Relation Between Three Phase Boundaries and Electrode Performance  
A. Opitz, A. Schintlmeister, A. Lutz, H. Hutter and J. Fleig
- 1606 Activation of LSM-Based SOFC Cathodes: Dependence of Mechanism on Polarization Time  
M. Haider, A. Vance and S. McIntosh
- 1400 The Role of Interstitial Hydrogen Species in Ni/YSZ Patterned Anodes: A 2D Modeling Study  
M. Vogler and W. Bessler
- 1607 Chemically Assisted Hydrogen Generation through Oxygen Ion Conducting MIEC Membranes  
H. Wang, R. Eriksen, S. Gopalan and U. Pal
- 1608 Co-generation of Electricity and Syngas under Electrochemical Partial Oxidation Using Novel SOFCs  
I. Kim, N. McDonald, P. Blaszczyk, S. Barnett and T. Shastri
- 1609 A Combined System of an SOFC and PEFCs  
H. Yakabe, H. Yoshida and S. Amaha

## **C1 - Organic and Biological Electrochemistry General Poster Session**

### *Organic and Biological Electrochemistry*

- 1610 The Regularities of Electrolytic Dissociation of Mesaconic and Iaconic Acids  
E. Kvaratskhelia and R. Kvaratskhelia
- 1611 Deglycosylation of Glucose Oxidase to Improve Biofuel Cell  
A. PrevotEAU, O. Courjean, F. Gao and N. Mano
- 1612 Laws of Chloride - Ions Oxidation on Various Electrodes and "Green" Electrochemical Method of Higher  $\alpha$ -Olefins Processing  
Y. Budnikova, S. Krasnov, I. Magdeev and O. Sinyashin
- 1613 Electroanalysis of Bovine Serum Albumin by Chronopotentiometric Peak H  
V. Ostatna and E. Palecek
- 1614 In Situ Electrochemical Synthesis of Silver / Poly(N-vinyl-2-pyrrolidone) Hydrogel Nanocomposites  
Z. Jovanovic, V. Panic, V. Miskovic-Stankovic, A. Krkljes and Z. Kacarevic-Popovic
- 1615 Direct Electron Transfer from Living Cells to Electrodes Mediated by c-Cyts Embedded in Outer Cell Membrane  
A. Okamoto, R. Nakamura and K. Hashimoto
- 1616 Na Electrodeposition in Propylene Carbonate Containing NaPF<sub>6</sub>  
M. Ueda, H. Hayashi and T. Ohtsuka
- 1617 Electrochemical Micro Technologies for Polymeric MEMS and Biochip Applications  
R. Ofek Almog, Y. Sverdlov and Y. Shacham-Diamand
- 1618 Biologically Closed Electrical Circuits in Mimosa Pudica  
J. Foster and A. Volkov
- 1619 Molecular Electronics of Venus Flytrap and Mimosa Pudica  
T. Ashby, J. Foster, R. Walker, J. Johnson, D. Caleb, H. Carrell, K. Hunter and A. Volkov
- 1620 In Situ Micro-Raman Studies of Composite Electrodes Modified with Syringaldazine and Laccase from *Cerrena Uicolor*  
G. Zukowska, M. Marcinek, W. Nogala, Y. Svartsov, K. Szot and M. Opałło
- 1621 Bioactivity of Ni-Free Ti-Based Metallic Glasses after a Two-Step Treatment  
F. Qin, X. Wang, T. Wada and A. Inoue
- 1622 The Influence of Intercalators on Changes in Double Stranded DNA Structure  
E. Zabost, A. Nowicka, M. Donten and Z. Stojek
- 1623 Novel Glucose Sensor Based on Hydroquinone Functionalized Polymeric Mediator  
M. Takai, Y. Himuro and K. Ishihara
- 1624 The Performance of Starch Films Electrolyte for Bismuth Electrodeposition Devices  
P. Ponce, V. Gonçalves, S. Córdoba de Torresi and A. Lugão

## **C2 - New Biomimetic Materials for Electrochemical Sensing**

### *Organic and Biological Electrochemistry / Sensor / Physical and Analytical Electrochemistry*

- 1625 Molecularly Imprinted Polymer Nanocomposites: Synthetic Receptors for Biosensors and Biochips  
K. Haupt, A. Linares, M. Bompert and B. Tse Sum Bui
- 1626 Molecularly Imprinted Polymers for Electrochemical Sensing: Where Are We Going?  
G. Díaz Díaz, M. Blanco López, M. Lobo Castañón, A. Miranda Ordieres and P. Tuñón Blanco
- 1627 Molecular Imprinting of Oxybutynin  
F. Meier and B. Mizaikoff
- 1628 Detection of Human Chorionic Gonadotropin Using Stable Field Effect Transistor with Antibody-Modified Gate  
S. Hideshima, T. Nakanishi and T. Osaka
- 1629 Application of Redox Catalysis to the Chemical Modification of Carbon Electrodes  
L. Hernandez Muñoz, R. Fragoso, C. Frontana, P. Astudillo and F. Gonzalez

- 1630 Layered Assemblies of Electroactive Redox Proteins and Enzymes on Electrodes  
F. Lisdat, D. Sarauli, R. Dronov, F. Scheller, D. Kurth and H. Möhwald
- 1631 Development of Electrochemical Enzyme Sensor for Phenylalanine as a Biomarker of Phenylketonuria  
H. Shinohara, H. Horie, K. Teramura, M. Suga and Y. Asano
- 1632 Development of Electroactive and Molecularly Imprinted Polymer Composites  
A. McCluskey, T. Kirkman, N. Byrne, C. Holdsworth and M. Bowyer
- 1633 A Theoretical-Experimental Approach for the Design of Biomimetic Materials for Electrochemical Sensing  
J. Seminario, C. Kubli-Garfias, K. Salazar-Salinas and P. Salazar
- 1634 Biofunctionalization of Nanoelectrode Ensembles  
M. Silvestrini, L. Moretto, M. Zamuner and P. Ugo
- 1635 Design of a New Electrogenated Polyquinone Film Substituted with Oligopeptide Glutathione: Towards Direct Electrochemical DNA Sensor  
B. Piro, S. Reisberg, D. Acevedo, A. Korowitch, V. Noel, C. Barbero and M. Pham
- 1636 Patterned Microcavity-Arrays for Cell-Trapping in Biomedical Sensor Architectures  
S. Damnjanovic, H. Wanzenboeck, M. Fischeneder, M. Hufnagl, E. Bertagnolli, M. Wirth and F. Gabor
- 1637 Localized Microscale Electrochemistry on a Monolithic Electrode: An Electrochemical Microarray Chip  
G. Gil, S. Lee, G. Singh and R. Saraf

### **C3 - Synthetic and Mechanistic Organic Electron Transfer Reactions**

#### *Organic and Biological Electrochemistry / Physical and Analytical Electrochemistry*

- 1638 Reactivity of Electrogenated Imidazole-2-ylidenes in Ionic Liquids: Synthetic Implications  
M. Feroci, I. Chiarotto, M. Orsini, G. Sotgiu and A. Inesi
- 1639 Benzoin Condensation in Ionic Liquids via Electrochemical Generation of Carbene  
I. Chiarotto, M. Feroci, M. Orsini, G. Sotgiu and L. Rossi
- 1640 Electrochemical Methyl-Transfer Reaction Catalyzed by Hydrophobic Vitamin B<sub>12</sub> Using Sacrificial Electrode  
Y. Hisaeda, L. Pan and H. Shimakoshi
- 1641 Synthesis and Properties of B<sub>12</sub> Complex with Photosensitizing Ru(bpy)<sub>3</sub> Moiety  
H. Shimakoshi, J. Aoki and Y. Hisaeda
- 1642 Electrocatalytic Oxidation of Benzyl Alcohol in an Ionic Liquid and Acetonitrile: Tempo vs Ar<sub>3</sub>N as Mediators  
A. Herath and J. Becker
- 1643 Mediatory Use of Task-Specific Ionic Liquid for Selective Electrochemical Fluorination  
T. Sawamura, S. Inagi and T. Fuchigami
- 1644 Electroreductive Intramolecular Cyclization of Haloaryl Ethers through Aryl Radicals  
K. Mitsudo, Y. Nakagawa and H. Tanaka
- 1645 Patterns in Anodic Conversions of Olefins  
H. Schaefer, W. Krumme and B. Sommer
- 1646 Neutral H<sub>2</sub>O<sub>2</sub> Synthesis by Electrolysis of O<sub>2</sub> and Water  
T. Murayama and I. Yamanaka
- 1647 Development of New Concept SOFCs at Murata  
N. Mori, M. Iha, J. Harada and H. Takagi
- 1648 Cathodic Reduction of Dicarboxyl Compounds  
F. Barba and B. Batanero
- 1649 Study of the Electrochemical Carbonylation of Ethanol and Ethylene at Pd/C Anode  
A. Funakawa, T. Murayama and I. Yamanaka
- 1650 What's Wrong with Tetramethylammonium?  
A. Fry and L. Steffen

- 1651 Size-controlled Synthesis of Conducting Polymer Microspheres Using Pulsed Sonoelectrochemical Polymerization  
M. Atobe, K. Ishikawa and T. Fuchigami
- 1652 Star-Shaped Trinuclear Organometallic Complexes: Three-Center Electron Transfer and Mixed Valency in C<sub>3</sub>-Symmetric Trindene-Based Assemblages  
S. Santi, A. Donoli, A. Bisello and A. Ceccon
- 1653 Studies of Azulene-1-ylmethylene Malonic Acid Derivatives by Electrochemistry  
E. Ungureanu, G. Buica, A. Razus, L. Birzan and E. Giol
- 1654 Electrochemical Polymer Reaction: Synthesis and Optoelectronic Properties of Conjugated Polymer Including 9,9-Difluorofluorene Unit  
S. Hayashi, S. Inagi and T. Fuchigami
- 1655 Anodic Halogenations of Poly(thiophene) Derivatives  
S. Inagi, K. Hosaka, S. Hayashi and T. Fuchigami
- 1656 Voltammetry of Vinblastine Sulfate in Acetonitrile  
I. Haque and H. Saba
- 1657 Boration of Organic Halides: From Electrosynthesis to Catalysis  
C. Pintaric, S. Olivero and E. Dunach
- 1658 Cathodic Hydroxylation of Organoboronic Acids  
K. Hosoi, Y. Kuriyama, S. Inagi and T. Fuchigami
- 1659 Novel Anodic Concepts for the Selective Phenol Coupling Reaction  
S. Waldvogel
- 1660 Electrochemical Oxidation of Organoboranes Containing Oxygen and Unsaturated Bond at the  $\alpha$ -Position  
T. Fuchigami, K. Ohtsuka and S. Inagi
- 1661 Electrocatalytic Fluoroalkylation of Olefins  
D. Mikhaylov, Y. Budnikova, T. Gryaznova and O. Sinyashin
- 1662 The Effect of Halogen Substitution on Firefly Bioluminescence  
T. Saitoh, S. Yagiuchi, S. Kojima, H. Niwa, S. Maki and S. Nishiyama
- 1663 Pd/Tempo-Catalyzed Electrooxidative Synthesis of Biaryls from Arylboronic Acids or Esters  
K. Mitsudo, T. Shiraga, D. Kagen, D. Shi, J. Becker and H. Tanaka
- 1664 Electroreduction of Nitrobenzene at Titanium Cathode in SDS Aqueous Micellar Solution  
I. Haque and M. Tariq
- 1665 Electrochemical Synthesis of Menthylamines  
J. Kulisch and S. Waldvogel
- 1666 Synthesis of Pyrroloiminoquinones Based on the Electrochemical Method  
K. Inoue, Y. Ishikawa and S. Nishiyama
- 1667 Electrochemical Multistep Approach toward Isodityrosine: A Component of Biologically Important Cyclic Peptides  
K. Uno, T. Tanabe and S. Nishiyama
- 1668 Anodic Oxidation of 2,4-Dimethyl Phenol to Polycyclic Architectures  
J. Barjau, P. Königs, G. Schnakenburg and S. Waldvogel
- 1669 Electrochemical Retro [2+2] Cycloaddition Reactions  
Y. Okada, R. Akaba and K. Chiba
- 1670 An Electrocatalytic System that Mimics the Catalytic Oxidation of Biogenic Mono- and Polyamines by Semicarbazide-Sensitive Amine Oxidases  
M. LARGERON, M. Fleury and M. Strolin Benedetti
- 1671 Synthetic Study of O-Methylthalibrine Using Anodic Oxidation to Construct the Diaryl Ether Moiety as a Key Step  
Y. Naito, T. Tanabe, Y. Ishikawa and S. Nishiyama



- 1672 Development of a Chemoselective Microflow Reactor: Application to Regioselective Cathodic Carbonyl Allylation  
F. Amemiya, T. Fuchigami and M. Atobe
- 1673 Ni-Catalyzed Electroreductive Dehalogenation of Aryl Halides on an Activated Carbon Adsorbing Layer Using a Stacked-Type Cell  
M. Kuroboshi, N. Hara and H. Tanaka
- 1674 Electroreduction of Nitrocyclopropanes  
F. Couture-Martin, C. Cristea, A. Sardahsti, J. Chapuzet and J. Lessard
- 1675 Discovery of RGB Emission Probe Based on Firefly Bioluminescence  
S. Maki
- 1676 Nanocluster Catalysts in Electrochemical Transformations with Formation and Break of P- and C- Bonds  
Y. Budnikova, D. Mikhaylov, T. Gryaznova and O. Sinyashin
- 1677 Anodic Modification of Proline Derivatives  
T. Kawai, K. Yamamoto and K. Chiba
- 1678 Electrochemical Investigations of Ketone Complexation by Lewis Acids  
G. Cheek

## **D1 - Corrosion General Session**

### *Corrosion*

- 1679 Influence of La-Content and Microstructure on the Corrosion Properties of a New Free Machining Titanium Alloy  
S. Benfer, C. Siemers, J. Rösler and W. Fürbeth
- 1680 Galvanic Corrosion Behavior of Friction Stir Welded Copper Alloy in 3.5% NaCl  
R. Parvizi, M. Moayed, A. Davoodi and M. Haddad Sabzevar
- 1681 Chemical Characterization and Anticorrosion Properties of Corrosion Products Layers Formed on Pure Copper in Synthetic Rainwater of Rio de Janeiro and São Paulo  
R. Hernandez, Z. Paszti, H. De Melo and I. Aoki
- 1682 General Corrosion Behavior of Low Ni Austenitic Stainless Steels Cathodically Modified with Interstitial Elements  
H. Ha, T. Lee, C. Oh and S. Kim
- 1683 Corrosion Protection by Electrochemically Formed Magnesium Particles  
K. Mangold, S. Hild, C. Weidlich and D. Ende
- 1684 Electrochemical Characterization of Technetium Containing Wasteforms in Acidic Media  
E. Mausolf, F. Poineau, K. Czerwinski, T. Hartmann and G. Jarvinen
- 1685 Electrodissolution of Metallic Technetium in Acidic Media  
F. Poineau, E. Mausolf and K. Czerwinski
- 1686 Dissolution Behavior of  $\alpha$  and  $\gamma$  Phases of a Duplex Stainless Steel in a Simulated Crevice Solution  
S. Aoki, H. Yakuwa, K. Mitsuhashi and J. Sakai
- 1687 Quantitative Analysis of the Passivation Degree of Stainless Steels  
J. Heo, Y. Lee and H. Shin
- 1688 Role of Corrosion Products in the Suppression of Atmospheric Corrosion of Aluminum and Its Alloys  
Z. Dan, I. Muto and N. Hara
- 1689 Corrosive Behavior of 7075 Aluminum Alloy  
C. Panagopoulos and D. Lagaris
- 1690 Electrochemical-Mechanical Polishing of Amorphous Ni-P in Acid Solutions  
F. Muscolino, P. Cojocar, O. Citterio and L. Magagnin
- 1691 Corrosion Performance of Reinforcing Steel in Modified Concrete Mixtures  
D. Koleva, K. van Breugel, J. Mol and H. de Wit
- 1692 An Investigation on CO<sub>2</sub> Corrosion Resistance of Carbon Steel in Relation with Microstructural Changes  
C. Vega, N. Ochoa, N. Pebere, J. Lacaze and J. Brito

- 1693 Critical Factors in the Galvanic Corrosion of Aluminum and Galvanized Steel  
D. Jerolitsch, K. Krenn, D. Bluecher, H. Schnattinger, K. Stellnberger, M. Roth and G. Fafilek
- 1694 Kinetics of Film Growth on AISI 316 Stainless Steel in Sulfate Solutions  
C. Sequeira, D. Santos, J. Sousa and P. Brito
- 1695 Corrosion Issues Associated with Clean Energy Technologies  
H. Wheat
- 1696 Scale Growth Mechanism on NiAl(+xY) ( $x = 0, 0.05, 0.1$  wt %) at 1373 K and the Effect of Implanted Additions  
J. Jedlinski, S. Grzegorz, N. Marek, K. Kazimierz, B. Andrzej and C. Jozef
- 1697 Effects of Mn on the Resistance to Localized Corrosion of Fe-18Cr Alloys  
K. Park and H. Kwon
- 1698 Characterization of Effect of Cu on Anodic Activity of AlPb Model Alloy  
A. Wati, B. Graver and K. Nisancioglu
- 1699 Mechanism of Stress Corrosion Crack Growth on SUS316L Stainless Steel  
H. Masuda
- 1700 Introducing a New Solution for Detecting the StSt IGC Susceptibility Based on DL-EPR Method  
M. Momeni, M. Moayed and A. Davoodi
- 1701 Anodic Dissolution of Titanium in Ethylene Glycol Solution Containing Chloride Salt  
K. Fushimi, H. Kondo and H. Konno
- 1702 Preliminary Evaluation of Digital Image Correlation as a Means of Monitoring Low Temperature Atmospheric-Induced Chloride Stress Corrosion Cracking in Austenitic Stainless Steels  
A. Cook, A. Sherry, J. Duff, S. Lyon and J. Marrow
- 1703 Intergranular Corrosion of 13Cr Supermartensitic Stainless Steel in Chloride Solution  
G. Ren and G. Burstein
- 1706 Effect of Environmental and Thermal Cycling on the Intergranular Corrosion Susceptibility of 2024 Aluminum Alloy  
C. Larignon, J. Alexis, E. Andrieu, C. Blanc and G. Odemer
- 1707 Isolating Individual Grains in 2205 Duplex Stainless Steel for Electrochemical Experimentation  
S. Policastro, A. Pique, F. Martin and P. Natishan
- 1708 Effect of Additives on the Selective Dissolution of a Cu<sub>3</sub>Au Model Alloy  
A. Pareek, G. Ankah, S. Hümann, M. Rohwerder and F. Renner
- 1709 Effects of Intermetallic Phases on the Corrosion Resistance of Super Stainless Steel UNS S32050  
K. Cho, K. Kim, S. Ahn, J. Lee, J. Kim and K. Kim
- 1710 Grain Orientation Dependant Dissolution of the Al-Zn Alloy in Sodium Hydroxide  
M. Gentile, E. Koroleva, P. Skeldon and G. Thompson
- 1704 ECS Corrosion Division H. H. Uhlig Award Lecture: Some Advances and Challenges in Understanding the Influence of Microstructural Heterogeneity on Corrosion  
J. Scully
- 1705 ECS Corrosion Division Morris Cohen Graduate Student Award: Corrosion Inhibition of Aluminum Alloys by Vanadates and Vanadate Pigments  
M. Iannuzzi
- 1732 In Situ AFM Observations of the Early Stages of Corrosion in Fe-Based Bulk Metallic Glasses  
P. Gostin, A. Gebert and L. Schultz
- 1733 Effect of Atomic Hydrogen on Anodic Dissolution of Iron in a Sulfate Electrolyte Studied by Impedance Spectroscopy  
A. Marshakov, M. Maleeva, A. Rybkina and V. Elkin
- 1734 Investigation of Evolution of Corrosion Products in Aluminum-Galvanized Steel Joints by Raman Analysis  
K. Krenn, D. Jerolitsch, K. Stellnberger, M. Roth, D. Blücher, H. Schnattinger and G. Fafilek

- 1735 Localized Corrosion Mechanisms of 2024 Aluminum Alloy: Atomic Force Microscopy and Kelvin Force Microscopy Contribution  
L. Lacroix, C. Blanc and L. Ressler
- 1736 Automated Analysis of Electrochemical Noise from Potentiostatic Conditioning of Iron and Aluminum  
J. Soltis, D. Krouse, K. Zavadil and N. Laycock
- 1737 SKP-SECM: System Development and First Applications  
A. Maljusch, C. Senöz, M. Rohwerder and W. Schuhmann
- 1738 Investigation of Magnesium in NaCl 0.02 M Using LSV Combined with Electrochemical Impedance Spectroscopy  
M. Nascimento, C. Fleck and W. Müller
- 1739 Effect of Laser Shock Processing (LSP) on the Resistance to Localized Corrosion of Aluminum Alloy 2050 in Chloride Media  
H. Amar, V. Vignal, H. Krawiec and P. Peyre
- 1740 Investigation of POD - Oil Steel Corrosion Inhibitor as Surfactant  
G. Ostapenko, P. Gloukhov and S. Sadivskiy
- 1741 Use of Phosphates as Corrosion Inhibitors of Steel Reinforcements Embedded in Fly Ash Mortars  
D. Bastidas, M. Criado, S. Fajardo, V. La Iglesia, E. Cano, A. La Iglesia and J. Bastidas
- 1742 Corrosion Stability of Nonprecious Metal Nickel- and Cobalt-Based Alloys in Dentistry  
A. Klostermann, E. Rahm and R. Holze
- 1743 Electrochemical Characterization of Galvanic Coupling Corrosion Processes under Crevice Conditions for Metallic Materials Used in Biomedical Applications  
E. Cardilli and P. Schmutz
- 1744 Extending the Concept of Semiconductor Defect Chemistry to Electrochemistry: A Novel Approach to Construct Ab Initio Electrochemical E/pH Diagrams  
M. Todorova and J. Neugebauer
- 1745 Measurement Model Analysis of the Thermal Degradation of a Mg-Rich Primer on AA 2024-T3  
K. Allahar, D. Battocchi, M. Orazem and G. Bierwagen
- 1746 Aqueous Oxidation and Microelectrochemical Characterization of Corrosion Mechanisms for Al-Cr-(Cu)-Fe Complex Metallic Alloys  
A. Beni, N. Quach, E. Ura-Bińczyk, J. DeRose and P. Schmutz
- 1747 Microstructural Corrosion of AlCu4Mg1 and AlMg2 As-cast Aluminum Alloys under Straining Conditions  
H. Krawiec, V. Vignal and Z. Szklarz
- 1748 The Corrosion Resistance of Nanocrystalline Materials Produced by Hydrostatic Extrusion  
E. Ura-Bińczyk, H. Garbacz, M. Lewandowska and K. Kurzydłowski
- 1711 The Corrosion Inhibition Study of 2-Aminobenzoic Acid on Mild Steel in 0.5 M H<sub>2</sub>SO<sub>4</sub> Solution  
A. Dadgar and F. Baghaee
- 1712 Bronze Protection in Artificial Seawater  
A. Granic, H. Otmacic Curkovic, E. Stupnisek-Lisac, M. Kharshan and A. Furman
- 1713 Effect of Chloride Ions on the Selective Dissolution of Alfa Brass  
S. Awadh, F. Al Kharafi and B. Ateya
- 1714 Corrosion of Austenitic Stainless Steels in Phosphoric Acid Polluted by Chloride and Sulfate Ions  
M. Ibáñez-Ferrándiz, M. Blasco-Tamarit, D. García-García, J. Garcia-Anton, A. Guenbour and S. Bakour
- 1715 Effect of Chlorate on Pitting Corrosion of 316 and 304 Stainless Steel Weldments  
G. Sozhan, B. Rengarajan and V. Gopalachari
- 1716 Thermodynamical Analysis of the Adsorption Process of Albumin on CoCrMo Biomedical Alloy: Influence of Surface Conditions  
C. Valero Vidal and A. Igual-Muñoz

- 1717 Corrosion of Titanium in Acid and Alkaline Solutions  
S. Donne and W. Utomo
- 1718 Numerical Simulation of the Galvanic Displacement Process of Porous Silicon by Metal Ions  
J. Brito-Neto
- 1719 Determination of the Electrochemical Corrosion and Electrochemical Parameters of Nickel in Sodium Hydroxide Solutions at Different Concentrations Using the Polarization Resistance Method  
J. Vega, Y. García, M. Tenorio, A. Oropeza and B. Martínez
- 1720 Noise Suppression Technique Application in SVET Studies of Chromatized Aluminum Alloys Surface  
R. Irigoyen, R. Zlatev, M. Stoytcheva, J. García, B. Valdez and T. Dobrev
- 1721 Electrochemical Behaviors of Hot Dipped Al-Mg-Si Coating Layer on Steel  
C. Kruehong, A. Nishikata and T. Tsuru
- 1722 Benzotriazole Inhibitive Action on Copper Local Activation in Alkaline-Nitrate Solutions under Different Temperatures  
S. Kaluzhina, E. Skrypnikova and Y. Provotorova
- 1723 Effect of Cystine on the Semiconductive and Protective Properties of Oxide Film Formed on Steel in sat. Ca(OH)<sub>2</sub>  
L. Valek Zulj, S. Martinez, D. Bjegović and I. Brnardić
- 1724 Electrochemical Measurement of the Galvanic Corrosion Effects on the Pair AISI 316L/Welded AISI 316L in H<sub>3</sub>PO<sub>4</sub> Solutions at Different Temperatures  
R. Sánchez-Tovar, J. Garcia-Anton, M. Montañes, A. Guenbour and S. Bakour
- 1725 The Effect of Temperature on the Hydrogen Evolution Reaction on Chromium in LiBr Solution by Means of Polarization Techniques  
V. Guiñón-Pina, A. Igual-Muñoz and J. Garcia-Anton
- 1726 Tribological Study of CoCrMo Alloys in Simulated Body Fluids  
L. Casabán Julián and A. Igual-Muñoz
- 1727 Impedance Behavior of Copper Coated with Artificial Patina Layers under Continuous and Intermittent Exposure Conditions  
R. Hernandez, I. Aoki, B. Tribollet and H. De Melo
- 1728 Pulse and Steady DC Cathodic Prevention of Reinforced Mortar in Chloride Environment  
D. Koleva, K. van Breugel, J. Mol and H. de Wit
- 1729 Durability and Corrosion Performance of Mortars and Concretes with Polyurethane Additions  
E. Esparza, H. Camacho, P. García, V. Orozco, F. Almeraya and C. Gaona
- 1730 Rapid Pitting Corrosion Studies of Chromated Aluminum Alloys by SVET  
R. Irigoyen, R. Zlatev, M. Stoytcheva, J. García, B. Valdez and T. Dobrev
- 1731 The Influence of H<sub>2</sub>SO<sub>4</sub> Addition on the Corrosion Behavior of Some Ferritic Stainless Steels in Bio Ethanol Solutions  
A. Banu, M. Marcu, T. Spataru, I. Voiculescu and O. Radovici

## **D2 - Coatings for Corrosion Protection**

### *Corrosion*

- 1749 Corrosion Protection by Conducting Polymers  
M. Rohwerder
- 1750 Study of the Adhesion and Delamination of Organic Coatings on Steel by Controlling the Interfacial Properties  
W. Jan, P. Christian, G. Guido, H. René and H. Terryn
- 1751 The Electrochemical and Structural Changes of Cerium Based Conversion Coatings during Exposure to a Salt Spray Environment  
W. Pinc, W. Fahrenholtz and M. O'Keefe
- 1752 Microelectrochemical Testing of Cerium Based Conversion Coatings  
S. Joshi, M. O'Keefe and W. Fahrenholtz

- 1753 Physical, Chemical and Electrochemical Investigations of Trivalent Chrome Process (TCP) Coatings Applied to Aluminum Alloys  
B. Lee, D. Woodbury, G. Swain and G. Swain
- 1754 Corrosion Protection of 2024-T351 by a Mg-Rich Primer: Discrepancies Between Field versus Laboratory Exposures  
A. King, M. Taylor and J. Scully
- 1755 Investigation of Cathodic Properties of Mg-Rich Primers for Protection of AA2024-T3  
D. Battocchi, K. Allahar, N. Richter, G. Bierwagen and S. Hayes
- 1756 Corrosion Inhibition of AA2024 by Decanoate Ions  
G. Boisier, N. Portail and N. Pebere
- 1757 Modification of Anodic Layers on Aluminum Alloys To Improve Corrosion Resistance and Adhesion Properties  
S. Weidmann, W. Fürbeth, O. Yezerska, U. Sydow and M. Schneider
- 1758 Chitosan Films for Corrosion Protection of Galvanized Steel and Aluminum Alloys  
M. Zheludkevich, J. Tedim, S. Kallip and M. Ferreira
- 1759 Cr-Free and Phosphate-Free Surface Treatments for Steel and Al Alloys  
S. Adhikari, Y. Guo, B. Rincon Troconis, K. Unocic and G. Frankel
- 1760 Through the Corrosion Protection of Al-2024 Alloy with Carbon Black/Epoxy-Amine Nanocomposite Coating  
A. Foyet, W. Te-Hui, L. van der Ven, S. Kodentsov, D. Gijsbertus and R. van Benthem
- 1761 Alkoxysilyl Functionalized POSS Coatings As Anticorrosion Coatings for AA 2024 Alloy  
I. Jerman, A. Surca Vuk, M. Kozelj and J. Kovac
- 1762 The Effect of Different Amounts of Modifiers on the Anticorrosion Properties of Silane Layers Applied on Al Alloy 2024-T3  
L. Palomino, P. Suegama, I. Aoki and H. De Melo
- 1763 Assessment of the Corrosion Inhibition Properties of Sol-Gel Coatings Modified with Hydroxyapatite Particles Doped with Corrosion Inhibitors  
D. Snihirova, F. Montemor, W. Wijting, G. Grundmeier and S. Lamaka
- 1764 Edge Corrosion Behavior of Organic Coated Galvanized Steels in Atmospheric Environment  
H. Katayama, Y. Miyahara, I. Shitanda, M. Itagaki, K. Watanabe and H. Masuda
- 1765 Role of Magnesium in Corrosion Performance of Zn-Mg and Zn-Al-Mg Alloy Coatings in Atmospheric Conditions  
T. Prosek, A. Nazarov and D. Thierry
- 1766 Analysis of Corrosion Products Formed by Edge Corrosion of Residual Coated Steel Sheets  
A. Tahara and T. Shinohara
- 1767 Corrosion Resistance of Pulse Zinc Coatings  
M. Zemanová and M. Cocural
- 1768 Scanning Kelvin Probe Analysis of Cut Edge Corrosion on Prepainted Galvanized Steel with Chromate-Containing Epoxy Primer  
I. Muto, K. Sato and N. Hara
- 1769 Combinatorial Studies of Thermally Interdiffused Magnesium on the Kinetics of Organic Coating Cathodic Delamination from Zinc (Galvanized Steel)  
H. McMurray, Z. Barrett and G. Williams
- 1770 Inhibition of Cathodic Coating Delamination on Zinc Electrocoated Steel Substrates by PVD Deposited Thin Aluminum Films  
Z. Barrett, N. McMurray and G. Williams
- 1771 Wet/Dry Cycle Corrosion Behavior of Model Cut-Edge Formed on Zinc Coated Steels by Laser Fabrication  
M. Sakairi, A. Kageyama and T. Kikuhci
- 1772 Simulation of Solution Chemistry in Edge Corrosion  
T. Shinohara

- 1773 Characterization of Corrosion of Pipeline Steel under Coating by Localized Electrochemical Impedance Spectroscopy  
F. Cheng
- 1774 Role of Additives in Improving Performance of Zinc Pigmented Polymeric Coating on Steel Reinforcement Bars Exposed in Chloride Contaminated Concrete Environment  
D. Singh and S. Das
- 1775 The Effect of Humidity on TiO<sub>2</sub> Photocatalyzed PVC Photodegradation  
S. Cashmore, A. Robinson and D. Worsley
- 1776 Functionalized Talc-Like Phyllosilicates in a Sol-Gel Coating for Corrosion Protection of Carbon Steel  
K. Chabrol, J. Bonino, M. Gressier, M. Menu and N. Pebere
- 1777 Analytical Investigations and Corrosion Behaviors of Organosilanes as Multifunctional Sol-Gel Pretreatments on Cold Rolled Steel  
M. Schiemer, M. Fleischanderl and G. Fafilek
- 1778 Novel Silane-Based Coating for Corrosion Protection of Metallic Alloys  
M. Trueba and S. Trasatti
- 1779 Effect of Organosilicon Self-Assembled Nanolayers on Improving Anticorrosion Properties of Polymeric Coatings on Iron and Aluminum  
M. Petrunin, L. Maksaeva, T. Yurasova and E. Terekhova
- 1780 Siloxane Self-Assembled Nanolayers on Metal Surfaces and Its Effect on Corrosion and Electrochemical Behavior of Aluminum and Magnesium  
L. Maksaeva, M. Petrunin, T. Yurasova and E. Terekhova
- 1781 Electrochemical Performance of Al-Ce Films Prepared on AA6061 Aluminum Alloy Substrate by DC Magnetron Sputtering  
M. Domínguez-Crespo, A. Torres-Huerta, S. Rodil and E. Ramírez-Meneses
- 1782 Protection of Copper by the Oil Composition Films in the SO<sub>2</sub>-Containing Atmosphere  
N. Shel, L. Tsygankova, V. Vigdorovich and O. Chetyrina
- 1783 Enhancement of Corrosion Resistance of Galvanized, Galva-Annealed, and Electrogalvanized Steel by Addition of Molybdenum and Magnesium in the Zinc Phosphate Solution  
C. Park, J. Lee, K. Park and J. Lee
- 1784 The Effect of Silane and Hexavalent Chromate Conversion Coatings in the Electrochemical Behavior of Zinc Coating  
M. da Costa, C. Oliveira, T. Menezes, D. Dalla Corte, I. Müller and C. Malfatti
- 1785 Silane with Cerium Obtained by Sol-Gel Process for Post-Treatment on Zinc-Talc Composite Coatings  
D. Dalla Corte, M. da Costa, C. Oliveira, T. Menezes, I. Müller, C. Malfatti and M. Marchiori
- 1786 Role of Polypyrrole Structure and Conformational Rearrangement on the Corrosion Protection of Al Alloys  
M. Rizzi, M. Trueba and S. Trasatti
- 1787 Effect of Corrosion Inhibitor Concentration of Silane Films on AA2024-T3 Alloy  
C. Malfatti, T. Menezes, E. Rieder, D. Dalla Corte, J. Esteban, F. Ansart and J. Bonino
- 1788 Composite Coating with Nanoparticles of ZnO: Synthesis and Characterization  
M. Rauber, E. Rieder, F. Eisele, C. Malfatti and D. Dalla Corte
- 1789 Electrodeposition of Zn-Al Alloys from AlCl<sub>3</sub>-ZnCl<sub>2</sub>-Dimethylsulfone Molten Electrolytes  
K. Takenaka, Y. Mizuta and T. Hirato
- 1790 Characterization of Electrolytic ZrO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> Coatings on STAVAX 420 Mold Steel  
C. Chang, H. Wu and S. Yen
- 1791 Corrosion Protection with Ultrathin Oxide Coatings Grown by Atomic Layer Deposition  
E. Härkönen, M. Ritala, L. Schmalz, M. Fenker, B. Diaz, J. Swiatowska, B. Normand, V. Maurice and P. Marcus
- 1792 EIS Study on Coating Degradation under UV Irradiation  
M. Hattori, A. Nishikata and T. Tsuru

- 1793 Oxygen Resistance of Organic/Inorganic Hybrid Layer for Passivating the Organic Light-Emitting Diodes  
S. Choi, H. Shin, K. Kim, H. Lee, J. Yoo and C. Kim
- 1794 Optimization of Plasma Electrolytic Oxidation Process Parameters for Modification of Ti6-Al4-V Corrosion Resistance  
B. Farshid, S. Mir Hosseini, M. Faghghi Sani, M. Meghdari and A. Raoufi
- 1795 Poly(2,5-dimethoxyaniline) Film for Corrosion Protection of Iron  
J. Yano, A. Muta, Y. Harima and A. Kitani
- 1796 Sol-Gel Coatings As Anticorrosion Coatings for Commercial Spectrally Selective Sunselect Surfaces  
M. Kozelj, A. Surca Vuk, I. Jerman and B. Orel
- 1797 Investigation of Degradation Processes At Defective Coated Metals by Scanning Electrochemical Microscopy Using Oxygen As Redox Mediator  
S. González and R. Souto
- 1798 Application of AC-SECM in Corrosion Science: Inhibitors for Corrosion  
M. Paehler, K. Eckhard, J. Santana, R. Souto and W. Schuhmann
- 1799 Characterization of Organic Antifouling Coatings by EIS  
K. Allahar, V. Upadhyay, G. Bierwagen and E. Risberg
- 1800 Multiphysics Simulation of Coating Systems during EIS Measurements and Interpretation of Equivalent Circuit Elements  
B. Hinderliter and S. Croll
- 1801 Study of the Corrosion of Al-Rich Metallic Coated Steel with Odd Random Phase Multisine EIS  
E. Tourwé, A. Alvarez-Pampliega, J. Jorcin, J. Gonzalez, F. Horzenberger, H. Terryn and A. Hubin
- 1802 Combined Spectroscopic and Electrochemical Studies of Ultrathin Conversion Layers at Polymer/Metal Interfaces  
N. Fink, R. Posner, G. Giza and G. Grundmeier
- 1803 Self-Assembled Monolayer / Au(111) Model Systems for Delamination Studies at Metal/Organic Interfaces  
M. Muglali and M. Rohwerder
- 1804 Antibacterial and Corrosion Properties of Ag-Containing Oxide Coating on AZ31 Magnesium Alloy Formed by Micro-Arc Oxidation  
H. Ryu and S. Hong
- 1805 Insights into the Nature of Ionic Liquid Surface Film Formation on Reactive Metals  
M. Forsyth, W. Neil, P. Howlett, J. Lin, J. Efthimiadis and D. Macfarlane
- 1806 An Anticorrosion and Wear-Resistance Coating on Magnesium Alloy with Trivalent Chromium Electrodeposition from An Eco-Friendly Bath  
C. Lin, Y. Yeh and C. Huang
- 1807 Novel Approaches in Designing Protective Coatings for Magnesium Alloys  
A. Makhlof and M. Farahat
- 1808 Coating Properties of Electrodeposited Layers with Self-Healing Effect  
A. Dietz and T. Hochsattel
- 1809 High-Temperature Oxidation Resistance of Cr<sub>2</sub>AlC Coatings and Phase Stability of Cr<sub>2-x</sub>M<sub>x</sub>AlC (M = Y, Hf, Ta, Pd, Pt, Rh)  
M. to Baben, D. Hajas, D. Music, B. Hallstedt, J. Emmerlich and J. Schneider
- 1810 The Corrosion and Wear Resistance of Cr-C Deposited Steel Specimens With and Without Ni Undercoat  
C. Chuang, Y. Lieu and C. Huang
- 1811 Electrodeposition of Rhenium and Its Alloys from Aqueous Solutions  
A. Naor, N. Eliaz and E. Gileadi
- 1812 Electrochemical Characterization of Ultrathin Carbon Overcoats for Magnetic Hard Disk Components  
W. Kobsiriphat, L. Supadee and K. Siangchaew
- 1813 Deposit of Chromium Layers from Trivalent Chrome Electrolytes  
J. Bohnet and K. Romankiewicz

### **D3 - Corrosion of Electronic and Magnetic Materials**

#### *Corrosion*

- 1814 Fundamentals of Atmospheric Corrosion  
C. Leygraf
- 1815 Corrosion of Cu and Steels Exposed to Simulating Accelerated Atmospheric Corrosion Conditions  
M. Reid, K. Shannon and L. Garfias-Mesias
- 1816 Initial Atmospheric Corrosion of Zinc Induced by Organic Acids  
P. Qiu, J. Hedberg and C. Leygraf
- 1817 Effect of Condensation in a Mixed Flowing Gas Environment  
M. Reid, E. Daltion and J. Punch
- 1818 Perspectives on Environmental Reliability of Electronic Devices  
R. Ambat
- 1819 Understanding the Effect of Flux Chemistry on Creep Corrosion  
M. Reid and M. Collins
- 1820 Investigation of Electrochemical Migration on Component and PCB Level under Controlled Experimental Parameters  
D. Minzari, M. Jellesen, U. Rathinavelu, P. Moller, M. Johnsen, P. Wahlberg and R. Ambat
- 1821 Do Copper Wire Bonds Corrode in Epoxy Encapsulated Electronic Devices?  
M. Reid and G. Derkits
- 1822 Corrosion in Electronics at Device Level  
M. Jellesen, D. Minzari, U. Rathinavelu, P. Moller and R. Ambat
- 1823 Degradation of Microcircuits Arising during Post CMP Cleaning in Oxalic Acid Solutions  
C. Gabrielli, E. Ostermann and H. Perrot
- 1824 Corrosion of Two Copper Stripes under Permanent Bias in Chloride Containing Solutions  
E. Sutter, S. Jebnoun, M. Tran and B. Tribollet
- 1825 Electrochemical Characterization of the Corrosion of Pulse Plated Microbondable Silver-Tin Layers  
W. Hansal, S. Hansal, G. Sandulache and M. Halmdienst
- 1826 Corrosion Resistance of Sintered Nd-Fe-B Magnets Corrosion and Surface Treatments for Corrosion Protection  
I. Costa, E. Martins and H. De Melo
- 1827 Mechanisms of Corrosion under a Magnetic Field  
F. Rhen
- 1828 Magnetic Field Driven Inhomogeneous Corrosion of Ferromagnetic Electrodes in Acidic Solutions  
R. Sueptitz, J. Koza, M. Uhlemann, A. Gebert, L. Schultz, X. Yang and K. Eckert
- 1829 Potentiostatic Current Oscillations of Iron in H<sub>2</sub>SO<sub>4</sub> Solution under Applied Magnetic Fields  
X. Yang, K. Eckert, R. Sueptotz, A. Gebert, M. Uhlemann and S. Odenbach
- 1830 High End Corrosion Protection of Rare-Earth Permanent Magnets  
L. Zapf
- 1831 Corrosion of Polycrystalline NiMnGa Alloys for Magnetic Shape Memory Applications  
A. Gebert, S. Roth, S. Oswald and L. Schultz
- 1832 Overview of Corrosion Protection with Volatile Corrosion Inhibitors  
J. Granath

### **D4 - High Temperature Corrosion and Materials Chemistry 8**

#### *High Temperature Materials / Corrosion*

- 1833 Oxidation Kinetics of Y/Zr-Doped FeCrAl-Alloys in Low and High pO<sub>2</sub> Gases  
D. Naumenko, D. Young, L. Niewolak, E. Wessel, L. Singheiser and W. Quadackers



- 1834 High-Temperature Oxidation Resistance of Al<sub>2</sub>O<sub>3</sub>- and Cr<sub>2</sub>O<sub>3</sub>-Forming Heat-Resisting Alloys with Noble Metals and Rare Earths  
T. Amano
- 1835 Thermodynamic Properties of Al Cr Fe Alloys: Experimental Investigation by Knudsen Effusion Mass Spectrometry  
T. Markus, V. Motalov, D. Kath and L. Singheiser
- 1836 Screening of the Fluorination Parameters to Improve the Oxidation Resistance of Ni-base Superalloys at Elevated Temperatures  
H. Zschau, P. Masset and M. Schütze
- 1837 Mechanism of the Early Oxidation Stages of  $\beta$ -NiAl: Unmodified and Containing Alloyed or Implanted Additions  
J. Jedlinski, G. Smola, M. Nocun, K. Kowalski, A. Bernasik and J. Camra
- 1838 Oxidation of Alloys, Interface Barriers and Phase Competition Revisited  
M. Danielewski, A. Gusak, B. Wierzba and A. Wnuk
- 1839 Computer Model for T-x-y Diagram with a Binary Compound Decomposed at High Temperatures  
V. Lutsyk and A. Zelenaya
- 1840 Fundamentals of TiAl Corrosion: A Critical Review  
S. Mercier and M. Bacos
- 1841 High Temperature Oxidation Behavior of Untreated and Fluorine-Treated TNBV5 Titanium Aluminide Alloys  
P. Masset and M. Schütze
- 1842 Oxidation Behavior of Alloys from Nb-Cr-Si System from 700-1300°C  
S. Varma
- 1843 Simultaneous Oxidation and Metal Dusting of Fe-Si Alloys: Kinetics and Reaction Morphology  
A. Motin, J. Zhang, P. Munroe and D. Young
- 1844 Selective Inhibition of Metals on Material Surfaces Catalyzing the Metal Dusting Process  
C. Geers and M. Schütze
- 1845 Metal Dusting Resistant Cu-Based Coatings  
C. Chun and T. Ramanarayanan
- 1846 Electrochemical Mechanism of Fast Stage of the Catastrophic Oxidation of Metals  
V. Belousov
- 1847 Effect of Heating Rate on the Fluorine Content in TiAl-Alloy after Oxidation at 900°C  
S. Neve, P. Masset, H. Zschau and M. Schütze
- 1848 Effect of Joining Condition on Interface Structure between Yttria-Stabilized Zirconia Joined via Al/Fe-Cr Alloy/Al Interlayers  
T. Shimura and T. Akashi
- 1849 Effect of Electrical Current on the Growth of the High Temperature Oxide Scale on Fe-22 mass %Cr in Ar-19.9%H<sub>2</sub>-0.6%H<sub>2</sub>O at 1073 K  
K. Kawamura, K. Okumura, M. Ueda and T. Maruyama
- 1850 Direct Heating for Analyzing Reforming Reaction on Alloy Surface in Low S/C Environment  
M. Ueda, K. Fujita, Y. Matsuzaki and T. Maruyama
- 1851 Microstructure of Inner Scale of 304SS Oxidized at 800°C under CH<sub>4</sub>-Steam Reforming Atmosphere  
M. Nanko and A. Gocho
- 1852 Mechanisms of Surface Scale Formation on Ferritic Steels in High CO<sub>2</sub>/H<sub>2</sub>O Containing Gases Simulating Oxy-fuel Environments  
J. Piron Abellan, T. Olszewski, L. Singheiser and W. Quadackers
- 1853 Effect of Niobium Additions on the Oxidation Behavior of Stainless Steels for SOFC Interconnects  
J. Fergus, Y. Zhao, R. Haney, K. Cramer and L. Riherd
- 1854 Electrochemical Corrosion of Carbon Steel in High Temperature Water  
V. Balashov, M. Fedkin, J. Beck, S. Lvov and J. Mathews

- 1855 Characterization and Pickling Behavior of Thermal Oxide Scales on Hot-Rolled Carbon Steel Strips Produced from Medium Slabs  
S. Chandra-Ambhorn, J. Tungtrongpairoj, T. Nilsonthi and A. Somrak
- 1856 Combined Effect of High Temperature and VUV Radiation on C/C Composites  
M. Balat-Pichelin, J. Eck and J. Sans
- 1857 Oxidation of C/SiC Composites in Reduced Oxygen Partial Pressures  
E. Opila and J. Serra
- 1858 High Temperature Oxidation of SiC under Helium with Low Oxygen Partial Pressure  
M. Balat-Pichelin, L. Charpentier and F. Audubert
- 1859 Oxidation of Hf-Ta-N Based Ceramic-Metal Composites  
M. Opeka, S. DiPietro and E. Wuchina
- 1860 Interplay Between Molten Silicate Deposits and Flowing Water Vapor on EBCs  
K. Grant, S. Krämer and C. Levi
- 1861 Coatings and Oxidation of (Ti<sub>1-x</sub>, Al<sub>x</sub>)N Films from Alkoxide Solutions by Thermal Plasma CVD  
S. Shimada, Y. Terao, J. Tsujino and I. Yamazaki
- 1862 High Temperature Materials Division J. B. Wagner, Jr. Young Investigator Award: Crystal Structure Effects on the Conductivity of Ionic and Protonic Ceramics  
J. Nino
- 1863 Nanometer-Thick Cobalt-Iron Spinel Oxide Films for High Temperature Splitting of H<sub>2</sub>O and CO<sub>2</sub>  
A. McDaniel, J. Scheffe, G. Evans, A. Weimer and M. Allendorf
- 1864 Thermochemical Behavior and Permeability of Ba<sub>0.5</sub>Sr<sub>0.5</sub>Co<sub>0.8</sub>Fe<sub>0.2</sub>O<sub>3-δ</sub> Membranes in CO<sub>2</sub>-Containing Atmosphere  
A. Möbius, D. Schlehüser, A. Ellett, L. Singheiser and T. Markus
- 1865 Microstructure Change of Single Crystal TiO<sub>2</sub> under Chemical Potential Gradient at 1273 K  
M. Lyta, T. Watanuki, M. Ueda, K. Kawamura and T. Maruyama
- 1866 Diffusion in High-Temperature Piezoelectric Single Crystals  
J. Sauerwald, M. Schulz, D. Richter and H. Fritze
- 1867 Liquid-Phase Oxidation Joining of Ytria-Stabilized Zirconia via Al/Fe-Cr Alloy/Al Interlayers  
T. Akashi, T. Shimura and H. Kiyono
- 1868 Thermal Stability of FeS<sub>2</sub> Cathode Material in "Thermal" Batteries: Effect of Dissolved Oxides and Hydroxides in Molten Salt Electrolytes  
P. Masset

## **D5 - Surface Treatment for Biomedical Applications 2**

### *Electrodeposition / Corrosion / Sensor*

- 1869 Influence of Chemical Surface Modification on Corrosion and Biocompatibility of Magnesium  
S. Virtanen, C. Lorenz, P. Kollmannsberger, L. Jaafar and B. Fabry
- 1870 Challenges in Correlating In Vitro Corrosion Data to In Vivo Performance for Implantable Electrode Materials  
G. Martinez
- 1871 Anodic TiO<sub>2</sub> Nanotube Surfaces: 15 nm - An Optimal Length Scale of Surface Topography for Cell Adhesion and Differentiation  
S. Bauer, J. Park, K. von der Mark and P. Schmuki
- 1872 Antimicrobial Activity of Electrochemically Oxidized Silver and Copper  
S. Djokic
- 1873 Influence of Surface Charge on the Adsorption of Proteins on Titanium  
I. Van De Keere, J. Vereecken and A. Hubin
- 1874 Electrochemical Characterization of a Natural Bioceramic Material for Biomedical Applications  
Y. Yoon, A. Mount, K. Hansen and D. Hansen

- 1875 Leave No Trace: Vapor Deposited Bioabsorbable Mg Alloy Implants  
J. Petrilli, B. Shaw, E. Sikora, M. Horn and S. Pursel
- 1876 Carbon Containing Titanium Coating for Ti<sub>6</sub>Al<sub>4</sub>V Implants  
U. Ruiz de Gopegui, R. Bayon, C. Zubizarreta, V. Sáenz de Viteri and X. Fernandez
- 1877 The Effect of Fluoride Ions on the Behavior of Titanium and Its Alloys in Artificial Saliva  
I. Milošev
- 1878 Electrochemical Properties and Biological Activity of Carbon Materials Modified by Polypyrrole  
M. Goldin, M. Abakumov, A. Stepanov, A. Volkov and V. Kolesnikov
- 1879 Preparation of Nano-Structured Titanium Oxide Film by Wet Corrosion Process as an Electrode Material for Biosensor  
S. Lee, M. Takai and K. Ishihara
- 1880 Functionalized Nanostructured Parylene Film for Biomedical Applications  
M. Demirel
- 1881 Formation of Calcium Phosphate Layer on Bioabsorbable Magnesium to Improve Its Corrosion Resistance  
S. Hiromoto and M. Tomozawa
- 1882 Cell Activity on Biomedical Pure Ti and Ti Alloys with Various Surface Oxide Layers  
S. Fujimoto, T. Sugimoto, T. Tamura, H. Tsuchiya, R. Nakatsu and S. Hiromoto
- 1883 Magnetically Guided TiO<sub>2</sub> Nanotubes for Site Selective Photoinduced Drug Release  
N. Shrestha, J. Macak, F. Schmidt-Stein, R. Hahn and P. Schmuki
- 1884 Synthesis and Evaluation of the Polypyrrole Film As the Cell Culture Substrate  
N. Batina, U. Paramo-Garcia, A. Avalos-Perez, M. Tapia-Tapia, M. Acosta-Garcia, C. Lara-Cruz, P. Damian-Matsumura, I. Morales-Reyes and R. Godinez-Fernandez
- 1885 Using EIS to Assess the Protection Afforded by Phosphate Layers to PM Produced Nd-Fe-B Magnets  
E. Martins, H. De Melo and I. Costa
- 1886 ZrO<sub>2</sub> Coating to Restrain Metal Ion Release on Dental Ni-Cr Alloy  
C. Chang and K. Tung
- 1887 Titanium Anodic Treatment Process for Porous Structure  
P. Hsieh and M. Chen
- 1888 Electrochemical Etching of NiTi Alloy in a Neutral Fluoride Solution  
S. Cattarin, P. Guerriero, M. Musiani, A. Tuissi and L. Vázquez-Gómez
- 1889 Conducting Polymer Layers on Membranes for the Prevention of Biofouling  
C. Weidlich, K. Mangold, G. Schaule and A. Rumpf
- 1890 Novel Porous Composite Polymeric/Ceramic Scaffolds for Bone Reconstruction  
J. Serra Moreno, S. Panero and E. Landi
- 1891 Characterization of Acrylic Bone Cements in Simulated Body Fluid by Near-Field Scanning Optical Microscopy  
R. Vargas-Coronado, J. Cauich-Rodriguez and L. Garfias-Mesias
- 1892 Bioactivation of Porous Electrode Composed of Sintered Titanium Spheres by Hydroxyapatite Coating  
S. Ono, A. Kodama and H. Asoh
- 1893 Ionic Liquid Electropolishing of Metal Alloys for Biomedical Applications  
T. Abdel-Fattah and J. Loftis
- 1894 Redox Potential as a Reflection of Hyperbaric Oxygenation Effect on Certain Systems in the Organism  
M. Khubutiya, V. Krylov, M. Romasenko, A. Evseev, M. Goldin, A. Volkov, O. Levina and E. Aleschenko

## **D6 - Oxide Films**

### *Corrosion*

- 1895 Metal Nanoparticles on Oxide Ultrathin Films: A Class of Materials with Unprecedented Properties  
G. Pacchioni

- 1896 DFT Study of Voiding Mechanisms at Oxide/Alloy interfaces  
M. Islam, B. Diawara, V. Maurice and P. Marcus
- 1897 The Effect of Alloying on Kink Oxidation and Dissolution in Acidic Electrochemical Environments  
J. Greeley
- 1898 Passivation of Stainless Steels: Atomistic Modeling and Simulation  
P. Marcus, Y. Beh and B. Diawara
- 1899 Simulation of the Motion of Ions Incorporated into Porous Anodic Alumina during Oxide Growth  
D. LeClere, S. Garcia-Vergara, F. Zhou, T. Hashimoto, P. Skeldon and G. Thompson
- 1900 Appearance Modeling of Multilayered Nanostructured Metal Oxides: Test Case - Interference Colored Anodized Aluminum  
I. De Graeve, P. Laha, D. Verwimp, R. Furneaux and H. Terryn
- 1901 XPS Studies of Passive Films  
H. Strehblow
- 1902 In Situ Investigation of the Passive Films of Nickel-Chromium-Iron Alloys in Pressurized Water at 300°C  
F. Wang and T. Devine
- 1903 Effect of Cold-Rolling on Passive Film on Pure Iron in pH 8.4 Borate Buffer Solution  
T. Yamamoto, K. Fushimi, S. Miura and H. Konno
- 1904 Area Effects on the Mott-Schottky Behavior of Anodic Films Formed on AISI 304 Stainless Steel  
D. Dalla Corte, L. Taveira and L. Dick
- 1905 Structure and Electronic Properties of Passive Films Formed on Co and Co-Cr Alloys in Neutral and Acidic Solutions  
S. Fujimoto, Y. Osakabe and H. Tsuchiya
- 1906 Cyclic Noise Thermometry and the Breakdown of Passivity  
G. Burstein, B. Daymond and M. Carboneras
- 1907 In Situ Electrochemical Analysis of the Interaction Between Metallic Oxides and Phosphonic Acid "Self-Assembling" Monolayers  
T. Hauffman, E. Tourwé, A. Hubin and H. Terryn
- 1908 Re-oxidation Behavior of Cr and V Ions in the Boiling Nitric Acid Solution and Acceleration Effect on Corrosion Rate of Stainless Steel  
M. Yamamoto, T. Motooka, F. Ueno and C. Kato
- 1909 Anodic Valve Metal Oxides: Switching Self-Organization from Pores to Tubes  
S. Berger, F. Jakubka, S. Bauer and P. Schmuki
- 1910 Growth of Porous Anodic Niobia and Tantalum Films Composed of Crystalline Nanoparticles  
S. Ono, B. Futatu and H. Asoh
- 1911 Fabrication of Two-Dimensional ZnO-NiO Hollow Half Sphere Arrays  
J. Moon, J. Park, S. Lee, H. Chu and T. Zyung
- 1912 A Comparative Study of the "Mott-Schottky" Behavior of Oxide Films on Stainless Steels in Ionic liquids and in Aqueous Solutions  
A. Maria, T. Benedetti, R. Torresi and L. Dick
- 1913 Effect of Surface Condition and Composition of Solutions on Repassivation Behavior of Titanium by PRM In Vitro  
M. Sakairi, M. Kinjyo, H. Miyata and T. Kikuchi
- 1914 SVET Study of the Corrosion of Thermal Scales Formed on AISI 1095 and AISI 52100 Steels  
P. Hernandez Jr. and L. Dick
- 1915 Investigating the Crevice Corrosion Resistance of Alloys 625 and 686 in Seawater  
S. Policastro, R. Rayne, P. Moran, F. Martin and P. Natishan
- 1916 New Horizons of Advanced Scanning Electron Microscopy for Corrosion and Oxidation Studies  
K. Shimizu
- 1917 Stress-Assisted Growth of Porous Anodic Aluminum Oxide  
Q. Van Overmeere, D. Mercier and J. Proost

- 1918 Anodic Oxidation Behavior of Al-Cu-Si Alloy in Sulfuric Acid Solution  
S. Moon, C. Yang and Y. Jeong
- 1919 Influence of Temperature on Anodic Oxide Growth on Aluminum during Anodizing at Applied Electrode Temperature  
T. Aerts, I. De Graeve and H. Terryn
- 1920 Effect of Solution Properties on the AC/DC Spark Anodizing of Al-Cu Alloy AA2219  
E. Alsrayheen, E. McLeod, V. Birss and R. Rateick
- 1921 Formation of Self-Organized Lamellar Nanostructured Oxide Layers on Ti-Al Alloy  
H. Tsuchiya, T. Akaki, A. Sugihara, Y. Koizumi, Y. Minamino and S. Fujimoto
- 1922 Passivity Loss in Cathodic Regions of Model Al-Cu Alloy Electrodes  
N. Missert, R. Copeland, P. Kotula and J. Rivera
- 1923 Nitride Formation on Aluminum-Tin Alloy by Heat Treatment in Air  
J. Tan and K. Nisancioglu
- 1924 Preferential Grain Etching of AlMgSi(Zn) Model Alloys  
B. Holme, N. Ljones, A. Bakken, O. Lunder, J. Lein, L. Vines, T. Hauge and K. Nisancioglu
- 1925 Adjustment of Electrical Properties of Phosphorus Doped ZnO-Based Thin Film Transistor Deposited by DC Magnetron Sputtering  
S. Lee, Y. Moon, D. Moon, K. Kim and J. Park
- 1926 Nanoscale Aqueous Dissolution of TiO<sub>2</sub>(110)(1x1)  
X. Torrelles, G. Cabailh, R. Lindsay, O. Bikondoa, J. Roy, B. Detlefs, J. Zegenhagen and G. Thornton
- 1927 The Analysis of Titanium Oxide Film  
M. Chen and P. Hsieh
- 1928 Role of Hydrogen Peroxide in Tin Dioxide Preparation  
M. Macalik, M. Sedlarikova and J. Vondrak
- 1929 Wet-Chemical Etching of IGZO and HfO<sub>2</sub>  
S. Han, J. Kim, J. Kim, Y. Jo, J. Kwak and J. Lee
- 1930 Electrooptical Observations for Micro Arc Initiation of Anodic Films during Anodizing of Mg in Aqueous Electrolyte  
S. Han, H. Kim, S. Lee, Y. Kim and J. Lee
- 1931 Crystal Transition Process of Anodic Films during Post-Breakdown in the Molten Bisulfate Melt  
S. Han, Y. Kim, H. Kim and G. Thompson
- 1932 Barrier Layer Growth and Nanopore Initiation during Anodic Oxidation of Niobium and Tungsten  
V. Karastoyanov, B. Tzvetkov, M. Bojinov and T. Tzvetkoff
- 1933 Tin-Oxide Thin Films Sensors: Oxidation Temperature Effect on NO<sub>x</sub> Sensing  
N. Duc Hoa, N. Van Quy, D. Hoon Oh, Y. Cho, H. Song and D. Kim
- 1934 Behavior of Al-Ga Alloy on the Negative Side of the Open - circuit Potential in Sodium Chloride Solution  
A. Višekruna, J. Radošević, S. Slavica Matešić and N. Krnić
- 1935 Evolution of An Iron Passive Film in A Borate Buffer Solution  
L. Toledo Matos and M. Pech Canul
- 1936 Thickness Estimation of Thin Anodic Oxide Films: A Comparison between Coulometry and Reflectometry  
M. Schneider, U. Langklotz, M. Weiser and A. Michaelis
- 1937 Efficient Proton Conduction in Anodic ZrO<sub>2</sub>-WO<sub>3</sub> Films  
D. Kowalski, Y. Aoki and H. Habazaki
- 1938 Electrical Characterization and Microstructural Observation of IGZO-TFT Fabricated by Sol-Gel Method  
J. Shim, J. Choi, K. Park, C. Lee, J. Lim, J. Joo, H. Kim, H. Lee, M. Moon and D. Jung
- 1939 The Conical Shape Filament Growth Model in Unipolar Resistance Switching of TiO<sub>2</sub> Thin Film  
K. Kim and H. Cheol Seong

- 1940 Effect of Ga Content on Properties of InGaZnO Thin Film Transistor Processed by Sol-Gel Process Technique  
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- 1941 Improvement in the Device Characteristics of Tin Oxide Thin-Film Transistors by Adopting Ultralow-Pressure Sputtering  
M. Huh, B. Yang, S. Oh, S. Won, J. Jeong, C. Hwang and H. Kim
- 1942 Improvement of Intermediate Layer by Formation of Tin-Iridium Dioxide in Oxygen Evolution Anodes for Seawater Electrolysis  
Z. Kato, J. Bhattarai, K. Izumiya, N. Kumagai and K. Hashimoto
- 1943 Mn-Mo-Sn Oxide Anodes for Oxygen Evolution in Seawater Electrolysis for Hydrogen Production  
A. El-Moneim, J. Bhattarai, Z. Kato, K. Izumiya, N. Kumagai and K. Hashimoto
- 1944 Combinatorial CVD: New Oxynitride Photocatalysts  
I. Parkin, G. Hyett and A. Kafizas

## **E1 - Analytical Techniques for Semiconductor Materials and Process Characterization 6**

### *Electronics and Photonics*

- 1945 Defect Analysis in Solar Cell Silicon by Photoluminescence Spectroscopy and Topography  
M. Tajima and H. Sugimoto
- 1946 New Modes of Fast Fourier Impedance Spectroscopy Applied to Solar Materials Characterization and Semiconductor Pore Etching  
J. Carstensen and H. Foell
- 1947 Advanced Application of Resistivity and Hall Effect Measurements to Characterization of Silicon  
V. Voronkov, G. Voronkova and R. Falster
- 1948 Detection of Vacancy Distributions by Decoration with Hydrogen  
R. Job, F. Niedernostheide, H. Schulze and H. Schulze
- 1949 Probing the Behaviors of Point Defects in Silicon and Germanium Using Isotope Superlattices  
M. Uematsu, M. Naganawa, Y. Shimizu, K. Itoh, K. Sawano, Y. Shiraki and E. Haller
- 1950 Electrical Characterization of Deep-Lying Donor Layers Created by Proton Implantation and Subsequent Annealing in n-Type Float Zone and Czochralski Silicon  
V. Komarnitsky and P. Hazdra
- 1951 Comparison of Evaluation Criteria for Efficient Gettering of Cu and Ni in Silicon wafers  
D. Kot, G. Kissinger, A. Sattler and W. von Ammon
- 1952 New Approaches in Wet Chemical Etching for Defect Delineation in Silicon Substrates  
J. Maehliss, R. Hakim, F. Brunier and B. Kolbesen
- 1953 Delineation of Crystal Defects with a Modified FS Cr-Free Etching Solution on SOI Materials  
T. Sanetti, J. Maehliss, S. Schaitmann, H. Hoeyneck, S. Inan and B. Kolbesen
- 1954 Copper Decoration and Etching for Delineation of Crystal Defects in Thick SOI Materials  
H. Idrisi, S. Riedmüller, J. Zoller and B. Kolbesen
- 1955 Characterization of Structural Defects in Silicon and SOI Wafers by Means of Laser Scattering Tomography  
V. Monier, L. Capello, O. Kononchuk and B. Pichaud
- 1956 Metrology for Nanoelectronics: Challenges and Solutions  
W. Vandervorst
- 1957 Considerable Improvement of Depth Resolution in Auger Sputter Depth Profiling of Polycrystalline Thin Films Using In Situ Sample Preparation Methods  
U. Scheithauer
- 1958 Semiconductor Thin Film Characterization with AC Surface Photovoltage  
E. Tsidilkovski

- 1959 Comparison of Silicon Surface Preparation Methods for Measurement of Minority Carrier Lifetime Using the Microwave Photoconductive Decay Couples with Continuous Corona Charge  
T. Pavelka, A. Pap, P. Kenesei, M. Varga, M. Tallian, G. Borionetti, G. Guaglio, M. Pfeffer and E. Don
- 1960 The Application of Differential Hall Effect Continuous Anodic Oxidation Technique for Ultra Shallow Structures  
S. Prussin and J. Reyes
- 1961 A DLTS study of Pt/Al<sub>2</sub>O<sub>3</sub>/In<sub>x</sub>Ga<sub>1-x</sub>As Capacitors  
E. Simoen, G. Brammertz, J. Penaud, C. Merckling, D. Lin, W. Wang and M. Meuris
- 1962 Charge Trapping in HfYO<sub>x</sub> Gate Dielectrics on Strained-Si  
B. Majhi, C. Mahata and C. Maiti
- 1963 Quantitative Strain Estimation Using C-V Characteristics of Strained Si MOS Capacitors  
M. Inagaki and S. Matsumoto
- 1964 Probing the Strain States in Nanopatterned Strained SOI  
O. Moutanabbir, M. Reiche, N. Zakharov, A. Hähnel, W. Erfurth, F. Naumann, M. Petzold, M. Holt, J. Maser and U. Goesele
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G. Kothleitner and B. Schaffer
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C. Frausto Reyes, J. Molina-Contreras, H. Pérez Ladrón de Guevara, C. Medel Ruiz and Y. López Álvarez
- 1968 Application of Fractional-Derivative-Spectrum Methods for Optical Analyses of Si and GaAs Semiconductors  
W. Rzodkiewicz, M. Kulik, E. Papis, A. Szerling and J. Szade
- 1969 The Technique to Characterize Reversible and Irreversible Domain Motions in Ferroelectric Thin Films in a Large Time Scale  
A. Jiang
- 1970 Controlling Copper ECD Processes by Early Fault Detection and Diagnosis Using In Situ Electrochemical Sensor Coupled with Pattern Recognition Chemometrics  
A. Jaworski, H. Wikiel and K. Wikiel
- 1971 Studies on Galvanic Corrosion on Floating and Grounded Bondpads in Wafer Fabrication  
Y. Hua, L. Ping, T. Qinghua and N. Rao
- 1972 Investigation on Particle Generation Mechanism during Dichlorosilane-Based WSi Deposition Process  
M. Oh, J. Kim, J. Kim and T. Kim
- 1973 Junction Leakage Due To Recombination-Generation at Gate, Trench and Buried Oxide Interfaces: A STI Gated-Diode Study  
Y. Liu and V. Koldyaev
- 1974 Characterization and Modeling of the Electrical Behavior and Threshold Voltage of the Nanocrystalline GZO Delta-Doped ZnO TFTs  
S. Hsiao, K. Liu, H. Chiang, L. Su, L. Peng and J. Huang
- 1975 Nanolayer Characterization by Reference-Free X-Ray Fluorescence Analysis with Synchrotron Radiation  
M. Kolbe, B. Beckhoff, M. Krumrey, M. Reading, J. van den Berg, T. Conard and S. De Gendt
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S. Sasamori, F. Meirer, N. Zoeger, C. Streli, P. Kregsamer, S. Smolek, C. Mantler and P. Wobrauschek
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B. Beckhoff, A. Nutsch, R. Altmann, G. Borionetti, C. Pello, M. Polignano, D. Codegoni, S. Grasso, E. Cazzini, M. Bersani, P. Lazzeri, S. Gennaro, M. Kolbe, M. Mueller, P. Kregsamer and F. Posch

- 1978 Characterization of Organic Contamination during Semiconductor Manufacturing Processing Employing Near Edge X-Ray Absorption Fine Structure Spectroscopy  
M. Müller, B. Beckhoff, P. Bedana, G. Borionetti, A. Corradi, L. Frey, G. Guerinoni, A. Leibold, M. Otto and A. Nutsch
- 1979 Comparability of TXRF Systems at Different Laboratories  
A. Nutsch, B. Beckhoff, R. Altmann, M. Polignano, E. Cazzini, D. Codegoni, G. Borionetti, M. Kolbe, M. Mueller, C. Mantler and C. Strelt
- 1980 Revealing Copper Contamination in Silicon after Low Temperature Treatments  
M. Polignano, J. Brivio, D. Codegoni, S. Grasso, R. Altmann and A. Nutsch
- 1981 Improved TEM Sample Preparation by Low Energy FIB for Strain Analysis by Convergent Beam Electron Diffraction  
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- 1982 Improved Efficiency of TiO<sub>2</sub> Nanotubes in Dye Sensitized Solar Cells by Decoration with TiO<sub>2</sub> Nanoparticles  
P. Roy, D. Kim, E. Spiecker and P. Schmuki
- 1983 Effect of High-Temperature Annealing on Evaporated Silicon Oxide Films: A Spectroscopic Ellipsometry Study  
A. Szekeres, E. Vlaikova, T. Lohner, P. Petrik, A. Cziraki, G. Kovacs, S. Zlobin and P. Shepeliavyi
- 1984 The Surface Properties of Silica Based Polymer-Detonation Nanodiamond Composites and Their Application as Cell Support Surfaces  
L. Pramatarova, E. Radeva, E. Pecheva, E. Iacob, L. Vanzetti, N. Krasteva, R. Dimitrova, D. Fingarova and T. Hikov
- 1985 Poly Si TFT on Microsheet  
S. Won
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J. Maehliss, R. Hakim, F. Brunier and B. Kolbesen
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B. Liu, Y. Hua, Z. Mo and A. Ng
- 1989 Drain Leakage Current Evaluation in the Diamond SOI nMOSFET at High Temperatures  
M. Bellodi and S. Gimenez
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E. Pecheva, L. Pramatarova, A. Toth, T. Hikov, D. Fingarova, S. Stavrev, E. Iacob and L. Vanzetti
- 1991 Characterization of SiGe/Si Quantum Dot Grown by Using APRPCVD  
T. Kim, M. Jeong, N. Mun, Y. Kil, J. Kim, T. Jeong, S. Kang, C. Choi, K. Shim and S. Kim
- 1992 3-D Model of Wafer Topography's Effect on Chemical Mechanical Polishing Process  
L. Wu
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G. Attolini, B. Watts, M. Bosi, F. Rossi and F. Riesz
- 1994 High Depth Resolution Depth Profile Analysis of Ultrathin High- $\kappa$  Hf Based Films Using MEIS Compared with XTEM, XRF, SE, and XPS  
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E. Hourdakakis, M. Theodoropoulou, A. Nassiopoulou, A. Parisini, M. Reading, J. van den Berg, T. Conard and S. Degendt



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M. Fried, P. Petrik, J. van den Berg, M. Reading and A. Parisini
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P. Petrik, S. Milita, G. Pucker, A. Nassiopoulou, J. van den Berg, M. Reading, M. Fried, T. Lohner, M. Theodoropoulou, S. Gardelis, M. Barozzi, M. Ghulinian, A. Lui, L. Vanzetti and A. Picciotto
- 1998 Ordered Arrays of SiO<sub>2</sub> Nanodots with Embedded Nanocrystals: Fabrication and Characterization  
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J. Osan, F. Reinhardt, B. Beckhoff, A. Pap and S. Torok
- 2002 Detection of Acidic Substances of H-X Type in Clean Room Air  
J. Kames, A. Leibold, A. Nutsch and M. Otto
- 2003 Atomistic Modeling of Junction Formation: Tools for Process Optimization and Physical Understanding  
L. Pelaz, M. Aboy, L. Marques, P. Lopez and I. Santos
- 2004 Sub-nanometer Two-Dimensional Carrier Profiling in Silicon MOS Technologies Using High Vacuum Scanning Spreading Resistance Microscopy  
P. Eyben, J. Mody, A. Nasir, A. Schulze, T. Hantschel and W. Vandervorst
- 2005 Improving and Assessing Soft X-Ray GIXRF Methodology Applied to the Characterization of Ultrashallow Junctions  
B. Beckhoff, P. Hoenicke and M. Kolbe
- 2006 A GIXRF Laboratory Instrument for the Characterization of Ultrashallow Implants and Thin Films  
D. Ingerle, N. Zöger, F. Meirer, G. Pepponi, D. Giubertoni, P. Wobrauschek and C. Strelt
- 2007 As Depth Profiling in Si Ultrashallow Junctions: Comparison of Three Different Experimental Determinations  
A. Parisini, V. Morandi, J. van den Berg, M. Reading, D. Giubertoni, P. Bailey and T. Noakes
- 2008 Ultrashallow Boron Junctions in Silicon Characterization by Secondary Ion Mass Spectrometry and Synchrotron Radiation Grazing Incidence X-Ray Fluorescence Techniques  
D. Giubertoni, P. Hoenicke, B. Beckhoff, G. Pepponi, E. Iacob and M. Bersani

## **E2 - Atomic Layer Deposition Applications 5**

### *Dielectric Science and Technology / Electronics and Photonics*

- 2010 Synthesis of Microscale Lead Sulfide Disks by Patterned Self-Assembled Monolayer  
T. Usui, N. Dasgupta, X. Jiang, W. Lee and F. Prinz
- 2011 Formation of Photovoltaic Buffer Layers by Atomic Layer Deposition  
J. Bakke and S. Bent
- 2012 Quantum Dot Formation in Polymer Wires by Three-Molecule Molecular Layer Deposition and Applications to Electro-optic/Photovoltaic Devices  
T. Yoshimura, A. Oshima and D. Kim
- 2013 ALD of Vanadium Oxide  
J. Musschoot, D. Deduytsche, R. Van Meirhaeghe and C. Detavernier
- 2014 Remote Plasma Atomic Layer Deposition of Co<sub>3</sub>O<sub>4</sub> Thin Films  
M. Donders, H. Knoops, M. van de Sanden, W. Kessels and P. Notten

- 2015 Performance and Characterization of ALD Vanadium Oxide Catalytic Nanoliths  
P. Stair, J. Elam, J. Libera, H. Feng, M. Pellin and H. Kim
- 2016 Structures, Properties and Applications of Functional Thin Films by ALD  
K. Choy
- 2017 Atomic Layer Deposition of Quantum Confined Nanostructures on Particles  
D. King, X. Liang, J. Li, S. Johnson and A. Weimer
- 2018 Zinc Oxide Growth by ALD and Thin Film Physical Characterization  
K. Tapily, D. Gu, H. Baumgart, G. Namkoong and A. Elmustafa
- 2019 Modeling and Characterization of ALD Grown ZnO Nanotubes and Their Integration into Submicron MEMS Devices  
T. Abdel-Fattah, D. Gu, H. Baumgart, R. Bajpai and M. Zaghoul
- 2020 The Benefits of Atomic Layer Deposition in Non-semiconductor Applications; Producing Metallic Nanomaterials and Fabrication of Flexible Display  
H. Kim, W. Kim, H. Lee and S. Lim
- 2021 In Situ studies of ALD High-k/III-V Interfaces  
R. Wallace
- 2022 Atomic Layer Deposition of High-k Oxides on InAlN/GaN-Based Materials  
S. Abermann, C. Ostermaier, G. Pozzovivo, J. Kuzmik, O. Bethge, C. Henkel, G. Strasser, D. Pogany, C. Giesen, M. Heuken, M. Alomari, E. Kohn and E. Bertagnolli
- 2023 Effect of Surface Functionalization on TiO<sub>2</sub> ALD on Ge(100)  
P. Ardalan, C. Musgrave and S. Bent
- 2024 ALD Applications Outside IC Technology: Existing and Emerging Possibilities  
M. Putkonen
- 2025 Formation of Silicide Nanowires by Atomic Layer Deposition of Cobalt  
H. Lee and H. Kim
- 2026 Particle ALD/MLD -Functionalization of Fine Particles (Invited)  
D. King, X. Liang and A. Weimer
- 2027 ALD Synthesis of Tube-in-Tube Nanostructures of Transition Metal Oxides by Template Replication  
D. Gu, P. Shrestha, H. Baumgart, G. Namkoong and T. Abdel-Fattah
- 2028 New Materials and Emerging Applications of Plasma ALD  
C. Hodson and Q. Fang
- 2029 Particle Performance of SUNALE(TM) ALD Batch Reactor  
K. Elers, J. Marles, P. Soininen and J. Kostamo
- 2030 Highly Conformal ALD of ZrO<sub>2</sub> at Higher Process Temperatures than the Conventional TEMAZr-Based Process  
Y. Senzaki, Y. Okuyama, G. Kim, H. Kim, C. Barelli, J. Lindner, Z. Karim and S. Ramanathan
- 2031 Recent Development of ALD Precursors for Semiconductor Devices  
S. Wada
- 2032 Sr and Ti Precursor Development for Next Generation Thin Films Applications  
R. Katamreddy, Z. Wang, V. Omarjee, P. Rao, C. Dussarrat and N. Blasco
- 2033 Densification, a Key Issue of the Atomic Layer Deposition of Hafnia onto Silicon: A Multimodel Investigation  
A. Esteve, C. Mastail, S. Olivier, M. Djafari Rouhani, G. Landa and A. Dkhissi
- 2034 Low Temperature Plasma-Enhanced Atomic Layer Deposition of Metal Oxide Thin Films  
S. Potts, L. van den Elzen, G. Dingemans, E. Langereis, W. Keuning, M. van de Sanden and W. Kessels
- 2035 Atomic Layer Deposition of GdAlO<sub>x</sub> and GdHfO<sub>x</sub> Using Gd(iPr-Cp)<sub>3</sub>  
C. Adelman, D. Pierreux, J. Swerts, J. Kesters, O. Richard, T. Conard, A. Franquet, H. Tielens, V. Afanasiev, M. Schaeckers, S. Van Elshocht and J. Kittl

- 2036 Novel "In Situ<sup>2</sup>" Approach to Modified ALD Processes for Nanofunctional Metal Oxide Films  
M. Tallarida, K. Karavaev, K. Kolanek and D. Schmeisser
- 2037 Extreme Scaled Gate Dielectrics by Using ALD Hf-Based Composite Materials  
D. Pierreux, V. Machkaoutsan, E. Tois, J. Swerts, T. Schram, C. Adelman, S. Van Elshocht, J. Tseng, L. Ragnarsson and J. Maes
- 2038 Copper Oxide ALD from a Cu(I) Beta-Diketonate: Growth Studies and Application as Seed Layers for Electrochemical Copper Deposition  
T. Waechtler, L. Hofmann, R. Mothes, S. Schulze, S. Schulz, T. Gessner, H. Lang and M. Hietschold
- 2039 Liquid Injection Atomic Layer Deposition of Metallic Ru Thin Films from Ru(tmhd)<sub>3</sub> and of High-k TiO<sub>2</sub> Thin Films from Ti(O-i-Pr)<sub>2</sub>(tmhd)<sub>2</sub>  
S. Hoffmann-Eifert, S. Kim and R. Waser
- 2040 Ru-Si-N Thin Films Prepared by Plasma Enhanced Atomic Layer Deposition as a Diffusion Barrier of Direct Plating of Cu  
T. Eom, W. Sari and S. Kim
- 2041 Transmission and Reflection Properties of Al<sub>x</sub>Ti<sub>1-x</sub>O Films for Si Thin Film Solar Cell  
J. Lim, S. Lee, J. Kim, S. Yun and J. Kim
- 2042 Effects of Pt/Al Top Electrode Selectively Formed by Metal Organic Chemical Vapor Deposition on Resistive Switching Properties of ALD TiO<sub>2</sub> Thin Films  
J. Lee, K. Lee, A. Kim and C. Lee
- 2043 Preparation of Pt-Deposited TiO<sub>2</sub> Nanotubes by Atomic Layer Deposition  
C. Wang, Y. Hsueh, C. Kei and T. Perng
- 2044 Plasma-Enhanced Atomic Layer Deposition of Ta(C)N Thin Films for Copper Diffusion Barrier  
K. Kim, J. Yoon, Y. Kim and S. Kwon
- 2045 Patterning of ALD HfO<sub>2</sub> Layers on Silicon  
R. Andreu, J. Sanchez, A. Sanchez, M. Zabala, M. Acero, J. Rafi and F. Campabadal
- 2046 Optimizing the Release of ALD Grown Transition Metal Oxide Nanotubes from Anodic Aluminum Oxide Templates  
T. Abdel-Fattah, D. Gu, H. Baumgart and G. Namkoong
- 2047 Metal Alloy Catalysts with Pt Surface Coating by Atomic Layer Deposition for Intermediate Temperature Ceramic Fuel Cells  
J. Shim, X. Jiang, S. Bent and F. Prinz
- 2048 Atomic Layer Deposition for All-Solid-State 3D-Integrated Batteries  
H. Knoops, M. Donders, M. van de Sanden, P. Notten and W. Kessels
- 2049 ALD Based Metal-Insulator-Metal Nanocapacitors for Energy Storage  
P. Banerjee, I. Perez, L. Henn-Lecordier, S. Lee and G. Rubloff
- 2050 Detailed Correlation of Electrical Characteristics and Breakdown Properties to the Growth Behavior of ALD Deposited HfO<sub>2</sub>- and ZrO<sub>2</sub>-Based Dielectrics  
U. Schroeder, W. Weinreich, E. Erben and J. Mueller
- 2051 Interface Analysis of Transparent Analog Capacitor Using ITO Electrodes and ALD High-k Dielectrics  
S. Won, M. Huh, S. Park, S. Seo, Y. Choi, J. Heo, C. Hwang and H. Kim
- 2052 Atomic Layer Deposition of Ru and RuO<sub>2</sub> for MIMCAP Applications  
C. Zhao, M. Pawlak, M. Schaekers, E. Sleenckx, E. Vancoille, D. Wouters, Z. Tokei and J. Kittl
- 2053 MIMIM Trench Capacitors with Plasma-Assisted ALD Al<sub>2</sub>O<sub>3</sub> and TiN Films  
D. Hoogeland, K. Jinesh, F. Roozeboom, W. Besling, W. Keuning and F. Voogt
- 2054 Atomic Layer Deposition of Materials for Phase-Change Memories  
M. Leskelä, V. Pore, T. Hatanpää, M. Heikkilä, M. Ritala, A. Schrott, S. Raoux and S. Rosnagel

## **E3 - Cleaning Technology in Semiconductor Device manufacturing 11**

### *Electronics and Photonics*

- 2055 Nonaqueous/Dry Cleaning Technology without Causing Damage to Fragile Fine Structures  
T. Hattori
- 2056 Study of the Interplay Between Dry Etch and Wet Clean in Patterning  $\text{La}_2\text{O}_3/\text{HfO}_2$  Containing High-k/Metal Gate Stacks  
I. Vos, D. Hellin, C. Vrancken, G. Vecchio, V. Paraschiv, J. Vertommen and W. Boullart
- 2057 Structural Changes of  $\text{La}_2\text{O}_3$ -Doped Hf-Based High-k Dielectrics during Aqueous HF Treatment  
Y. Sugita, T. Aoyama and K. Ikeda
- 2058 New Wet Process Strategies for Reduced  $\text{La}_2\text{O}_3$  and  $\text{MgO}_2$  High-k Cap-Dielectric Loss  
M. Wada, R. Vos, M. Claes, T. Schram, J. Snow, P. Mertens and A. Eitoku
- 2059 Reactive Gas/Wet Cleaning of Silicon Wafer Surfaces  
J. Vierhaus, C. Haase, J. Briesemeister and E. Burte
- 2060 Drying Impact on Semiconductor Surfaces after Innovative Solvent Exposure  
Y. Le Tiec, F. Fournel, N. Rochat, J. Barnes, M. Veillerot, C. Morales, H. Moriceau, L. Clavelier, F. Rieutord, C. Morote, M. Vandenbossche, J. Butterbaugh and I. Radu
- 2061 Characterization of the HCl Absorption and Outgassing Mechanisms by FOUPs' Polymers  
H. Fontaine, Y. Borde, C. Brych and A. Danel
- 2062 Cleaning Process in Single Wafer Tool: Impact of Dispersion Phenomena on Rinsing Time  
A. Mallet, M. Prat, P. Schmitz and L. Broussous
- 2063 Solar Cell Texturing: A Simplified Recipe  
T. Vukosav, P. Herrera and K. Reinhardt
- 2064 Study of CMOS-Compatible Copper Etching for Organic Coating  
M. Lambert, P. Rostam-Khani, J. ten Veen and L. van Nimwegen
- 2065 Influence of UV Irradiation on the Removal of Postetch Photoresist in Porous Low-k Dielectric Patterning  
E. Kesters, Q. Le, M. Lux, L. Onandia, C. Baerts and G. Vereecke
- 2066 Effect of Radical Scavenger on Removal of Photoresist and BARC Using Water/Ozone in Cu/Low-k Interconnect  
Q. Le, M. Lux, E. Kesters and G. Vereecke
- 2067 Impact of the Volatile Acid Contaminants on Cu Interconnects Electrical Performances  
H. Fontaine, H. Feldis and A. Danel
- 2068 Surfactants as an Additive to Wet Cleaning Solutions for Plasma Etch Residue Removal: Compatibility to a Porous CVD-SiCOH Ultra Low-k Dielectric Material  
N. Ahner, S. Schulz and M. Zacher
- 2069 SAM Modification of CMP Conditioner for the Prevention of Particle Adhesion  
T. Kwon, Y. Kang, I. Kim, D. Kim, J. Kim, J. Chun, M. Park and J. Park
- 2070 Evaluation and Screening of Different Wet Cleaning Solutions on BEOL Applications  
S. Suhard, M. Claes, J. Loh, G. Vereecke, S. Demuyne, B. Vereecke and G. Beyer
- 2071 Dilute HF Solutions for Copper Cleaning during BEOL Processes: Effect of Aeration on Selectivity and Copper Corrosion  
D. Padmanabhan Ramalekshmi Thanu, N. Venkataraman, S. Raghavan and O. Mahdavi
- 2072 Using a Novel Solvent-Based Technology to Preserve Low- $\kappa$  Material when Removing Gap Fill Material  
C. Franklin, A. Rector, D. Pfetscher, K. Pollard and D. Scheele
- 2073 Influence of Subharmonics on Megasonic Cleaning  
A. Higuchi
- 2074 Yield Qualification of All Wet Photoresist Stripping for CMOS Well Loop Implant Masks in 300 mm High Volume Manufacturing  
R. Nan, F. Lee, J. Hung, J. Chu, J. Yuan, D. Yang and J. Butterbauth

- 2075 Removal of Photoresist and BARC in Cu BEOL Using an All-Wet Process  
Q. Le, A. Klipp, M. Lux and G. Vereecke
- 2076 Lossless Solvent-Based Extension Implant Strip  
R. Vos, G. Mannaert, S. Halder, M. Wada, R. Sonnemans, D. Tsvetanova, N. Valckx, K. Vanstreels, T. Conard and P. Mertens
- 2077 Characterization of 248 nm Deep Ultraviolet Photoresist after Ion Implantation  
D. Tsvetanova, R. Vos, G. Vereecke, F. Clemente, K. Vanstreels, T. Conard, T. Parac-Vogt, P. Mertens and M. Heyns
- 2078 Photoetching of Silicon by N-Fluoropyridinium Salt  
S. Goto, K. Tsukamoto, T. Kawase, N. Ajari, T. Nagai, K. Adachi, J. Uchikoshi and M. Morita
- 2079 Investigation of Physical Cleaning Process Window by Atomic Force Microscope  
T. Kim, K. Wostyn, T. Bearda, J. Park, P. Mertens and M. Heyns
- 2080 Particle Removal and Damage Thresholds from Particle Removal and Damage Formation Frequency for High-Velocity-Aerosol Cleaning  
K. Wostyn, M. Wada, M. Andreas, K. Kenis, P. Roussel, T. Bearda, P. Leunissen and P. Mertens
- 2081 Damage Cluster Analysis of Patterned Wafers during Solvent Spray Cleaning  
S. Halder, K. Wostyn, M. Andreas, M. Wada, S. Brems, T. Bearda, A. Pacco, K. Kenis, R. Vos and P. Mertens
- 2082 Comparison of Jet Spray and Megasonic Module for a Cleaning of Aluminum Layer Surface  
J. Min, N. Kim and T. Kim
- 2083 Impact of Steam-Water Mixed Spray on Silicon and Metal Surfaces  
T. Mashiko, A. Hayashida, Y. Yamada, T. Sanada and M. Watanabe
- 2084 A Study on the Structure Collapse Mechanisms for High Aspect Ratio Structures with Application to Clean Processing  
D. Peter, F. Holsteyns, M. Dalmer, H. Kruwinus, A. Lechner and W. Bensch
- 2085 Cleaning and Strip Requirement for Metal Gate Based CMOS Integration  
T. Schram, S. Farid, M. Cleas, R. Vos, M. Wada, E. Rohr and S. Kubicek
- 2086 Water and Bubble Motions under Megasonic Wave in a Silicon Wafer Wet Cleaning Bath  
H. Habuka, Y. Okada, R. Fukumoto, H. Yoshii and M. Kato
- 2087 Reevaluation of Hydrogen Gas Dissolved Cleaning Solutions in Single Wafer Megasonic Cleaning  
B. Kang, S. Lee, I. Kim, E. Choi, B. Kim, A. Busnaina, T. Hattori and J. Park
- 2088 Development of a Single-Beam Megasonic System for Nanoparticle Cleaning  
H. Kim, Y. Lee and E. Lim
- 2089 Impact of Acoustical Reflections on Megasonic Cleaning Performance  
S. Brems, M. Hauptmann, E. Camerotto, A. Pacco, S. Halder, A. Zijlstra, D. Geert, T. Bearda and P. Mertens
- 2090 Megasonic Metrology for Enhanced Process Development  
S. Kumari, M. Keswani, M. Beck, E. Liebscher, T. Liang, P. Deymier and S. Raghavan
- 2091 Damage-Free Design of Megasonic Waveguide for Single Wafer Process  
Y. Ahn, D. Yu, J. Yang, A. Kulkarni, J. Kim, H. Lee and T. Kim
- 2092 Cleaning and Damage Performance of Single Wafer Cleaning Tools Using Physical Removal Forces  
A. Pacco, S. Halder, K. Kenis, T. Bearda and P. Mertens
- 2093 Removal of Post-Dry Etch Residue Using Ultralow Environmental Load Technique  
A. Hayashida, A. Seki, T. Mashiko, T. Sanada and M. Watanabe
- 2094 Effect of Laser Shock Wave Cleaning Direction on Particle Removal Behavior at Trenches  
J. Kim, A. Busnaina and J. Park
- 2095 Ruthenium Wet Etch on 200 mm MEMS Wafers with Sodium Hypochlorite  
R. Segaud, L. Gabette, O. Louveau and P. Besson
- 2096 Gold Wet Etch Optimization on 200 mm Substrates for MEMS Applications  
L. Gabette, R. Segaud, S. Fadloun, X. Avale and P. Besson

- 2097 Cleaning-Free Deposition System Using Pulsed-Plasma CVD under Near-Atmospheric Pressure for Highly Crystallized Poly-Si Thin Films on Plastic Films  
M. Matsumoto, Y. Inayoshi, S. Murashige, H. Fukidome, M. Suemitsu, S. Nakajima, T. Uehara and Y. Toyosihima
- 2098 Etching of Sacrificial CVD Silicon Dioxides with Anhydrous HF Vapor  
H. Ritala and J. Kiihamäki
- 2099 Monitoring of Semiconductor Surfaces Using Photoconductance Decay (PCD) Method  
P. Drummond, S. Ramani and J. Ruzyllo
- 2100 Metrology for Implanted Si Substrate and Dopant Loss Studies  
D. Radisic, D. Shamiryan, G. Mannaert, W. Boullart, E. Rosseel and J. Bogdanowicz
- 2101 Quantitative Analysis of Transition Metals Penetrating the Silicon Substrate by Dopant Ion Implantation  
K. Saga, K. Ueno, H. Iida and R. Ohno
- 2102 Electrochemical and Analytical Study of the Si Etching Mechanism in HF  
N. Valckx, R. Vos, J. Rip, G. Doumen, P. Mertens, T. Bearda, M. Heyns and S. De Gendt
- 2103 Shockwave Induced Deformation of Organic Particle in Laser Shockwave Cleaning Process  
T. Kim, A. Busnaina and J. Park
- 2104 Non-reagent Real-Time Monitoring of DSP+ Cleaning Solutions  
E. Shalyt, J. Tyutina, G. Liang, G. Lu and P. Bratin

#### **E4 - High Dielectric Constant Materials and Gate Stacks 7**

*Dielectric Science and Technology / Electronics and Photonics*

- 2105 Anomalous  $V_{FB}$  Shift in High-k Gate Stacks: Is Its Origin at the Top or Bottom Interface?  
A. Toriumi and T. Nabatame
- 2106 Impact of Alkali Earth Elements Incorporation on Electrical Characteristics of  $La_2O_3$  Gated MOS Device  
T. Koyanagi, K. Okamoto, K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii, K. Natori, T. Hattori and H. Iwai
- 2107 Flatband Voltage and Structural Properties of Hafnium Dioxide Films Grown by Liquid-Injection MOCVD  
F. Ducroquet, E. Rauwel and C. Dubourdieu
- 2108 Work Functional Control at High-k Metal Gates for CMOS Devices  
J. Robertson
- 2109 High-k Dielectrics and Interface Passivation for Ge and III/V Devices on Silicon for Advanced CMOS  
M. Heyns, C. Adelman, G. Brammertz, M. Caymax, B. De Jaeger, A. Delabie, G. Eneman, M. Houssa, D. Lin, K. Martens, C. Merckling, M. Meuris, J. Mitard, J. Penaud, G. Pourtois, M. Scarrozza, E. Simoen, S. Sioncke and W. Wang
- 2110 Electrical Properties of Lanthanum-Scandate Gate Dielectric Directly Deposited on Ge  
M. Bera, J. Song, K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii, T. Hattori and H. Iwai
- 2111 Effect of the Semiconductor Substrate Material on the Post-breakdown Current of MgO Dielectric Layers  
E. Miranda, E. O'Connor, G. Hughes, P. Casey, K. Cherkaoui, S. Monaghan, R. Long, D. O'Connell and P. Hurley
- 2112 InAs-Channel Metal-Oxide-Semiconductor HEMTs with Atomic-Layer-Deposited  $Al_2O_3$  Gate Dielectric  
C. Chang, E. Chang, W. Huang, Y. Su, H. Trinh, H. Hsu and Y. Miyamoto
- 2113 Barrier Characterization at Interfaces of High-Mobility Semiconductors with Oxide Insulators  
V. Afanas'ev and A. Stesmans
- 2114 Defects Generation under Constant Voltage Stress in  $La_2O_3/HfO_2$  Gate Stacks Grown on Ge Substrates  
E. Evangelou, M. Rahman, A. Dimoulas and S. Galata
- 2115 Capacitance-Voltage and Conductance Analysis of High-k/ $In_xGa_{1-x}As$  Structures ( $x = 0, 0.15, 0.3, \text{ and } 0.53$ )  
P. Hurley, E. O'Connor, S. Monaghan, R. Long, A. O'Mahony, I. Povey, K. Cherkaoui, M. Pemble, J. MacHale, A. Quinn, G. Brammertz, M. Heyns, S. Newcomb and V. Afanas'ev

- 2116 Modeling of Alternative High-k Dielectrics for Memory Based Applications  
G. Pourtois, S. Clima, K. Sankaran, P. Delugas, V. Fiorentini, W. Magnus, B. Soree, S. Van Elshocht, C. Adelman, J. Van Houdt, D. Wouters, S. De Gendt, M. Heyns and J. Kittl
- 2117 Dielectric Properties of Thin Hf- and Zr-Based Alkaline Earth Perovskite Layers  
G. Lupina, P. Dudek, G. Kozłowski, J. Dabrowski, G. Lippert, H. Müssig and T. Schroeder
- 2118 Stable HfO<sub>2</sub> Based Layers Fabricated by RF Magnetron Sputtering  
L. Khomenkova, C. Dufour, P. Coulon, C. Bonafos and F. Gourbilleau
- 2119 Surface-Directed Spinodal Decomposition in Hf Silicate Thin Films  
J. Liu, W. Lennard, D. Landheer and X. Wu
- 2120 Formation and Characterization of Thin Silicon Dioxide Films Obtained by Inductively Coupled High-Density Plasmas Using a Dual Rotated Spiral Antenna System  
J. Ji, Y. Kim, S. Woo, H. Kim, P. Um and C. Kim
- 2121 Nitrogen Incorporation in Al<sub>2</sub>O<sub>3</sub> Thin Films Prepared by Pulsed Ultrasonic Sprayed Pyrolysis  
S. Carmona-Tellez, C. Palacio, S. Gallardo, Z. Rivera, J. Guzman-Mendoza, M. Aguilar-Frutis, M. Garcia-Hipolito, G. Alarcon-Flores and C. Falcony
- 2122 Electron Beam Induced Orientation Selective Epitaxial Growth of CeO<sub>2</sub>(100)/Si(100) Structures Using Absorption Electron Imaging System  
T. Inoue and S. Shigenari
- 2123 High Density MIM Capacitors Using HfAlO<sub>x</sub>  
M. Hota, C. Mahata, C. Sarkar and C. Maiti
- 2124 Physical and Electrical Characterization of Fluorine Plasma Treated Hafnium Oxide Film for High Density Metal-Insulator-Metal Capacitors  
S. Ding, Y. Huang, Q. Sun and W. Zhang
- 2125 Group-II Hafnate, Zirconate, and Tantalate High-k Dielectrics for MIM Applications: The Defect Issue  
J. Dąbrowski, P. Dudek, G. Kozłowski, G. Lupina, G. Lippert and C. Wenger
- 2126 Impact of Voltage and Current Stress on TiN/HfSi<sub>x</sub>O<sub>y</sub>/TiN MIM Capacitors  
K. Jyothi, A. Chandorkar and D. Misra
- 2127 Progress Towards Passivation of High-Mobility Channels  
M. Houssa, V. Afanas'ev, A. Stesmans, M. Meuris and M. Heyns
- 2128 Electrical Characteristics of HfO<sub>2</sub> and La<sub>2</sub>O<sub>3</sub> Gate Dielectrics for In<sub>0.53</sub>Ga<sub>0.47</sub>As MOS Structure  
K. Funamizu, Y. Lin, K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii, E. Chang, T. Hattori and H. Iwai
- 2129 Small Signal Response of Inversion Layers in High Mobility In<sub>0.53</sub>Ga<sub>0.47</sub>As MOSFETs Made with Thin High-k Dielectrics  
A. Ali, H. Madan, S. Koveshnikov and S. Datta
- 2130 High-k Dielectrics for Ge, III-V and Graphene MOSFETs  
S. Banerjee, E. Tutuc, S. Kim, T. Akyol, M. Jamil, D. Shahredji, J. Donnelly and L. Colombo
- 2131 Low Temperature Fabrication of AlN/Ge Structure Using Electron Cyclotron Resonance Plasma Nitridation  
J. Kishiwada, N. Mohamed, Y. Oniki, Y. Iwasaki and T. Ueno
- 2132 Interface Engineering of a Metal/ High-k/ Semiconductor Layered Structure by Water Vapor Discharge  
K. Muraoka
- 2133 Annealing-Temperature Dependence of Compositional Depth Profiles and Chemical Bonding States of CeO<sub>x</sub>/LaO<sub>x</sub>/Si and LaO<sub>x</sub>/CeO<sub>x</sub>/Si Structure  
H. Nohira, Y. Kon, K. Kitamura, M. Kouda, K. Kakushima and H. Iwai
- 2134 Comparison of Lateral Nonuniformity Phenomena between HfO<sub>2</sub> and SiO<sub>2</sub> from Magnified C-V Curves in Inversion Region  
J. Cheng, C. Huang and J. Hwu
- 2135 Electrical Characteristics of La<sub>2</sub>O<sub>3</sub> Gated MOS Capacitors with Different Wafer Orientation  
H. Nakayama, K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii, T. Hattori and H. Iwai

- 2136 Interface Defects at the Si(100)/HfO<sub>2</sub> Interface Using DLTS Measurement  
D. Kwak, D. Kim, C. Shin, H. Kim and H. Cho
- 2137 Solution-Based Fabrication of High-k Dielectrics Using Oxide Nanosheets  
M. Osada, K. Akatsuka, Y. Ebina, H. Funakubo, K. Takada and T. Sasaki
- 2138 Atomic Layer Deposition of ZrO<sub>2</sub>, TiO<sub>2</sub>, and ZrTiO<sub>4</sub> Thin Films  
K. Opsomer, M. Schaekers, G. Rampelberg, D. Deduytsche, C. Detavernier and J. Kittl
- 2139 Interface and Bulk Properties of MBE-Grown Rare-Earth Metal Oxides on Silicon  
A. Nazarov, V. Lysenko, Y. Gomeniuk, Y. Gomeniuk, H. Osten and A. Laha
- 2140 Residual Stress Effect on the Dielectric Properties of La<sub>0.7</sub>Sr<sub>0.3</sub>CoO<sub>3</sub> Buffered (Ba,Sr)TiO<sub>3</sub> Thin Films  
S. Lu and Z. Xu
- 2141 Characteristics of Plasma Nitridation in Inductively Coupled High-Density Plasmas Using a Dual Rotated Spiral Antenna System  
S. Woo, Y. Kim, H. Kim, P. Um, S. Cho and C. Kim
- 2142 Characterization of Stacked Hafnium Oxide (HfO<sub>2</sub>)/Silicon Dioxide (SiO<sub>2</sub>) Metal-Oxide-Semiconductor (MOS) Tunneling Temperature Sensors  
C. Wang and J. Hwu
- 2143 Long TDDDB Lifetime of SiO<sub>2</sub> Film by Controlling Degradation Rate and SiO<sub>2</sub>/Si Microroughness  
Y. Kabe, J. Kitagawa, Y. Hirota, S. Sato, M. Sometani, R. Hasunuma and K. Yamabe
- 2144 C-V and DLTS of ALD HfO<sub>2</sub> on s-Si/SiGe/Si: Effects of s-Si Thickness and Surface Nitridation  
L. Yu, G. George Rozgonyi, P. Shrestha, D. Gu and H. Baumgart
- 2145 Effects of the Inductively Coupled Plasma Nitridation Process on the Reliability of HfAlO<sub>x</sub> Thin Films  
K. Chang, B. Chen and M. Su
- 2146 Nature of Interface Traps in Si/SiO<sub>2</sub>/HfO<sub>2</sub> /TiN Gate Stacks and Its Correlation with the Flatband Voltage Roll-Off  
S. Kar
- 2147 Transition Metal Binary Oxides for ReRAM Applications  
S. Spiga, E. Cianci, A. Lamperti, E. Magni and M. Fanciulli
- 2148 Demonstration of Transconductance Enhancement on (110) and (100) Strained-Nanowire FETs  
A. Seike, H. Takai, I. Tsuchida, J. Masuda, D. Kosemura, A. Ogura, T. Watanabe and I. Ohdomari
- 2149 Electrochemical Reactions in Nanoionics: Towards Future Resistive Switching Memories  
R. Waser and I. Valov
- 2150 Electron-Phonon Scattering Effect on Strained Si Nanowire FETs at Low Temperature  
I. Tsuchida, A. Seike, H. Takai, J. Masuda, D. Kosemura, A. Ogura, T. Watanabe and I. Ohdomari
- 2151 Improved Device Characteristics in Charge-Trapping-Engineered Flash Memory Using High-k Dielectrics  
A. Chin, S. Lin, C. Tsai and F. Yeh
- 2152 Failure Analysis of Single and Dual nc-ITO Embedded ZrHfO High-k Nonvolatile Memories  
C. Yang, Y. Kuo and C. Lin
- 2153 Nonvolatile Memory Capacitors Based on Double Au Nanocrystals and High-k Tunneling (HfO<sub>2</sub>) and Control (HfNO/HfTiO) Layers  
V. Mikhelashvili, B. Meyler, J. Salzman, M. Garbrecht, W. Kaplan and G. Eisenstein
- 2154 Application of ALD High-k Dielectric Films as Charge Storage Layer and Blocking Oxide in Nonvolatile Memories  
X. Zhu, D. Gu, Q. Li, H. Baumgart, D. Ioannou, J. Suehle and C. Richter
- 2155 Metal / High-k / Metal Nanocrystal / SiO<sub>2</sub> Gate Stacks for NAND Flash Applications  
S. Mahapatra and P. Singh
- 2156 Role of Nitride Traps in NBTI of Charge Trap Flash Memory with Oxide-Nitride-Al<sub>2</sub>O<sub>3</sub> (ONA) Structures  
D. Kim, D. Kwak, C. Shin, W. Kim and H. Cho



- 2111 Effect of the Semiconductor Substrate Material on the Post-breakdown Current of MgO Dielectric Layers  
E. Miranda, E. O'Connor, G. Hughs, P. Casey, K. Cherkaoui, S. Monaghan, R. Long, D. O'Connell and P. Hurley
- 2112 InAs-Channel Metal-Oxide-Semiconductor HEMTs with Atomic-Layer-Deposited Al<sub>2</sub>O<sub>3</sub> Gate Dielectric  
C. Chang, E. Chang, W. Huang, Y. Su, H. Trinh, H. Hsu and Y. Miyamoto
- 2120 Formation and Characterization of Thin Silicon Dioxide Films Obtained by Inductively Coupled High-Density Plasmas Using a Dual Rotated Spiral Antenna System  
J. Ji, Y. Kim, S. Woo, H. Kim, P. Um and C. Kim
- 2121 Nitrogen Incorporation in Al<sub>2</sub>O<sub>3</sub> Thin Films Prepared by Pulsed Ultrasonic Sprayed Pyrolysis  
S. Carmona-Tellez, C. Palacio, S. Gallardo, Z. Rivera, J. Guzman-Mendoza, M. Aguilar-Frutis, M. Garcia-Hipolito, G. Alarcon-Flores and C. Falcony
- 2122 Electron Beam Induced Orientation Selective Epitaxial Growth of CeO<sub>2</sub>(100)/Si(100) Structures Using Absorption Electron Imaging System  
T. Inoue and S. Shigenari
- 2126 Impact of Voltage and Current Stress on TiN/HfSi<sub>x</sub>O<sub>y</sub>/TiN MIM Capacitors  
K. Jyothi, A. Chandorkar and D. Misra
- 2136 Interface Defects at the Si(100)/HfO<sub>2</sub> Interface Using DLTS Measurement  
D. Kwak, D. Kim, C. Shin, H. Kim and H. Cho
- 2139 Interface and Bulk Properties of MBE-Grown Rare-Earth Metal Oxides on Silicon  
A. Nazarov, V. Lysenko, Y. Gomeniuk, Y. Gomeniuk, H. Osten and A. Laha
- 2140 Residual Stress Effect on the Dielectric Properties of La<sub>0.7</sub>Sr<sub>0.3</sub>CoO<sub>3</sub> Buffered (Ba,Sr)TiO<sub>3</sub> Thin Films  
S. Lu and Z. Xu
- 2141 Characteristics of Plasma Nitridation in Inductively Coupled High-Density Plasmas Using a Dual Rotated Spiral Antenna System  
S. Woo, Y. Kim, H. Kim, P. Um, S. Cho and C. Kim
- 2145 Effects of the Inductively Coupled Plasma Nitridation Process on the Reliability of HfAlO<sub>x</sub> Thin Films  
K. Chang, B. Chen and M. Su
- 2156 Role of Nitride Traps in NBTI of Charge Trap Flash Memory with Oxide-Nitride-Al<sub>2</sub>O<sub>3</sub> (ONA) Structures  
D. Kim, D. Kwak, C. Shin, W. Kim and H. Cho

## **E5 - Processing, Materials and Integration of Damascene and 3D Interconnects**

### *Dielectric Science and Technology*

- 2157 Integration Challenges for Copper Damascene Electroplating: An Invited Talk  
U. Stoeckgen, S. Wehner, J. Heinrich and A. Kiesel
- 2158 Process Compatibility of New Advanced Low-k Dielectric  
A. Ferchichi, K. Vanstreels, N. Heylen, G. Beyer, M. Baklanov, S. Asakuma and M. Nakajima
- 2159 Plasma Deposition and Development of Ultralow-k Bilayer SiCN<sub>x</sub>/SiCN<sub>y</sub> Dielectric Cu Cap for 32 nm CMOS Devices  
S. Nguyen, A. Grill, S. Cohen, H. Shobha, N. Klymko, E. Simonyi, T. Haigh Jr, C. Hu, E. Adams, E. Liniger, A. Madan, T. Shaw, E. Ryan, T. Cheng, J. Herman and R. Young
- 2160 Mechanical Reinforcement of Porous-Silica Low-k Film by Pore Surface Silylation  
Y. Kayaba, K. Kohmura, H. Tanaka, Y. Seino, S. Chikaki and T. Kikkawa
- 2161 Chemical Repair of Plasma Damaged Porous Ultra Low-k SiOCH Film Using a Vapor Phase Process  
T. Oszinda, M. Schaller, D. Fischer, S. Leppack and S. Schulz
- 2162 Acceleration of Copper Electroless Plating with Addition of PEG-Thiols  
F. Inoue, T. Yokoyama, S. Tanaka, K. Yamamoto and S. Shingubara
- 2163 Mechanistic Aspects of SPS Decomposition in Iron Mediated Copper Plating Solution  
J. Adolf, R. Preisser and U. Landau

- 2164 Influence of Carbon Nanotubes on the Electrodeposition of Copper Interconnects  
T. Chowdhury and J. Rohan
- 2165 Molecular Simulation and Modeling of Nanoscale Vertical Interconnects  
Y. Kaneko, K. Ohara and F. Asa
- 2166 Effects of Slurry Distribution Using Diaphragm and Centrifugal Pumps on the Defectivity in a Cu CMP Process  
R. Donis, M. Fisher and L. Bauck
- 2167 Effect of Functional Groups of Complexing Agents on the Performance of Cu CMP Slurry  
Y. Kim, J. Bae and J. Kim
- 2168 Effect of 5-Phenyl-1H-tetrazole on Copper Dissolution for e-CMP  
P. Cojocar, L. Magagnin and P. Cavallotti
- 2169 Pad Conditioning for Scratch-Free, Cu Chemical Mechanical Polishing  
T. Eusner, N. Saka and J. Chun
- 2170 Electromigration Induced Metal Voiding Mechanism on Electron Directions and via Numbers Effect for Copper Dual Damascene Interconnection  
B. Wei, Y. Cheng and Y. Wang
- 2171 Self-Assembled 3D Chip Stacking Technology - an Invited Talk  
K. Lee, T. Fukushima, T. Tanaka and M. Koyanagi
- 2172 Miniaturization of a Wireless Sensor Node by Means of 3D Interconnects: An Invited Talk  
J. Prainsack, M. Dielacher, M. Flatscher, T. Herndl, R. Matischek, P. Ramm, J. Stolle, J. Weber and W. Weber
- 2173 3D Integration Technology Activities at CEA-LETI Minatec  
M. Scannell, G. Poupon, L. Di Cioccio, D. Henry, J. Souriau, F. Grossi, P. Leduc, P. Battude, M. Vinnet, P. Guegen, L. Clavaliere and N. Sillon
- 2174 3D Interconnect Technologies for Advanced MEMS/NEMS Applications - an Invited Talk  
N. Lietaer, M. Taklo, K. Schjølberg-Henriksen and P. Ramm
- 2175 Through-Silicon via Technology for 3D Applications - an Invited Talk  
H. Philippsen, O. Lühn, Y. Civale, D. Sabuncuoglu Tezcan and W. Ruythooren
- 2176 Advances in Copper Fill for 3D Interconnect Applications - an Invited Talk  
T. Ritzdorf and D. Erickson
- 2177 Copper Electrodeposition Parameters Optimization for Through-Silicon Vias Filling  
E. Delbos, L. Omnès and A. Etcheberry
- 2178 Copper Plating for 3D Interconnects  
A. Radisic, O. Luhn, J. Vaes, S. Armini, Z. El-Mekki, D. Radisic, W. Ruythooren and P. Vereecken
- 2179 The Role of Additives and Deposition Parameters in Cu Plating of High Aspect Ratio Vias  
T. Ko, A. Radisic, S. Armini, P. Vereecken, C. Drijbooms, H. Bender, S. Sun, C. Wann, C. Yu, P. Leunissen, W. Ruythooren and S. Vanhaelemeersch
- 2180 High Speed Copper Electrodeposition for Through Silicon Via  
K. Kondo, Y. Suzuki, T. Saito and N. Okamoto
- 2181 Scaling Analysis of Bottom-Up Fill with Application to Through Silicon Vias  
J. Adolf and U. Landau
- 2182 Reliability of Through Silicon Via Technologies - an Invited Talk  
A. Klumpp and P. Ramm
- 2183 Wafer-Level Copper Bonding Technology in 3D ICs  
K. Chen
- 2184 Study the Correlation between Emission Spectroscopy and Diamond-Like Films Deposition from Various CO-CO<sub>2</sub>-H<sub>2</sub> gas Mixtures Plasma  
P. Chen
- 2185 Moisture Effect on Electromigration Characteristics for Copper Dual Damascene Interconnection  
Y. Cheng and B. Wei

- 2186 Evaluation of Stability and Reactivity of Solutions by In Situ Transmittance in Electroless Deposition  
K. Park, H. Koo, T. Lim and J. Kim
- 2187 The Functional Group Effect of Complexing Agent on Cu CMP in the Neutral Environment  
J. Bae, Y. Kim and J. Kim
- 2188 Effects of High-Temperature Porogens on the Moisture Uptake and Diffusion Behavior of Novel MSQ/Porogen Hybrid Low-k Dielectrics  
M. Che, J. Teng, P. Lai and J. Leu

### **E6 - One-Dimensional Nanoscale Electronic and Photonic Devices 3**

#### *Electronics and Photonics / Sensor / Corrosion*

- 2189 Multifunctional Si Nanotips-Array: Antireflection and Tip-Enhanced Electroluminescence and Magnetoresistance  
L. Chen and K. Chen
- 2190 SWNT FETs as Functional Structures in Sensors  
C. Hierold, T. Helbling, M. Mattmann and C. Roman
- 2191 Connectivity in Carbon Nanotube Networks  
P. Nirmalraj, P. Lyons, S. De, J. Coleman and J. Boland
- 2192 Nanowire-Based Thin-Film Devices as High-Performance Transparent and Flexible Electronics  
W. Lu
- 2193 Noble-Metal Covered W(111) Single-Atom Electron Sources  
I. Hwang, H. Kuo, C. Chang and T. Tsong
- 2194 Pumping Single Electrons by Nanotube Turnstiles  
V. Siegle, C. Liang, S. Lothkov, B. Kaestner, H. Schumacher, F. Jessen, R. Kleiner, D. Kölle and S. Roth
- 2195 Stability Requirements in Nanowire Electronic Devices  
G. Kim, J. Ha and S. Kahng
- 2196 The Silicon Nanowire Accumulation-Mode MOSFET  
P. Garg, J. Wu, Y. Hong, M. Iqbal, P. Migliorato and S. Fonash
- 2197 DOS Spectrum Deconvolution from  $C(V_g)$  and  $Q(V_g)$  Dependencies of Si Nanowire-Based MOS Structure  
V. Ligatchev and S. Chin
- 2198 Growth of Metal Nanowhiskers on the Patterned Substrate by Glancing Angle Deposition at High Temperature  
M. Suzuki, H. Hara, R. Kita, K. Hamachi, K. Nagai, K. Nakajima and K. Kimura
- 2199 Multiple Heterostructures of  $Ni_2Si/Si$  Formed by the Point Contact Reaction  
H. Ouyang, M. Cheng, Y. Shiu, S. Chen, W. Wu, S. Lo and L. Chen
- 2200 Chemically Designed Nanowires and Nanocomposites: Processing and Integration in Sensor Devices  
S. Mathur
- 2201 Thermal Expansion Behaviors of Bi Nanowires Fabricated via Centrifugal Processing  
C. Wang, S. Chen, C. Chao and L. Chen
- 2202 Plasmonic Behaviors of Gold-in- $Ga_2O_3$  Nanostructures  
Y. Wu, C. Hsu, S. Chen, L. Chou and L. Chen
- 2203 Single Crystal Au Nanowires and Their Field Emission Properties  
C. Chen and L. Chou
- 2204 Growth of Large Transparent and Conducting Graphene Sheets Using Chemical Vapor Deposition  
H. Park, V. Skakalova and S. Roth
- 2205 Group IV Semiconductor Nanowire Optoelectronics  
C. Kim, K. Kang, H. Lee, G. Lee and M. Jo

- 2206 CARBonCHIP: Carbon Nanotubes Technology on Silicon Integrated Circuits; Some Key Results  
P. Rapposelli, B. Capraro, J. Dijon, G. Groeseneken, D. Cott, J. Pinson, X. Joyeux, J. Amadou,  
J. Van Noyen and B. Sels
- 2207 Structure Confinement of Carbon-Based Nanomaterials in Vapor Phase for Their Applications in  
Nanoelectronic/Photonic Systems  
H. Choi
- 2208 Fabrication and Characterization of Nanorod Array Light Emitting Diodes by Using Nanosphere  
Lithography  
M. Ke, C. Wang, L. Chen, H. Chen, H. Chiang, Y. Cheng, M. Hsieh, C. Chen and J. Huang
- 2209 Electronic and Optical Properties of Pristine and Metallicity Selected Functionalized Single Wall Carbon  
Nanotubes  
T. Pichler
- 2210 Synthesis of GaN Nanowires Using Gold Nanoparticles on Plasma-Activated Silicon Substrate  
K. Lee, P. Lo and I. Chen
- 2211 Real-Space Mapping of Hybridized Plasmons of Nanoparticle Dimers  
D. Kim and Z. Kim
- 2212 Controlling the Degree of the Optical Anisotropy of Birefringent Porous Silicon  
K. Nishida, N. Ishikura, M. Fujii, S. Hayashi and J. Diener
- 2213 CVD Growth of Nanocarbons for Device Applications  
N. Mc Evoy, S. Kumar, T. Lutz, G. Keeley, W. Blau and G. Duesberg
- 2214 Ultrathin SOI Layer Nanostructuring and Nanowire Transistor Formation for FemtoMole Electronic  
Biosensors  
O. Naumova, V. Popov, B. Fomin, L. Safronov, D. Nasimov and A. Latyshev
- 2215 Formation of Aluminum Nanodots by Inhomogeneous Anodization Used for Fabrication of a Single-  
Electron Transistor  
T. Muto, Y. Kimura and M. Niwano
- 2216 Field Emission Properties of Gadolinium Silicide Nanowires Prepared by Physical Vapor Deposition  
L. Chu and L. Chen
- 2217 Self-Catalyzed Iron Silicide Nanowires with Room Temperature Ferromagnetic and High Conductivity  
Properties  
H. Shih-Wei and C. Lih-Juann
- 2218 Three Dimensional WO<sub>3</sub> Nanowires for All Solid State Electrochromic Device  
C. Lin and L. Chen
- 2219 Au(Sn)-SnO<sub>2</sub> Core-Shell Nanowires: High Temperature Nanothermometers  
S. Chen, C. Chen, C. Wang, L. Chou and L. Chen
- 2220 Electrical Properties of In<sub>2</sub>O<sub>3</sub> Nanowires  
C. Hsu, C. Hsieh and L. Chou
- 2221 Self-assembled Epitaxial Co<sub>1-x</sub>Ni<sub>x</sub>Si<sub>2</sub> Alloy Nanowires on Si(001)  
W. Li, C. Lee, S. Chen and L. Chen
- 2222 UV Photodetectors with Lateral Self-Assembled ZnO Nanowires Grown at Low Temperature  
P. Yang, I. Lee, C. Chang, K. Lin, J. Wang, K. Cheng, C. Lin and H. Cheng
- 2223 Towards Refractive Index Modulation in TiO<sub>2</sub> by Means of Electrochemical Anodization  
S. Liu, C. Lin, J. Lin, S. Lee, C. Couteau and G. Lerondel
- 2224 High Density Nickel Silicide Nanowire Arrays via Silicidation of Silicon Nanowires and Its Field  
Emission Property  
C. Liu, C. Tsai and L. Chen
- 2225 Electrical Characterization of Silicon Nanowires FET  
B. Salem, H. Abed, F. Dhalluin, M. Panabière, T. Baron, P. Noe, F. OELHER, N. Pauc and P. Gentile
- 2226 Fabrication of ZnO Nanorods Based Field Effect Transistors and Their Electrical Properties  
Y. Park, J. Kim, D. Hong and Y. Hahn

- 2227 Characteristics of Silicon Nanocrystals Embedded in the Amorphous-Silicon Carbide Films Deposited by Cat-CVD at Low Temperature for Optoelectronics Applications  
J. Hwang, K. Lee, Y. Lee, S. Jang, M. Han, S. Won, J. Sok, K. Park and W. Hong
- 2228 Excimer Laser Annealing Effects of Silicon-Rich Silicon Nitride Films Prepared by Using Catalytic Chemical Vapor Deposition  
K. Lee, J. Hwang, Y. Lee, S. Kim, M. Han, S. Jang, M. Han, S. Won, J. Sok, K. Park and W. Hong

## **E7 - Organic Semiconductor Materials, Devices, and Processing 2**

### *Electronics and Photonics / Dielectric Science and Technology*

- 2229 Materials Design and Structural Control in Organic Solar Cells  
C. Kim, J. Yoo, E. Gomez, S. Lee and Y. Loo
- 2230 Flexible Polymer Photovoltaic Devices Prepared with Inverted Structures on Metal Foils  
F. Chen, J. Wu, C. Lee, W. Huang, H. Chen and W. Chen
- 2231 Thin Films of New Molecular Materials with Very High Electron Affinity  
C. Keil, S. Nagel, R. Gerdes, S. Gorun and D. Schlottwein
- 2232 Investigation of the Reduction Processes in New Perylenediimide Derivates by In Situ Techniques  
B. Meana-Esteban, E. Kozma, H. Neugebauer, S. Luzzati, M. Catellani and N. Sariciftci
- 2233 Effect of CeO<sub>2</sub> Layer on Enhancement of Hole Injection in Inverted Top-Emitting Organic Light Emitting Diodes  
K. Hong, K. Kim, S. Kim and J. Lee
- 2234 Progress on Printed Low Voltage Electrolyte Gated OTFTs  
C. Frisbie
- 2235 Nanometer-Scale-Thick Polymer Gate Spacers for n-Channel Organic Thin-Film Transistors  
K. Noda, S. Tanida, H. Kawabata and K. Matsushige
- 2236 Liquid Gated Transistors with Organic and Inorganic Semiconductors  
Y. Iwasa, H. Shimotani, M. Kawasaki and K. Ueno
- 2237 The Design of High Mobility Semiconducting Polymers  
I. McCulloch and M. Heeney
- 2238 Crystal Engineering Semiconductors for Transistors and Photovoltaics  
J. Anthony
- 2239 Thin Film Transistors of Liquid Crystalline Semiconducting Polymers on Inorganic and Polymeric Dielectrics  
M. Chabinye, J. Cochran and M. Toney
- 2240 Molecular Orientation in Thin Films of Solution Processable Organic Semiconductors  
L. Richter, D. DeLongchamp, R. Kline, X. Zhang, S. Hudson, O. Jurchescu, D. Gundlach, T. Jackson, J. Anthony, N. Shin and D. Yoon
- 2241 On Theoretical Description of Charge Transport in Disordered Organic Materials  
S. Baranovski
- 2242 Microscopic Modeling of Charge Transport in Molecular Crystals, Polymers and Liquid Crystals  
A. Troisi
- 2243 Trap-Controlled Transport in Organic Field-Effect Transistors  
L. Zuppiroli, S. Konezny, S. Suarez, F. Fleischli and M. Bussac
- 2244 Compact Modeling of Organic Thin Film Transistors  
O. Marinov, M. Deen and B. Iniguez
- 2245 Carrier Velocity, Mobility, and Charge Transport in Organic Thin-Film Transistors  
A. Dodabalapur, B. Cobb and L. Dunn
- 2246 Fast OTFT Model Parameter Estimation  
R. Picos, E. Garcia and B. Iniguez
- 2247 Study of the Physical Mechanisms at the Contact Regions of Organic Transistors  
J. Jiménez Tejada, P. Lara Ballejos, M. Deen and O. Marinov

- 2248 Engineering Approach to Materials and Devices Development  
N. Tessler, A. Ben-sasson, N. Yaacobi, E. Avnon, M. Soreni and Y. Eichen
- 2249 Performance Improvement of Organic Thin-Film Transistor Using LiF Buffer Layer in Metal-Organic Interface  
S. Yeh, L. Yu, L. Lou and C. Lee
- 2250 Ambipolar Transport in Solution-Deposited Pentacene Transistors  
C. Kagan, S. Saudari, P. Frail and Y. Lai
- 2251 Transport at Grain Boundaries in Polymeric and Small Molecule Organic Semiconductors  
A. Salleo, L. Jimison, J. Rivnay, L. Goris, M. Toney, A. Facchetti, T. Marks, I. McCulloch and M. Heeney
- 2252 Low Cost, Low Noise, High Mobility Thin Film Transistors  
O. Jurchescu, C. Richter, L. Richter, D. DeLongchamp, J. Kline, J. Anthony, T. Jackson and D. Gundlach
- 2253 Influence of P3HT Active Layer Thickness on the Electrical Characteristics of PTFTs  
L. Resendiz Mendoza, M. Estrada, A. Cerdeira, B. Iniguez and M. Deen
- 2254 Electrochemical Measurements and DFT Calculations of Discotic Liquid Crystalline Compounds  
M. Ahmida, S. Mahoney and S. Eichhorn
- 2255 Fabrication of Au/PEDOT/PSS Stacked Electrodes of OTFTs by Imprinting Technology  
H. Chen, M. Huang, Y. Wang, S. Chen, P. Lin, C. Lien, B. Yeh and W. Chou
- 2256 Preparation and Characteristics of Solution-Processable Organic Thin Film Transistors on a PES Substrate  
Y. Yang, S. Kim, S. Lim, D. Youn, I. You and S. Kang
- 2257 Application of Flexible Field-Effect Transistor Device with Nanoscale Zinc Oxide as Active Semiconductor Material  
S. Lim, J. Oh, S. Kang, J. Park, Y. Yang, J. Koo and K. Cho
- 2258 Effects of UV/Ozone Treatment of Polymer Dielectric Layer on Organic Thin-Film Transistors  
S. Ahn, J. Oh, J. Koo, I. You, C. Kim, K. Suh and S. Kang
- 2259 Enhancement of Electroluminescence Properties in Top-Emitting Organic Light Emitting Diodes Using Copper Oxide Coated Silver Anode on Glass  
S. Kim, K. Hong, K. Kim and J. Lee
- 2261 Chrysene Derivatives as New Organic Semiconductors for Organic Field-Effect Transistors  
Y. Kunugi, M. Ikari and K. Okamoto
- 2262 Organic Electrodes for Organic Batteries  
B. Esat, C. Kilic and A. Ata
- 2263 Organic Transistor Vapor and Biosensors: Technology Status and Implementation Issues  
V. Subramanian, F. Liao and L. Jagannathan
- 2264 Organic Electrochemical Transistors for Sensing Applications  
F. Cicoira, S. Yang, J. DeFranco and G. Malliaras
- 2265 Fabrication and Optical Characterization of Conducting and Photoluminescent Polymer Micro- and Nanopillars  
L. Marsal, R. Palacios, P. Formentin, E. Martinez-Ferrero, A. Santos, J. Ferre-Borrull and J. Pallares
- 2266 Organic Nonvolatile Memory Devices Having Controlled Metallic Nanoparticles as Charge Trapping Layers  
Y. Park, S. Kim, S. Lyu and J. Lee
- 2267 Low-Voltage Ambipolar Organic Transistors for Microelectronics and Optical-Sensing Applications  
J. Labram, P. Wöbkenberg, D. Bradley and T. Anthopoulos
- 2268 Fabrication of Organic Transistors by Roll-to-Roll Vacuum Web Coating  
G. Abbas and H. Assender
- 2269 Solvent-Free Processing of High-Mobility Poly(3-hexylthiophene) Structures  
N. Stingelin

- 2270 DOD InkJet Deposition of Functional Materials for Flexible Electronic Devices  
F. Ely, C. Molina, T. Santos, V. Mammana and J. Swart
- 2260 Development of Polycarbazole Based High Efficiency Solar Cells  
S. Alem, T. Chu, S. Wakim, J. Lu, P. Verly, Y. Tao, S. Beaupré, M. Leclerc, F. Bélanger, D. Desilets, S. Rodman, D. Waller and R. Gaudiana

## **E8 - First International Symposium on Semiconductor and Plasmonics-Active Nanostructures for Photonic Devices and Systems**

### *Electronics and Photonics*

- 2271 Electroluminescence in Metal-Oxide-Semiconductor Tunneling Diodes with Ultrathin Silicon  
K. Matsumura, R. Yamada, K. Arima, J. Uchikoshi and M. Morita
- 2272 Colloidal Nanocrystal-Based Light-Emitting Diodes Fabricated on Plastic: Towards Flexible Quantum Dot Optoelectronics - Invited Talk  
J. Xu, Z. Tan and A. Wang
- 2273 Colloidal Quantum Dot Based Photonic Emitters and Circuits - Invited Talk  
V. Menon, M. Luberto, N. Valappil and S. Husaini
- 2274 InGaAs Quantum Dot Microtube Nanoscale Coherent Light Sources on GaAs and Si  
F. Li, S. Vicknesh and Z. Mi
- 2275 Theory of Semiconductor Quantum Dot Lasers - Invited Talk  
L. Asryan
- 2276 Stimulated Emission from ZnO Nanostructures - Invited Plenary Talk  
C. Klingshirn, J. Fallert and H. Kalt
- 2277 ZnO Nanorod Light-emitting Diode  
X. Sun and Y. Yang
- 2278 GaN-Based Optoelectronics on Silicon Substrate - Invited Talk  
A. Krost
- 2279 ZnO Nanostructures for LED and Photovoltaic Applications - Invited Talk  
D. Rogers, F. Hosseini Teherani, E. Sandana and M. Razeghi
- 2280 InGaAs/InP Quantum Dot Formation Employing Diblock Copolymer Lithography and Selective Growth - Invited Talk  
T. Kuech, J. Park, J. Kirch, C. Liu, M. Rathi, P. Nealey and J. Mawst
- 2281 Luminescence Characterization of  $Y_3Al_5O_{12}:Ce$  Nanoparticles Treated with Hexamethyldisilazane (HMDS)  
Y. Nien and I. Chen
- 2282 Metal-Semiconductor Nanoassemblies for Improving of Sensing Efficiency - Invited Talk  
M. Miu, I. Kleps, M. Simion, T. Ignat, M. Danila and A. Bragaru
- 2283 Molecular Beam Epitaxial Growth and Photoluminescence Properties of Homogeneous InN Nanowires on Si(111) - Invited Talk  
Y. Chang, F. Li and Z. Mi
- 2284 Electrochemical Reduction Synthesis of Photoluminescent Silicon Nanocrystals  
V. Reipa and J. Choi
- 2285 Breast Cancer Cell Imaging Using Semiconductor Quantum Dots - Invited Talk  
H. Xu, Z. Aguilar, H. Wei and A. Wang
- 2286 Far-Field and Near-Field Engineering of Semiconductor Lasers Using Plasmonics - Invited Plenary Talk  
F. Capasso, N. Yu, E. Cubukcu, R. Blanchard, J. Fan, Q. Wang, C. Pflugl, L. Diehl, T. Edamura, S. Furuta, M. Yamanishi and H. Kan
- 2287 Comparative Analysis of Surface Enhanced Raman Scattering Substrates Fabricated by Focused Ion Beam Milling and Electron Beam Lithography - Invited Talk  
M. Gerhold, A. Dhawan, Y. Du and T. Vo-Dinh

- 2288 Extraordinary Transmission through Nanoapertures for Imaging and Nanolithography - Invited Talk  
S. Chen
- 2289 Measurements on Single-Molecule Surface-Enhanced Raman Scattering from Controlled Metal Nanogap  
K. Muraokshi
- 2290 Fabrication and Properties of Au Nanoflowers for SERS Substrates  
J. Krishnan, I. Kim, W. Park, Z. Kim and S. Kim
- 2291 Tunable Electrochemical Switch of the Optical Properties of Metallic Nanoparticles  
Y. Leroux, J. Lacroix, V. Stockhausen, C. Fave, N. Felidj, J. Grand, A. Hohenau and J. Krenn
- 2292 Semiconductor-Core Metal-Shell Plasmonic Lasers - Invited Talk  
C. Ning, M. Hill, M. Marell, E. Leong, B. Smalbrugge, Y. Zhu, M. Sun, P. van Veldhoven, E. Geluk, F. Karouta, Y. Oei, H. Wang, K. Ding, R. Liu, R. Notzel and M. Smit
- 2293 Development of Silicon-Integrated Infrared Quantum Dot Light Emitting Diodes  
T. Zhu, S. Gao, C. Zhang, F. Zhang and J. Xu
- 2294 Device Structure Modification: Towards A More Efficient Infrared Nanocrystal Solar Cell  
T. Zhu, Z. Tan, S. Gao, F. Zhang and J. Xu
- 2295 1.55  $\mu$  Light Emission from Microcavity Light-Emitting Devices with PbSe Colloidal Quantum Dots  
F. Zhang, L. Wei, T. Zhu, S. Gao, C. Zhang, J. Xu, B. Downey and S. Mohney
- 2296 Frequency Up-Converted Lasing of Nanocrystal Quantum-Dots in Microbeads  
C. Zhang, F. Zhang, J. Xu and A. Wang
- 2297 Performance Degradation of P3HT:PCBM Polymer/Fullerene Photovoltaic Cells under Gamma Irradiation  
A. Todd, T. Zhu, F. Zhang, C. Zhang, A. Berger and J. Xu
- 2298 Synthesis of Near-IR Emitting CdTe/CdS/ZnS Core-Shell-Shell Quantum Dots  
H. Su, J. Xu and A. Wang
- 2299 Microwave Synthesis of Nearly Monodisperse CdSe Nanocrystals  
H. Su, J. Xu and A. Wang
- 2300 Electrochromic All-Solid-State Switchable Mirror on Flexible Polyethylene Terephthalate Sheet Fabricated by Only Dry Process  
K. Tajima, Y. Yamada, S. Bao, M. Okada and K. Yoshimura
- 2301 Solid Polymer-Ionic Liquid Electrolyte for Flexible Electrochromic Devices under a European Community Program  
K. Zaghib, J. Labrecque, A. Guerfi, U. Posset, A. Celik-Cochet and G. Schottner
- 2302 Preparation of Ni Oxyhydroxide Thin Films by Reactive Sputtering in H<sub>2</sub>O Atmosphere and Their Electrochromic Properties  
Y. Abe, H. Ueta, T. Obata, M. Kawamura, K. Sasaki and H. Itoh
- 2303 Energy-Saving Effect of Switchable Mirror Window  
K. Yoshimura, S. Bao, K. Tajima and Y. Yamada
- 2304 Novel Switchable Mirrors Based on Mg-Ca Alloy  
Y. Yamada, S. Bao, K. Tajima, M. Okada and K. Yoshimura
- 2305 Electrochromic Li-Ni-O Thin Film in Aqueous Liquid Electrolyte  
D. Park, B. Min, G. Campet and A. Rougier
- 2307 One Material, Multiple Faces: Nanostructured Bismuth - Invited Talk  
H. Park, J. Kim, C. Hsu, H. Shin and J. Xu
- 2306 High Contrast Nanocomposite Material for Ophthalmic Electrochromic Devices  
R. Ruffo, L. Beverina, A. Celik, U. Posset, C. Mari, G. Pagani and G. Schottner
- 2308 Nanophotonic Devices Based on Fano Resonances on Stacked Nanomembranes - Invited Talk  
W. Zhou and Z. Ma
- 2309 Co-deposition of Composite Lithium Nickel Tungsten Oxide Films for Electrochromic Applications  
D. Gillaspie, C. White, J. Pankow, S. Lee and A. Dillon



- 2311 One Dimensional Metal-Dielectric Photonic Crystals Using Metal Nanocomposites  
S. Husaini, N. Valappil and V. Menon
- 2310 Improved Transmittance for Electrochromic Ni-W Oxide Films  
C. White, D. Gillespie, J. Pankow, S. Lee and A. Dillon
- 2312 Photonic Crystal Slotted Waveguides and Cavities - Invited Talk  
A. Di Falco and T. Krauss
- 2313 Tungsten Oxide Electrochromic Windows with Lithium Polymer Electrolytes  
C. Sequeira and D. Santos
- 2315 Measured Colloidal Quantum Dot Absorption Enhancement in Fano Filters on Flexible Substrates  
L. Chen, H. Yang, Z. Qiang, H. Pang, Z. Ma, J. Xu and W. Zhou
- 2314 Ultrasonic Spray Deposition of Electrochromic Materials  
R. Tenent, D. Gillaspie and A. Dillon
- 2316 Enhancing Photonic Devices with Metal Nanoparticles - Invited Talk  
S. Bank, A. Crook and H. Nair
- 2317 Development of Flexible Electrochromic Devices Based on Crystalline WO<sub>3</sub> Nanostructures Produced with Hot-Wire Chemical Vapor Deposition  
E. Whitney, C. White, D. Gillaspie, S. Lee and A. Dillon
- 2319 Temperature Dependence of the Photoluminescence Intensity in Si<sub>3+x</sub>N<sub>4</sub>:H Films with Amorphous Si Nanoclusters: Evidence for Two Processes Involved in the Nonradiative Relaxation of Photoexcitations  
V. Volodin, V. Stuchinsky, T. Korchagina, A. Popov and M. Vergnat
- 2318 Synthesis of 2-(Selenophen-2-yl)pyrroles and 2-(Thien-2yl)-1H-pyrroles for Electrochromic Devices  
C. Pozo-Gonzalo

**E9 - State-of-the-Art Program on Compound Semiconductors 51 (SOTAPOCS 51)  
and Wide-Bandgap Semiconductor Materials & Devices 10**

*Electronics and Photonics / Sensor*

- 2320 Diamond FET Arrays for Biosensors and Bioelectronics  
J. Garrido, M. Dankerl, M. Hauf, A. Reitingger and M. Stutzmann
- 2321 Development of Lateral Quantum Dots with Cryogenic Silicon Circuit Assisted Read-Out  
M. Carroll, E. Nordberg, T. Gurrieri, K. Eng, G. Ten Eyck and M. Lilly
- 2322 Facet Specific Gold Tip Growth on Semiconductor Nanorod Assemblies  
C. O'Sullivan, S. Ahmed, R. Gunning, C. Barrett, H. Geaney, A. Sanyal, A. Singh and K. Ryan
- 2323 Novel Inorganic-Organic Hybrid Semiconductors with Extraordinary Properties  
Y. Zhang
- 2324 The Growth of Semiconductor and Dielectric Nanowire and Nanowire Arrays and Their Plasmonic Applications  
S. Prokes, L. Mazeina, D. Alexson, O. Glembocki, H. Park, H. Qi and R. Rendell
- 2325 Electrochemical Sensing with Diamond Nanotips  
C. Nebel, N. Yang and W. Smirnov
- 2326 Group III-Nitrides: From Bioelectronics to Nanosensors  
M. Eickhoff
- 2327 Au Free Ohmic Contacts for High Temperature InAlN/GaN HEMTs  
M. Alomari, D. Maier, J. Carlin, N. Grandjean, M. Poisson, S. Delage and E. Kohn
- 2328 Nanocrystal LEDs by Spray Layer-by-Layer Deposition  
T. Otto, P. Mundra, D. Dorfs, M. Schelter, J. Poppe, E. Frolova, V. Lesnyak, N. Gaponik and A. Eychemüller
- 2329 Optoelectronic Properties of AlGaIn-Films Studied by Means of Ellipsometry  
C. Cobet, C. Werner, M. Röppischer, N. Esser and R. Goldhahn

- 2330 Defect Reduction through Confined Epitaxy of GaN on SiC  
J. Hite, C. Eddy Jr. and M. Mastro
- 2331 Characterizations of Sidewall Reflected GaN-Based LEDs Using Self-Aligned Nanorod Arrays as Localized Photonic Crystals  
Y. Cheng, K. Pan, L. Chen, M. Ke, C. Chen and J. Huang
- 2332 Enhanced Vertical Emission from GaN Based Light Emitting Diode with ZnO Nanorod Arrays Produced by Hydrothermal Method  
S. Dalui, C. Lin, H. Lee and C. Lee
- 2333 Electron-Beam Evaporation of Distinctive Indium-Tin-Oxide Nanorods for Enhanced Light Extraction from InGaN/GaN Light Emitting Diodes  
C. Chiu, M. Tsai, P. Yu and H. Kuo
- 2334 Strain Relaxation and Emission Characteristics of Size-Dependent InGaN/GaN Nanorod Arrays  
C. Chiu, P. Yu, H. Kuo, T. Lu, S. Wang, C. Chang and Y. Wu
- 2335 InGaN-Based Light-Emitting Diodes with the Photoelectrochemical Treated Microhole Array Structures  
C. Lin and C. Lin
- 2336 Nanostructured Surface Morphology of ZnO Grown on A-Plane GaN  
C. Chen, C. Pan, F. Tsao, Y. Liu, G. Chi, C. Chang and T. Hsueh
- 2337 Local Vibration Modes of N-H Related Complexes in GaAsN Grown by Chemical Beam Epitaxy  
H. Suzuki, T. Tanaka, Y. Ohshita, N. Kojima and M. Yamaguchi
- 2338 Suppression of Leakage Current of AlGaIn/GaN HEMT by HF Treatment  
Y. Choi, J. Lim, Y. Kim and M. Han
- 2339 Effect of Doping on the Optical and Structural Properties of ZnO Thin Films Prepared by RF Diode Sputtering  
K. Shtereva, V. Tvarozek, P. Sutta, I. Novotny and A. Pullmannova
- 2340 Wide Bandgap Oxide Semiconductors for Novel Functions and Applications  
S. Fujita, T. Oshima and K. Kaneko
- 2341 High-Operating Current ZnO Based Thin Film Transistors with a Bilayer ZnO/GZO Channel  
K. Liu, H. Chiang, S. Hsiao, L. Su, L. Peng and J. Huang
- 2342 Fabrication and Characterization of Zinc Oxide Nanorods Based Heterojunction Devices Using Simple Solution Method  
N. Reddy, S. Kim, E. Lee and Y. Hahn
- 2343 SiC Power Device Technology: Differences to Silicon and Their Influence on Device Processing and Performance  
P. Friedrichs
- 2344 On the Driving Force of Shockley Stacking Fault Motion in 4H-SiC  
J. Caldwell, R. Stahlbush, M. Ancona, O. Glembocki and K. Hobart
- 2345 Correlation of Substrate Quality and Epitaxial Layer Lifetime and Defectivity in 4H-SiC Homoepitaxy  
C. Eddy Jr., B. VanMil, K. Lew, R. Myers-Ward, J. Tedesco, R. Stahlbush, J. Caldwell and D. Gaskill
- 2346 4H-SiC on C-Plane Sapphire with C<sub>60</sub>  
J. Li, P. Batoni and R. Tsu

## **E10 - ULSI Process Integration 6**

### *Electronics and Photonics*

- 2347 Modeling Techniques for Strained CMOS Technology  
V. Sverdlov and S. Selberherr
- 2348 Integration Challenges and Opportunities of Nanoelectronic Devices  
Y. Nishi
- 2349 Bio Inspired Architectures in the Nanoscale Integration Era  
T. Shibata

- 2350 Technology Evolution of Silicon Nanoelectronics  
S. Zaima
- 2351 Development of III-V MOSFET Process Modules Compatible with Silicon ULSI Manufacture  
I. Thayne, X. Li, W. Jansen, O. Ignatova, S. Bentley, H. Zhou, D. Macintyre, S. Thoms and R. Hill
- 2352 Multi-Gate Devices for High Performance, Ultralow Power and Memory Applications  
F. Balestra
- 2353 Ultrathin Body Effects in Single-Gate Multiple Gate SOI Transistors  
F. Gamiz, L. Donetti, C. Sampedro, A. Godoy and N. Rodriguez
- 2354 Optical and Electrical Characterizations of Defects in SiGe-on-Insulator  
H. Nakashima, D. Wang and H. Yang
- 2355 Very High Performance CMOS on Si(551) Surface Using Radical Oxidation Silicon Flattening Technology and Accumulation-Mode SOI Device Structure  
W. Cheng, A. Teramoto and T. Ohmi
- 2356 Variability Headaches in Sub-32 nm CMOS  
A. Asenov
- 2357 Low-Power SiGe HBT and Circuit Technology for Future Quasi-Millimeter-Wave Wireless Communications  
K. Washio, N. Shiramizu, M. Miura, T. Nakamura, K. Oda and T. Masuda
- 2358 Advanced Charge Storage Memories: From Silicon Nanocrystals to Molecular Devices  
B. De Salvo
- 2359 Overwhelming the 0.5 nm EOT Level for CMOS Gate Dielectric  
K. Kakushima, P. Ahmet and H. Iwai
- 2360 Atomically Controlled CVD Processing for Doping of Si-Based Group IV Semiconductors  
J. Murota, M. Sakuraba and B. Tillack
- 2361 Low-Temperature Oxidation of Semiconductor Surfaces by Use of a Novel High-Density Microwave Plasma Apparatus  
A. Gschwandtner
- 2362 Optimization of Shallow Junctions Achieved by Cluster Ion Implants and Excimer Laser Annealing  
W. Krull, K. Sekar, C. Sebatier and S. Rack
- 2363 On the Low-Frequency Noise Performance of Embedded Si:C nMOSFETs  
C. Claeys, E. Simoen, P. Verheyen, R. Loo, V. Machkaoutsan, M. Bauer and S. Thomas
- 2364 SiGe SEG Growth for Buried Channels p-MOS Devices  
A. Hikavy, R. Loo, L. Witters, S. Takeoka, J. Geypen, B. Brijs, C. Merckling, M. Caymax and J. Dekoster
- 2365 Silicon:Carbon Source/Drain Stressors: Integration of a Novel Nickel Aluminide-Silicide and Post-Solid-Phase-Epitaxy Anneal for Reduced Schottky-Barrier and Leakage  
S. Koh, W. Zhou, R. Lee, M. Sinha, C. Ng, Z. Zhao, H. Maynard, N. Variam, Y. Erokhin, G. Samudra and Y. Yeo
- 2366 Stress Characterization of Selective Epitaxial  $\text{Si}_{1-x}\text{Ge}_x$  Deposition for Embedded Source/Drain before and after Millisecond Laser Anneal  
M. Bargallo Gonzalez, T. Fernandez-Lanas, E. Rosseel, A. Hikavy, H. Dekkers, G. Eneman, P. Verheyen, R. Loo, E. Simoen and C. Claeys
- 2367 Atomically Controlled Plasma Processing for Epitaxial Growth of Group IV Semiconductor Nanostructures  
M. Sakuraba, K. Sugawara and J. Murota
- 2368 Electrical and Structural Properties of Platinum Silicided p-Type Schottky Barrier Metal-Oxide-Semiconductor Field-Effect Transistors Using Silicidation Through Oxide Technique  
C. Choi, R. Moon, M. Jeong, K. Shim and M. Jang
- 2369 A Roadmap for Nano-CMOS  
H. Iwai

- 2370 Low-Frequency Noise Analysis of the Impact of an LaO Cap Layer in HfSiON/Ta<sub>2</sub>C Gate Stack nMOSFETs  
E. Simoen, A. Akheyar, E. Rohr, A. Mercha and C. Claeys
- 2371 Integration Challenges in Standard CMOS with Multiple Gate Oxide Thicknesses  
J. Naughton and J. Towner
- 2372 Remote Coulomb Scattering Limited Mobility in MOSFET with CeO<sub>2</sub>/La<sub>2</sub>O<sub>3</sub> Gate Stacks  
M. Mamatrishat, M. Kuoda, K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii, K. Natori, T. Hattori and H. Iwai
- 2373 Advanced Contact Technology for MOSFETs: Integration of New Materials for Series Resistance Reduction  
Y. Yeo and R. Lee
- 2374 The Effect of Material and Process Interactions on Cu/ULK BEOL Integration  
T. Spooner, J. Arnold, D. Canaperi, J. Chen, S. Chen, S. Gates, A. Isobayashi, P. Leung, S. Papa Rao, M. Sankarapandian, H. Shobha and O. van der Straten
- 2375 Three-Dimensional Profiling of Process-Induced Stress in Cu Through-Silicon Vias for Wafer-Scale, 3D Integration  
C. McDonough and R. Geer
- 2376 X-Ray Nanotomography Studies of TSV Structures  
E. Zschech, F. Michael and P. Krueger
- 2377 An Improvement Method of the Reliability Characteristics of Cu Metallization for Deep Submicron ULSI Copper Process  
P. Chen
- 2378 Fast Detrapping Transients in High-K Dielectric Films  
R. Rao and F. Irrera
- 2379 A Novel Field-Enhanced-Nanowire Poly-Si Thin-Film Transistor Silicon-Oxide-Nitride-Oxide-Silicon Nonvolatile Memory with Gate-All-Around Structure Has Been Proposed to Achieve a Higher Program and Erase Efficiency  
T. Liao, S. Chen, P. Hsu, T. Kang, C. Lin and H. Cheng
- 2380 Influence of Phosphorus Concentrations in a-SiN:H Gate Layer on Electron Mobility in Thin Film Transistors  
J. Kim, Y. Sohn and S. Choi
- 2381 Contact Resistances Between Low-Cost Electrode Materials and Gallium Indium Zinc Oxide Thin-Film Transistors  
W. Kim, Y. Moon, S. Lee, B. Kang, T. Kwon, K. Kim and J. Park
- 2382 Charge Trapping Nonvolatile Memory  
P. Lorenzi, R. Rao, G. Ghidini, F. Palma and F. Irrera
- 2383 Electrochemical Processes for the Production of Copper Interconnects on Nonmetallic Barrier Layers  
D. Duquette
- 2384 Metal CMP Optimization Based on Chemically Formed Thin Film Analysis  
G. Basim
- 2385 Comparison of the Electrochemical Polishing of Copper and Aluminum in Acid and Acid-Free Mediums  
T. Abdel-Fattah and J. Loftis
- 2386 Epitaxial Ge on Standard STI Patterned Si Wafers: High Quality Virtual Substrates for Ge pMOS and III/V nMOS  
R. Loo, G. Wang, L. Souriau, J. Lin, G. Brammertz and M. Caymax

- 2387 Challenges and Progress in Germanium-on-Insulator Materials and Device Development Towards ULSI Integration  
E. Augendre, L. Sanchez, L. Benaissa, T. Signamarcheix, J. Hartmann, C. Le Royer, M. Vinet, W. Van Den Daele, J. Damlencourt, P. Batude, C. Tabone, F. Mazon, A. Tauzin, N. Blanc, M. Pellat, J. Dechamp, M. Zussy, P. Scheiblin, M. Jaud, C. Drazek, C. Maurois, M. Piccin, A. Abbadie, F. Lallement, N. Daval, E. Guiot, A. Rigny, B. Ghyselen, K. Bourdelle, F. Boulanger, S. Cristoloveanu, T. Billon, O. Faynot, C. Deguet and L. Clavelier
- 2388 Comprehensive Study of the Fabrication of SGOI Substrates by the Ge Condensation Technique: Oxidation Kinetics and Relaxation Mechanism  
L. Souriau, G. Wang, R. Loo, M. Caymax, M. Meuris, M. Heyns and W. Vandervorst
- 2389 Analysis of the Substrate Current in Ge pMOSFETs  
V. Todi, E. Simoen, G. Eneman, C. Claeys and K. Sundaram
- 2390 Schottky-Barrier Reduction of Platinum-Germanide-Contacts by RTA Diffusion of P Dopants  
C. Henkel, S. Abermann, O. Bethge and E. Bertagnolli
- 2391 Millisecond Flash Lamp Annealing of Ultrashallow Implanted Layers in Ge  
M. Posselt, C. Wündisch, B. Schmidt, T. Schumann, A. Mücklich, W. Skorupa, T. Clarysse, E. Simoen and H. Hortenbach
- 2392 High Performance InGaAs MOSFETs with High Mobility Using InP Barrier Layer  
J. Lee, H. Zhao, Y. Chen, J. Yum, F. Xue, F. Zhou and Y. Wang
- 2393 Computation from Devices to System Level Thermodynamics  
S. Shankar, V. Zhirnov and R. Cavin
- 2394 Electrothermal Transport in Carbon Nanostructures  
T. Yamada, T. Saito, D. Fabris, P. Wilhite and C. Yang
- 2395 Dopant Segregated Schottky Source/Drain for Germanium p-MOSFETs with Metal Gate/High-k Dielectric Stack  
P. Lim, D. Chi, G. Lo and Y. Yeo
- 2396 High Performance Germanium n<sup>+</sup>/p and p<sup>+</sup>/n Diodes Using Low Temperature Metal Induced Dopant Activation and La<sub>2</sub>O<sub>3</sub> Passivation  
A. Dimoulas, P. Tsipas, T. Speliotis and V. Loannou-Souglideridis
- 2397 Quasi-ballistic Transport of Charge Carriers in Nanometer FETs in the Model of Heterogeneous Channel  
V. Popov
- 2398 Charge Storage Characteristics of Hybrid Nanodots Floating Gate  
S. Miyazaki, K. Makihara and M. Ikeda
- 2399 Emerging Nonvolatile Memories by Exploiting Redox Reactions on the Nanoscale  
R. Waser
- 2400 Annealing Reaction for Ni Silicidation of Si Nanowire  
H. Arai, H. Kamimura, S. Sato, K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii, K. Natori, T. Hattori and H. Iwai
- 2401 Carbon Nanotube Memory Devices: Mass-Fabrication and Electrical Characterization  
U. Schwalke and L. Rispal
- 2402 Tunnel Field-Effect Transistors for Future Low-Power Nanoelectronics  
A. Verhulst, W. Vandenberghe, D. Leonelli, R. Rooyackers, A. Vandooren, S. De Gendt, M. Heyns and G. Groeseneken
- 2403 Physics of Nanocontact Between Si Quantum Dots and Inversion Layer  
S. Nomura, Y. Sakurai, Y. Takada, K. Shiraishi, M. Muraguchi, T. Endoh, M. Ikeda, K. Makihara and S. Miyazaki
- 2404 3D Suspended Nanowires Integration for CMOS and Beyond  
T. Ernst, K. Tachi, E. Saracco, A. Hubert, C. Dupré, S. Bécu, N. Vulliet, E. Bernard, P. Chems, V. Maffini-Alvaro, J. Damlencourt, C. Vizioz, J. Colonna, C. Bonafos and J. Hartmann
- 2405 Graphene Nanoelectronics for Next Generation Post-CMOS Logic Switches  
C. Sung

- 2406 Physics of Nanointerfaces and Nanostructures for Future Si Nanodevices  
K. Shiraishi
- 2407 Synthesis and Devices of Graphene  
J. Zhu, W. Liu, Y. Wang, B. Huang, Y. Xie and J. Woo
- 2408 Novel Materials and Integration Schemes for CMOS-Based Circuits for Flexible Electronics  
M. Quevedo, S. Gowrisanker, H. Alshareef, B. Gnade, D. Allee, S. Venugopal, R. Krishna and K. Kaftanoglu
- 2409 Organic Semiconductor Lasers  
G. Turnbull

### **F1 - Current Trends in Electrodeposition, an Invited Symposium**

#### *Electrodeposition*

- 2410 2009 ECS Electrodeposition Division Research Award: Condensed Phase Atomic Layer Deposition (ALD)  
J. Stickney
- 2411 Temporal and Spatial Self-Organization in Electrodeposition  
S. Nakanishi
- 2412 Protein-Based Electrodeposition Additives  
D. Schwartz
- 2413 Pattern Formation during Electrodeposition of Some Silver Alloys  
T. Dobrovolska, I. Krastev and A. Zielonka

### **F2 - Electrodeposition of Nanoengineered Materials and Devices 3**

#### *Electrodeposition*

- 2414 Anodic TiO<sub>2</sub> Nanotubes: Modified by Different Deposition Approaches  
I. Paramasivam, P. Roy, N. Shrestha, J. Macak and P. Schmuki
- 2415 Ru, Pt and PtRu Aligned Nanowires and Nanotubes: Synthesis and Growth Mechanism  
A. Ponrouch, S. Garbarino, S. Pronovost, P. Taberna, P. Simon and D. Guay
- 2416 Preferentially Oriented Pt (100) Nanowires: Synthesis, Characterization and Electrochemical Behavior  
S. Garbarino, A. Ponrouch, S. Pronovost and D. Guay
- 2417 Direct Oxidation of Ammonia Borane as an Alternative Fuel at Nanoporous Gold  
L. Nagle and J. Rohan
- 2418 Deposition of Electrocatalysts Nanoparticles on Modified Diamond Electrode for Fuel Cell and Chemical Sensor Applications  
J. Hu, X. Lu and J. Foord
- 2419 Sandwich-Like Glassy Carbon Electrode Modified by Electro-Oxidation Film of d-Mannitol with Gold Nanoparticle for Arsenic(III) Detection by Anodic Stripping Voltammetry  
X. Ji, Z. Chen, M. Mallavarapu and R. Naidu
- 2420 Bipolar Electrodeposition for the Bulk Generation of Dissymmetric Nanoobjects  
C. Warakulwit, M. Delville, V. Ravaine, J. Limtrakul and A. Kuhn
- 2421 New MnMoPt-Oxide Anode Materials for Green Hydrogen Production from Seawater Electrolysis  
A. Abd El-Moneim, N. Abd El-Ghany and N. Diab
- 2422 Fabrication of Nanogap Electrodes Using Electrodeposition Process  
T. Homma, C. Kobayashi, M. Saito and Y. Wakayama
- 2423 Fabrication and Characterization of Noble Metal Nanowires for Nanogap Devices  
J. Nambi Krishnan, B. Lee, H. Shin and S. Kim
- 2424 Atomic Contacts via Electrochemistry in Water/Cyclodextrin Media: A Step toward Protected Atomic Contacts  
J. Lacroix, Y. Leroux, C. Fave, Z. Dodzi and G. Trippe

- 2425 A Competitive Method of Fabrication of Photomasks and Nanochips  
T. Khoperia and G. Mamniashvili
- 2426 Single Polypyrrole Nanoribbon Based Chemical and Biological Sensors  
N. Chartuprayoon, C. Hangarter, Y. Rheem, H. Jung and N. Myung
- 2427 Electrodeposition of Variety of Polypyrrole / Gold Composites from Single Solution  
M. Donten, T. Rapecki and Z. Stojek
- 2428 Electrodeposition of ZnO/PEDOT Hybrid Nanostructures  
M. Döbbelin, E. Azaceta, R. Tena-Zaera, R. Marcilla, C. Pozo-Gonzalo, J. Pomposo and D. Mecerreyes
- 2429 Electropolymerization of Polyaniline Films under Magnetic Field Control  
O. Aaboubi, J. Douglade and O. Jbara
- 2430 Electrodeposition of Polymer Electrolytes and Complete Cells  
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- 2712 Effect of Absorbed Hydrogen on Microstructure of Electrodeposited Cobalt  
A. Nakayama, N. Fukumuro, S. Yae and H. Matsuda
- 2713 Study of the Dendritic Growth of NiCo Alloy Powders Electrodeposited on Cu Substrates  
L. Rafailovic, D. Minic, H. Karnthaler, J. Wosik and G. Nauer

- 2714 Effect of Tl Codeposited Au Plating in Non-cyanide Bath  
M. Saito, K. Inoue, K. Shioka and T. Homma
- 2715 Material Properties of Cu-Sn Layers Prepared by Reduction-Diffusion Method Using Medium-Low Temperature Ionic Liquid Baths  
K. Murase, A. Ito, T. Ichii and H. Sugimura
- 2716 Local Rate of Potentiostatic Nucleation of Zinc on Zirconium Electrode from Alkaline Solution  
I. Kryshchuk, N. Yurchenko and V. Trofimenko

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### *Electrodeposition*

- 2717 Adventures in Electrodeposition of Semiconductors for Solar Applications  
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- 2718 Fabrication and Properties of Three-Dimensionally Structured CdTe Thin Film Photovoltaic Devices with Self-Aligned Back-Contacts  
D. Josell, C. Beauchamp, S. Jung, B. Hamadani, L. Richter, J. Bonevich, N. Zhitenev, T. Moffat and J. Guyer
- 2719 One-Step Electrodeposited Cu-In-Ga Thin Films and Cu(In,Ga)Se<sub>2</sub> Absorber Synthesis for Solar Cells  
L. Ribeaucourt, E. Chassaing, G. Savidand and D. Lincot
- 2720 Electrodeposition of Porous ZnO on Textile Microelectrodes  
M. Rudolph, T. Loewenstein, Y. Zimmermann, A. Neudeck and D. Schlettwein
- 2721 (111)-Oriented p-Copper Oxide Electrodeposits with Band-Edge-Emission  
M. Izaki, S. Sasaki, S. Watase and J. Sasano
- 2722 Electrodeposition and Impedance Investigation of TiO<sub>2</sub>-Au Nanocomposites  
J. Elhajj and E. Podlaha
- 2723 Morphology, Structure and Photoelectrocatalytic Activity of TiO<sub>2</sub>/WO<sub>3</sub> Coatings Obtained by Pulsed Electrodeposition onto Metal Substrates  
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- 2724 Preparation of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> on Stainless Steel as Anodes for Li-Ion Thin Film Battery by Electrochemical Method  
Z. Dong, W. Shieh, C. Li and S. Yen
- 2725 Fine-Line Patterning of Transparent Ga-Doped ZnO Thin Films by Wet-Chemical Etching  
N. Yamamoto, S. Okabe, M. Matsubara, T. Maruyama, H. Makino, T. Yamada, S. Osone and T. Yamamoto
- 2726 Electrodeposition of Bi-Te Films from Alkaline Electrolytes: Influence of Parameters on Morphology and Alloy Composition  
H. Nguyen, J. Su and J. Fransaer
- 2727 Electrodeposition of Nanocomposite Coatings  
A. Bund, A. Ispas, D. Thiemig and J. Nalaskowski
- 2728 Morphology and Composition of Electrodeposited Cu+PdO/Pd Composites  
E. Verlato, S. Cattarin, N. Comisso, P. Guerriero, M. Musiani and L. Vázquez-Gómez
- 2729 Synthesis, Characterization and Application of Conducting Polymer Based Magnetic Electrodes  
C. Janáky, B. Endrődi and C. Visy
- 2730 Influence of Particle Surface Potential on Electrocodeposition of BaSO<sub>4</sub>: a  $\zeta$ -potential Study  
D. Soccol, C. Ntumba Ngoy, S. Claessens and J. Fransaer
- 2731 Metal-CNT Composite Films Formed by Electroless Plating Technique  
S. Arai, T. Sato, T. Kanazawa and M. Endo
- 2732 Characterization of the Fe-Ni-W Electrodeposits  
L. Sanches, C. Marino and L. Mascaro

- 2733 Corrosion Resistance, Morphological and Electrical Properties of Electroless Ni-Mo-P Thin Films Deposited on Ceramic and Kapton Substrates  
M. Reyes Tolosa, E. Kalu, J. Orozco, A. Erb, P. Kalu, M. Hernández Fenollosa and H. Bolink
- 2734 Fabrication of Monolayer Arrangement Film of FePt Nanocube Utilizing Selective Chemical Modification  
T. Hachisu, W. Sato, S. Ishizuka, A. Sugiyama, J. Mizuno and T. Osaka
- 2735 Electrodeposition of Conductive Polymers Containing Aminoacids: Electrochemical and Biological Applications  
J. Moral Vico, F. Garcia Haro and N. Casañ Pastor
- 2736 Iridium and Titanium Thin Oxide Films: Electrochemical and Biological Applications  
A. Cruz, L. Abad, M. Carballo, V. Padial, J. Collazos Castro and N. Casañ Pastor
- 2737 Structural and Morphological Characteristics of the Electrodeposited CoWP Thin Films  
W. Shin, J. Ji, S. Dulal and C. Kim
- 2738 Electrodeposition of Te and Cu Thin Films on Boron Doped Diamond (BDD) Electrode  
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- 2739 Properties of Electroplated Co and Co-Cu Alloys  
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B. Lee and K. Ko
- 2741 High Temperature Phase Transitions Observed in Oxygen Deficient  $\text{TiO}_{2-x}$  Thin Films  
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S. Yae, T. Hirano, K. Sakabe, N. Fukumuro and H. Matsuda
- 2743 Large Scale One Dimensional Nanostructure Synthesis by Template Method Using Anodic Alumina Membrane  
F. Xie, M. Ryan and J. Riley
- 2744 Use of Alkali-Metal-Free Chemicals in the Electrodeposition of CoWP Capping Layers for Cu Interconnection  
Y. Son, H. Lee and C. Kim
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- 2746 Particle Aggregated  $\text{TiO}_2$  Films Prepared by Liquid Phase Deposition Using Microbubble  
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- 2747 Electrochemical Performance of Pt/ $\text{TiO}_2$  Nanostructure Electrode for Ethanol Oxidation  
M. Marcu, T. Spătaru and A. Banu
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- 2749 Charge Measurements on Colloidal CdSe Quantum Dots in Apolar Solvents  
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- 2751 Cobalt Electrodeposition in Porous Anodic Alumina: Theoretical and Experimental Aspects  
C. Oliveira, M. Lopes, A. de Oliveira and E. Pereira
- 2752 Influence of Current Density and  $\text{Zn}(\text{NO}_3)_2$  Concentration on the Morphology of Electrodeposited ZnO Films  
F. Lizama Tzec and G. Oskam
- 2753 Fabrication and Characterization of NiMoP Thin Films Fabricated Using an Electrochemical Method  
S. Cho, W. Shin, S. Dulal and C. Kim
- 2754 Electrocatalytic Properties of a Novel Platinum-Polytyramine Composite Electrode Material  
T. Spătaru, M. Marcu and N. Spătaru

- 2755 Growth and Characterization of ZnO:Mn Submicron Wires via Electrodeposition from Nitrate-Lactic Acid Solution  
M. Sima, M. Grecu, M. Sima and I. Enculescu
- 2756 Lateral Support and Control of ZnO Nanowires Surface Density by Means of Polystyrene Nanospheres Assembly  
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- 2757 Effects of Oxygen Precipitations for Deep Sub-micron ULSI Semiconductor Gate Oxide Integrity (GOI) Process  
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- 2759 Electrodeposition of Semiconductor Nanostructures from Ionic Liquids  
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A. Martinez, K. Osen, E. Sheridan, O. Kongstein, A. Ulyashin and G. Haarberg
- 2762 Direct Cu-on-Ta Electroplating from Ionic Liquids in High Vacuum  
S. Schaltin, K. Binnemans and J. Fransaer
- 2763 Electrodeposition of Aluminum-Cerium Alloy from Ionic Liquids  
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J. Talbot
- 2765 Electrophoretic Deposition of ZnO Nanoparticles: From Micropatterns to Substrate Coverage  
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- 2766 Fabrication of Functionally Gradient HAp Nanocomposite Coatings by Electrochemical Processing  
Z. Wang and Y. Ni
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- 2768 Electrochemically Formed Porous Silica as a Template for Metal Electrodeposition  
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- 2769 Double-Sided Mesoporous Silicon with Embedded Quasi-regular Arranged Ferromagnetic Nanostructures Fabricated by Electrodeposition  
P. Granitzer, K. Rumpf and P. Pölt
- 2770 Electrochemical Deposition of Magnetic Nanomaterials into Nanostructured Porous Silicon  
F. Hazzaz, A. Salem, R. Mohamed and I. Ahmed
- 2771 Electrodeposition of Ni/Co and Ni Magnetic Nanowires Using Alumina Template  
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- 2772 Mechanistic Study of Sn Nanowires Electrodeposition on TiO<sub>2</sub> Nanotube Layers: Thermodynamics, Kinetics, Nucleation and Growth Modes  
I. Hanzu, T. Djenizian, G. Ortiz and P. Knauth
- 2773 Controlled Growth of Metal Oxide Nanostructures by Template Electrosynthesis  
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- 2774 Fabrication of Metal Nanowires Sandwiched with Gold for Self-Assembling of NW sensors  
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- 2776 Langmuir-Blodgett Monolayers of Colloidal Iron Oxide Nanocrystals: Deposition, Micropatterning and CNT Catalysis  
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- 2777 Self Assembly of Periodic Serrated Nanowires  
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- 2778 Characterization of Novel Silver Nanopaste Inks as Electrochemically Active Materials Using Microfluidic Electrochemistry  
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- 2779 Copper Plating on Resistive Substrates, Diffusion Barrier and Alternative Seed Layers  
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- 2780 Impact of "Terminal Effect" on Cu Plating: Theory and Experimental Evidence  
S. Armini and P. Vereecken
- 2781 Electrodeposition of Copper in Trenches from a Citrate Plating Bath  
F. Lizama Tzec and G. Oskam
- 2782 Pulse Electroplating of Cu-Ni Thin Films and Narrow Trenches  
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- 2783 Directly Patterned Copper by Selective Electroless Plating on a Novel Organocopper Seed Layer  
N. Kulyk, D. Rhen, M. Shahid, D. Kang and C. Chung
- 2784 Electrochemical Deposition of Iron Nanoparticles on n-Si: Influence of Additives on the Properties of the Deposit  
K. Strubbe and K. De Henau
- 2785 Understanding Island Formation from Pd Electrodeposition on 4-Mercaptopyridine Self Assembled Monolayers  
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- 2786 Electrochemical Platinum Deposition on Modified Glassy Carbon Electrodes  
A. Foelske-Schmitz, A. Savouchkina, R. Kötze, G. Scherer and A. Wokaun
- 2787 Electrografting of Organic Monolayers on Planar and Nanowire Silicon Substrates  
J. Ngunjiri, S. Vegunta, W. Xu and J. Flake

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- 2788 CVD Synthesis of Carbon Nanotubes Using Iron Catalysts  
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- 2789 Epitaxial Graphene Materials Issues Impacting Device Technology  
D. Gaskill, J. Moon, J. Robinson, J. Tedesco and P. Campbell
- 2790 Manipulation of Graphene Layers Using a Nano-Manipulator System  
H. Floresca, S. Park, B. Kee, J. Kim and M. Kim
- 2791 Graphene Ribbon Devices from Unzipped Carbon Nanotubes  
N. Rangel, J. Sotelo-Campos and J. Seminario
- 2792 Synthesis of Diamond-like Carbon Nanorod Films  
D. Varshney, V. Makarov, B. Weigner and G. Morell
- 2793 Scanning Electrochemical Microscopy Applications in Carbon Based Materials: Graphene and Porous Graphite  
M. Carano, F. Paolucci, M. Marcaccio, S. Rapino and A. Penicaud
- 2794 Functionalization of Carbon Nanotubes  
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- 2795 Microwave Absorption by Carbon Nanotubes: Applications  
E. Vazquez, M. Prato, N. Rubio, M. Herrero and M. Meneghetti
- 2796 Carbon Nanotube-Nanocrystal Heterostructures  
S. Wong
- 2797 Hydrodynamics of Structurally Sorted Single-Wall Carbon Nanotube Colloids by Fluorescence Correlation Spectroscopy  
J. Crochet and T. Hertel
- 2798 Separation of Metallic from Semiconducting Single Walled Carbon Nanotubes by Size Exclusion Chromatography  
F. Hennrich, K. Moshhammer and M. Kappes
- 2799 Photoluminescence Spectroscopy on Separated Single-Walled Carbon Nanotube Dispersions  
S. Lebedkin, N. Stürzl, F. Hennrich and M. Kappes
- 2800 Easy and Versatile Functionalization of Fullerene and Carbon Nanotubes for Electronic and Photovoltaic Applications  
S. Campidelli, A. Filoramo, B. Jusselme, P. Jegou and D. Guldi
- 2801 High Population of Individualized SWCNTs through the Adsorption of Water Soluble Perylenes  
A. Hirsch
- 2802 Manipulating Carbon Nanotubes: Chemical Doping and Photoinduced Electron Transfer  
C. Ehli and D. Guldi
- 2803 Photochemical Studies of Dendritic Chromophores in Combination with Single Wall Carbon Nanotubes  
S. Engmann, C. Ehli, D. Guldi, U. Hahn and T. Torres
- 2804 MWCNT-g-PSSNa Based Counter Electrode for Dye-Sensitized Solar Cells  
S. Jang, J. Han, D. Kim, M. Cha and S. Jo
- 2805 Electron Transfer in Pristine and Functionalized Carbon Nanotubes  
M. Lurlo, D. Paolucci, M. Marcaccio, S. Rapino and F. Paolucci
- 2806 Impact of the Size of Spherical Microporous Carbon Particles in a Binder Electrode on the Performance of an Electrochemical Double-Layer Capacitor  
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- 2807 Spontaneous Deposition of Pt on Carbons Activated by Cyclic Voltammetric Scans in Sulfuric Acids  
L. Chang, Y. Hsieh, P. Wu and J. Lee
- 2808 Static Elastic Characteristics of Carbon Nanotubes  
Y. Onanko, Y. Grabovskiy, O. Lyashenko, Y. Onanko and I. Brozhko
- 2809 Oxygen Reduction on Multiwalled Carbon Nanotube Modified Glassy Carbon Electrodes  
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- 2810 Electrochemical Properties of Small Carbon Nanotube Films  
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- 2811 Electrochemical Performance of Nanodiamond/Carbon Fibers Composites in Electrical Double Layer Capacitors  
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- 2812 Electrochemical Performance of Multiwalled Nanotubes/Nanodiamond Composites in Electrical Double Layer Capacitors  
E. Almeida, L. Medeiros, M. Baldan, J. Rosolen and N. Ferreira
- 2813 Supramolecular Functionalization of Graphene  
W. Yang and H. Grennberg
- 2814 Electrochemical Capacitance and Electrical Transport Properties of Poly(aryleneethynylene)-Wrapped Single-Walled Carbon Nanotubes  
M. Rosario-Canales, P. Deria, P. Gopu, M. Therien and J. Santiago-Aviles
- 2815 Sea Urchin-Like Mesoporous Carbon as Electrodes Electric Double Layer Capacitors  
H. Teng, C. Huang, C. Hsu and P. Kuo

- 2816 Electrochemical Investigation of Single-Walled Carbon Nanotubes Immobilized on Gold Electrodes  
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- 2817 Surface Electrochemical Treatment of Carbon Materials for Supercapacitors  
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- 2818 Osteoblast Proliferation on Carbon Nanotubes with Different Diameters  
S. Suzuki, Y. Sato, A. Yokoyama, K. Motomiya and K. Tohji
- 2819 Polypyrrole and Functionalized Multiwalled Carbon Nanotubes Composites for Electrode Materials of Supercapacitors  
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- 2820 Growth and Field Emission Characteristics of Pillar-Like Carbon Nanotubes Using Co-Ti/Al Co-deposited Multilayer Catalyst at Low Temperature  
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- 2821 Synthesis of Dense and Vertically Aligned Carbon Nanotubes for Spinning Nanotubes  
N. Sashida, Y. Sato, K. Motomiya and K. Tohji
- 2822 Single-Walled Carbon Nanotube Soot with Few Impurity Graphites by Arc Discharge Method  
Y. Sato, M. Namura, K. Motomiya and K. Tohji
- 2823 A Transparent Single-Walled Carbon Nanotube Field Emission Device for Large Area Application  
N. Van Quy, N. Duc Hoa, H. Jung and D. Kim
- 2824 Influence of C<sub>60</sub> Fullerenes on the Adhesiveness of MCF-7 Cells (Breast Cancer)  
S. Prylutska, I. Grynyuk, L. Garmanchuk, O. Perepelytsina, M. Sydorenko, O. Matyshevskaya, Y. Prylutsky, U. Ritter and P. Scharff
- 2825 Simultaneous Control of CNT Structural Parameters via Mo Additive Layer on Fe/Al Nanostructured Catalytic Film  
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- 2826 Effect of Stabilizer on Carbon Supported Pt Catalysts for the Electrochemical Oxidation of Methanol  
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- 2827 Modulation of Surfactant/Nanotube Interfacial Behavior: Enhanced Separations and Spectroscopy  
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- 2828 Changes in the Electronic States of Single Walled Carbon Nanotubes as Followed by an In Situ Raman Spectroelectrochemistry  
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- 2830 Synthesis of Hybrid, Carbon-Based Magnetic Nanoparticle Systems Using Dense-Medium, Atmospheric Pressure Plasma Approaches  
F. Denes, H. Jiang, Z. Fabry and M. Sandor
- 2831 Pt Nanoparticle Decoration of Carbon Materials with Applications in Glucose Sensing and Fuel Cell Technology  
D. Rathod, C. Dickinson, W. Redington, D. Tanner, D. Egan and E. Dempsey
- 2832 Electrochemical Properties of CVD Grown Graphene Nanowalls  
K. Chen, M. Hu, C. Kuo, S. Wei and L. Chen
- 2833 Composite Carbon Nanotubes as Functional Materials for Catalysis, Drug Delivery and Analytical Detection  
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- 2834 Single Walled Carbon Nanotubes (SWCNTs)/Gold Nanoparticles (AuNps) Nanocomposites for Enhancing Electrochemical Response to Detect Neurotransmitters  
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- 2835 Low-Cost High-Sensitivity Immunosensors Based on Carbon Nanotube-Polymer Composites  
E. Mendoza, J. Orozco, C. Jiménez Jorquera and C. Fernández Sánchez

- 2836 Multifunctional Graphitic Nanotube/Nanofiber Compositions Synthesized by Solid-State Methods for Electrochemical and Gas-sorption/Storage Applications  
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- 2837 Elastic and Thermal-Elastic Properties of Carbon Nanotube Network Reinforced Metallic Thin-Film Nanomechanical Resonators  
Y. Kim, S. Cho and Y. Park
- 2838 Capacitance Performance of the Multiwall Carbon Nanotube Films as well as Films of Composites of the C<sub>60</sub>-Pd Polymer and Multiwall Carbon Nanotubes  
K. Winkler, E. Grodzka, M. Plonska-Brzezinska, P. Pieta and W. Kutner
- 2839 Synthesis and Properties of Carbon Nanotube/Silver Matrix Composites  
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- 2840 Modified Carbon Nanoparticles for Electrochemical Capacitors  
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- 2841 Nanotube-Tipped Intracellular Probes  
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- 2842 Field Emission, Current stability, and Simultaneous Synthesis of Carbon Nanotubes and Diamond by HFCVD  
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- 2843 Semiempirical Simulations on Effects of Crystalline Orientation, Structural Disorders, and Granular Morphology on Superconductivity in Boron-Doped Diamond  
V. Ligatchev
- 2844 Effect of Acid Washing for Residual Transition Metal in Iron Phthalocyanine-Based Carbon Alloy Catalysts  
M. Kobayashi, H. Niwa, M. Saito, Y. Harada, M. Oshima, H. Ofuchi, K. Terakura, T. Ikeda, Y. Koshigoe, J. Ozaki and S. Miyata
- 2845 Formation of Carbon Structures on Stepped and Chiral Surfaces  
P. Balbuena, J. Burgos, G. Ramirez-Caballero and D. Gomez-Gualdron
- 2846 Collision Synthesis of Unique Carbon Nanomaterials Inspired by the Allende Meteorite  
S. Ohara, Z. Tan, K. Sato and H. Abe

## **H2 - Nanostructure and Function of Fullerenes**

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- 2848 Enantioselective Cycloaddition onto Fullerenes  
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- 2849 Synthesis and Liquid Crystallinity of Fullerodendron Having Cyanobiphenyl Groups at the Terminals  
Y. Takaguchi, Y. Sako and T. Tajima
- 2850 Synthesis and Photoinduced Electron Transfer Dynamics in Porphyrin-[60]Fullerene Hybrid Systems with Catenane and Rotaxane Topologies  
D. Schuster, J. Megiatto Jr. and D. Guldi
- 2851 Fullerenes and Nanotubes See the Light (!)  
D. Guldi
- 2852 Synthesis, Characterization and Photoinduced Electron Transfer Processes of Orthogonal Rutheniumphthalocyanine-Fullerene Assemblies  
M. Rodriguez-Morgade, M. Marta E. Plonska-Brzezinska, A. Athans, E. Carbonell, G. de Miguel, L. Echevoyen, D. Guldi and T. Torres
- 2853 Fullerene-Ferrocene Conjugates  
B. Delavaux-Nicot and J. Nierengarten

- 2854 Soluble Homo and Hetero Fullerene Dimers ( $C_{60}/C_{70}$ ) for Photovoltaic Devices  
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- 2855 Photoinduced Charge Separation of Directly Linked Porphyrin- and Phthalocyanine-Fullerene Dyads  
K. Ohkubo, S. Hiroto, H. Shinokubo, A. Osuka, F. Tani, Y. Naruta and S. Fukuzumi
- 2856 Synthesis and Electronic Properties of Fullerene-Porphyrin Conjugates  
J. Nierengarten
- 2857 Construction of Supramolecular System Based on Endohedral Metallofullerene  
T. Tsuchiya, T. Akasaka, K. Ohkubo, S. Fukuzumi, T. Kato and S. Nagase
- 2858 Reactivity of Trimetallic Nitride Endohedral Fullerenes  
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- 2859 Stabilities in Metallofullerene Series: The  $X@C_{74}$  and  $Y@C_{82}$  Cases  
Z. Slanina, T. Akasaka and S. Nagase
- 2860 Molecular Structures and Bonding Situation in Endohedral Fullerenes  
A. Popov and L. Dunsch
- 2861 Three Metals in Fullerene Cages: Nitride Cluster versus Metallofullerenes  
A. Popov, L. Zhang and L. Dunsch
- 2862 Understanding the Stabilization of New Endohedral Metallofullerenes  
A. Rodriguez-Forteza, R. Valencia, X. Aparicio, A. Clotet and J. Poblet
- 2863 Fullerene-Based Materials as Catalysts for Fuel Cells  
M. Gabriel, T. Deutsch and A. Franco
- 2864 Electrical and Structural Characterization of Epitaxial-Grown Mg-Doped  $C_{60}$  Thin Films  
N. Kojima, M. Natori and M. Yamaguchi
- 2865 Towards Fullerene-Based Molecular Wires: Tether-Assisted Bis-functionalization of Fullerenes  
C. Andersson and H. Grennberg
- 2866 Properties of Fullerite/Other Symmetric Forms of Carbon  
F. Torrens and G. Castellano
- 2867 Production and Characterization of Lanthanum Carbide Encapsulated Carbon Nanocapsule/Lanthanum Hexaboride Nanocomposites  
Y. Sato, I. Waki, M. Namura, K. Motomiya and K. Tohji
- 2868 Deposition of the Fullerene  $C_{60}$  Thin Films by VS method  
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## **I1 - Physical, Electroanalytical and Bioanalytical Electrochemistry**

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- 3044 Variation of the Electrode Potential with Elastic Strain  
M. Smetanin, D. Kramer, S. Mohanan, U. Herr and J. Weissmüller
- 3045 In Situ Video-STM Studies of Metal Electrodeposition Processes and Surface Phase Transitions  
H. Matsushima, C. Haak, A. Taranovskyy, E. Lin, S. Morin and O. Magnussen
- 3046 High Temperature Electrospun Separators for Lithium-Ion Batteries  
B. Meyer, M. Salomon, D. Bansal and M. Morgan
- 3047 Anodic Oxide Formation on Ag(111) Studied by STM  
H. Strehblow, V. Maurice, L. Klein and P. Marcus
- 3048 Pd Nanofilms: Influence of the Thickness and of the Substrate on Hydrogen Electroinsertion Studied via In Situ SXR  
Y. Soldo-Olivier, E. Sibert, M. Lafouresse, M. De Santis, C. Lebouin and M. De Boissieu

- 3049 Acceleration of Manganese Oxide Deposition on IrO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub>/Ti Anodes  
N. Oshiumi and M. Morimitsu
- 3050 Performance of Amorphous of IrO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> Coated Titanium Electrodes for Cobalt Electrowinning  
K. Uno and M. Morimitsu
- 3023 Pulse Electrodeposition of Manganese Oxide for Electrochemical Capacitors  
F. Xiao, Y. Xu and H. Bai
- 3024 Evidence on the Electrolytic Synergetic Effect of V<sub>2</sub>O<sub>5</sub> + Co Co-deposit toward Hydrogen Evolution Reaction in Alkaline Media  
N. Potkonjak, S. Blagojevic and D. Suznjevic
- 3025 Using Porous Carbon Composite Electrode in Electrosorptive Deionization of Waste Water  
J. Lee, S. Kwon, H. Kim, H. Kim and S. Park
- 3026 Electrochemical Behavior of a Sodium Citrate Solution on Various Metallic Working Electrodes  
O. Aaboubi
- 3027 Capacitive Behavior of Vertically Aligned Multilayered Manganese Oxide Film  
R. Inoue and M. Nakayama
- 3028 Halogen Adsorption on Pt(111) and Palladium Monolayer Electrocatalysts: DFT Study  
I. Pasti and S. Mentus
- 3029 Electrochemical Behaviors of Ferrocene Derivatives Anchored on Silicon(111) by Different Tethering Bonds  
M. Zhao, H. Sano, T. Ichii, K. Murase and H. Sugimura
- 3030 Novel Oxygen Ion Transport LGBS Membranes  
V. Belousov, S. Fedorov and A. Vorobiev
- 3051 Single Bubble Growth during Water Electrolysis under Microgravity  
Y. Fukunaka, H. Matsushima, D. Kiuchi and K. Kuribayashi
- 3052 Synchrotron X-Ray Studies of CO Interaction with Hexagonally Reconstructed Au(001) in Gas and in Electrolytes  
M. Pierce, A. Menzel, V. Stamenkovic, N. Markovic, V. Komanicky and H. You
- 3053 Enhanced CO Activity for Pt/WO<sub>x</sub> Materials: Surface Structure Effects  
F. Micoud, F. Maillard, A. Bonnefont and M. Chatenet
- 3054 Local Atomic Arrangement in the Ni-Doped RuO<sub>2</sub> Electrocatalytic Materials Probed by X-Ray Absorption Fine Structure Approach  
V. Petrykin, K. Macounova, M. Macarova and P. Krtil
- 3055 Construction and Electrocatalytic Activity of Two-Dimensional Pt-Ru Nanocomposite Prepared from Pt-Ru Dinuclear Complexes  
K. Uosaki, H. Uehara, Y. Okawa and Y. Sasaki
- 3056 Influence of Cations on Nitrate Reduction at Boron-Doped Diamond Electrodes  
A. Manzo-Robledo, N. Alonso-Vante and C. Levy-Clement
- 3057 Structural Behavior of Ruthenium Oxide in the Presence of Hydrogen  
D. Guay and C. Chabanier
- 3058 Hydrogen, Oxygen, and Methanol Reactions on Mono- and Submonolayers of Pd and Pt on Au(111)  
H. Wolfschmidt and U. Stimming
- 3059 Pt Single Crystals Modified by Rhodium for Ethanol Electrooxidation  
M. Silva, G. Tremilliosi-Filho, E. Herrero and J. feliu
- 3060 Sum Frequency Generation Studies on Molecular Structure at Electrochemical Interfaces Related to Electrocatalysis  
H. Noguchi, T. Ishimaru, T. Okada and K. Uosaki
- 3061 Two Types of Platinum Dissolution in Acid Media: An Electrochemical Nanogravimetric Study  
G. Inzelt, B. Berkes and Á. Kriston

- 3062 A New Method to Measure Electrosorption Valency and Packing Densities of Self-Assembled Thiolipid Monolayers  
J. Leitch, J. Kunze, T. Laredo, I. Burgess and J. Lipkowski
- 3063 Impedance Oscillations and Negative Differential Resistance: Spatiotemporal Oscillations in L-Arginine-Molybdate  
C. Krishnan and M. Garnett
- 3064 Simultaneous Viscoelastic and Color Reflectance Changes during the Prussian Blue Electrochemical Reduction  
J. Agrisuelas, C. Gabrielli, J. García-Jareño, D. Giménez-Romero, H. Perrot and F. Vicente
- 3065 The Role of Ion Size in Assessing Weak Ionic Specific Adsorption at the Polarizable Electrode / Aqueous Solution Interface  
W. Fawcett
- 3066 A Comparative Study of Electrochemical Techniques in Investigating the Adsorption Behavior of Fibrinogen on Platinum  
S. Roscoe and S. Omanovic
- 3067 Aqueous Redox Potentials Found to Be Inversely Proportional to the Bohr Radius  
R. Heyrovska
- 3068 Self-assembly Monolayer of Poly-3-hexylthiophene on an Iodine-Modified Au(111) Surface  
S. Liu and Y. Lee
- 3069 A Voltammetric Study on the Electroadsorption Characteristics of Thiophene and Its Derivatives on Smooth Platinum Electrode  
I. Becerik

### **I3 - Physical and Analytical Electrochemistry in Ionic Liquids**

#### *Physical and Analytical Electrochemistry*

- 3076 The Diffuse Double Layer in an Ionic Liquid for an Unrestricted Electrolyte  
W. Fawcett and P. Ryan
- 3077 Electrical Double Layer Structure in Room-Temperature Ionic Liquids  
M. Alam, M. Islam, T. Okajima and T. Ohsaka
- 3078 Scanning Electron Microscope Observation of Concentration Profile in Ionic Liquid Caused by Electrochemical Reactions  
S. Kuwabata, K. Kondo and T. Tsuda
- 3079 Ion Mobility of 1-Ethyl-3-methylimidazolium Tetrafluoroborate and 1-Ethyl-3-methylimidazolium Bis(trifluoromethylsulfonyl)amide Ionic Liquids  
T. Umecky, Y. Saito and H. Matsumoto
- 3080 Toward the Exploitation of the Ionic Liquids Based Electrochemical Technologies: Mass Transport Issues  
A. Lavacchi, U. Bardi, C. Borri, S. Caporali, A. Fossati and I. Perissi
- 3081 Molecular Dynamics Simulations of Ionic Liquids and Ionic Liquid-Solvent Mixtures  
O. Borodin
- 3082 Relationship Between Ordered Structure and Coordination Structure for Binary Ionic Liquids Systems  
M. Mizuhata, T. Minowa and S. Deki
- 3083 Melting Behavior and Ionic Conductivity in Hydrophobic Ionic Liquid-Based Electrolytes  
M. Kunze, G. Appetecchi, S. Jeong, A. Balducci, M. Schönhoff, M. Winter and S. Passerini
- 3084 Physicochemical Properties of Protic Ionic Liquids as Electrolyte for Non-humidified Intermediate Temperature Fuel Cell  
T. Yasuda, A. Ogawa, M. Kanno and M. Watanabe
- 3085 Wettability Effects on Macroporous MnO<sub>2</sub> Electrodes by Hydrophobic or Hydrophilic Ionic Liquids  
T. Benedetti, V. Gonçalves, D. Petri, S. Córdoba de Torresi and R. Torresi
- 3086 Chromium(III) Complex Salts for Ionic Liquid Based Electrolytes  
W. Pitner and M. Piepenhagen

- 3087 An Excellent Approach for the Removal of Water from Ionic Liquids  
M. Islam, T. Okajima, D. Zhang, S. Kojima and T. Ohsaka
- 3088 Protons: Affinity and Reduction in Ionic Liquids  
K. Johnson and G. Driver
- 3089 QSAR Modeling of the Solubility of an HD Simulant in Ionic Liquids  
T. Sutto, T. Duncan and T. Wong
- 3090 Sensing with Room Temperature Ionic Liquids  
M. Josowicz, A. Jonke and J. Janata
- 3091 Oxidative Chemistry with Ionic Liquids  
T. Duncan and T. Sutto
- 3092 Electrode Kinetics of Some Redox Couples in Amide-Type Ionic Liquids  
Y. Katayama, N. Tachikawa, T. Migita and T. Miura
- 3093 Voltammetric Studies of the Electrochemical Kinetics of Cobaltocenium/Cobaltocene ( $Cc^{+/0}$ ) Redox Couple in the Ionic Liquids  $[C_4mim][PF_6]$  and  $[C_4mim][NTf_2]$   
K. Schmut, B. Gollas and A. Whitehead
- 3094 Electrochemical Modification of Surface Electrode in Classic and Redox Ionic Liquids  
J. Ghilane, O. Fontaine, P. Martin, J. Lacroix and H. Randriamahazaka
- 3070 Cu-Zn Alloy Metallization Through Reduction-Diffusion Method Using Ionic Liquid Bath at Medium-Low Temperatures  
K. Yanase, K. Murase, T. Ichii and H. Sugimura
- 3071 Electrochemical Behavior of Molten Imidazole with Strong Acids  
V. Bandur, Q. Li and N. Bjerrum
- 3072 Thermophysical Properties of Binary Aliphatic Quaternary Ammonium Ionic Liquids:  $TMPAFSA_xTFSA_{1-x}(II)$   
M. Mizuhata, N. Kunikata and S. Deki
- 3073 Reduction Products of Niobium(V) in Ionic Liquid 1-Butyl-1-methylpyrrolidinium Chloride -  $NbCl_5$   
E. Lomako and O. Babushkina
- 3074 Electrochemical and Spectroscopic Behavior of  $TiF_4$  in 1-Butyl-2,3-methylimidazolium Tetrafluoroborate  
O. Babushkina and Y. Andriyko
- 3075 Influence of Chemical Composition on Conductivity, Viscosity, and Electrochemical Behavior of Carboxylate-Based Ionic Liquids  
E. Cuara Diaz, R. ortega borges and G. Trejo Cordova
- 3095 A Study of Zinc Electrodeposition from Zinc Chloride: Choline Chloride: Ethylene Glycol  
M. Pölzer, A. Whitehead and B. Gollas
- 3096 Electrodeposition of Gadolinium in Dimethylsulfoxide, and Ethyldimethylbutylammonium Bis(trifluoromethylsulfonyl)imide  
L. Monzon, Z. Diao and J. Coey
- 3097 Spectroscopy of Refractory Metals in Ionic Liquids and Its Application to the Understanding of the Mechanism of Electrochemical Reduction  
O. Babushkina
- 3098 Electrodeposition of Aluminum from Ionic Liquids: Effect of 1,10-Phenantroline  
S. Caporali, A. Lavacchi, I. Perissi and U. Bardi
- 3099 Surface Characterization of High Purity Metals of Silver and Nickel Electropolished with an Ionic Liquid  
T. Abdel-Fattah and J. Loftis
- 3100 Polyazulene,  $C_{60}$ , and Polyazulene/ $C_{60}$  Composite Films in Room Temperature Ionic Liquids  
A. Osterholm, C. Kvarnström and A. Ivaska
- 3101 Electropolymerization of Poly(3,4-ethylenedioxythiophene) in Different Room and Air Stable Ionic Liquids  
A. Ispas, A. Bund and I. Efimov

- 3102 Electrooxidative Polymerization of Poly(3-hexylthiophene) in Air and Water Stable Ionic Liquids: Scanning Conductive Force Microscopy and Electrochemical Properties  
S. Ahmad, R. Berger, J. Gutman and H. Butt
- 3103 Room Temperature Ionic Liquids in Functionalization of Carbon Nanotubes and in Synthesis of Conducting Polymers  
Z. Wang, D. Wei, A. Ivaska and C. Kvarnström
- 3104 Electroanalytical Chemistry in Polymer-RTIL Composite with an In Situ Electrochemical SEM System  
T. Tsuda, Y. Sato and S. Kuwabata

## **J1 - Sensors, Actuators, and Microsystems General Session**

### *Sensor*

- 3105 Smart Sensor Systems for Aerospace and Biomedical Applications  
G. Hunter, J. Xu, B. Ward, D. Makel, P. Dutta, C. Liu and R. Dweik
- 3106 Miniaturization of a Nanostructure Engineered Sensor Array to a Stamp Size for Chemical Detection  
Y. Lu and J. Li
- 3107 Integration of Miniature, Ultrasensitive Chemical Sensors in Microfluidic Devices  
S. Anastasova, A. Radu, F. Benito Lopez, J. Bobacka, A. Lewenstam and D. Diamond
- 3108 The JPL ENose: Results of a Six Month Monitoring Period on the International Space Station  
M. Ryan, M. Homer, A. Shevade, L. Lara, A. Kisor, K. Manatt, H. Zhou and S. Gluck
- 3109 Simultaneous Detection of Salmonella and Bacillus Anthracis Spores Using Wireless Magnetoelastic Biosensors  
S. Huang, Z. Cheng and B. Chin
- 3110 Quantum Dot-Based Sensors for Proteins  
H. Xu, Z. Aguilar and A. Wang
- 3111 Quantum Dot-Based Sensors for Proteins  
Z. Aguilar, H. Xu and A. Wang
- 3112 Cell Uptake of Nanoparticles  
H. Xu, Z. Aguilar, H. Wei and A. Wang
- 3113 Novel Solid Electrolyte Type Ammonia Gas Sensor Based on Trivalent Aluminum Ion Conducting Solids  
N. Imanaka, T. Nagai and S. Tamura
- 3114 Effect of YSZ Sintering Conditions on Mixed Potential Sensor Performance  
P. Sekhar, M. Nelson, R. Mukundan, E. Brosha and F. Garzon
- 3115 Phase Field Model of a Solid Electrolyte Gas Sensor  
W. Gathright, M. Jensen and D. Lewis
- 3116 A Study of the Gas Response of a Mixed,  $\text{Fe}_2\text{O}_3\text{-Fe}_2(\text{MoO}_4)_3$ , Oxide to Low Concentrations of  $\text{H}_2\text{S}$  in Air  
U. Kersen and L. Holappa
- 3117 Gas Sensing Property of ITO/SnO<sub>2</sub> Heterostructure Deposited by RF Magnetron Sputter  
M. Yang and S. Hong
- 3118 Gas Sensing Properties of SnO<sub>2</sub> Synthesized by Flame Spray Pyrolysis  
H. Kim and S. Hong
- 3119 Synthesis, Characterization, and Application of Glassy Polymeric Carbon as Caffeic Acid Sensor  
L. Da Silva, N. Stradiotto and H. Oliveira
- 3120 Investigation of Pt/ $\beta$ -Ga<sub>2</sub>O<sub>3</sub>/GaN Hydrogen Sensor Diodes  
J. Yan, T. Lee and C. Lee
- 3121 Polybithiophene: A Humidity Sensor  
O. Herrera, D. Wilkinson and W. Merida
- 3122 Method and Automatic System for Nondestructive Determination of Physical - Chemical Properties of Powdered Materials  
V. Redko, E. Shembel, D. Meshri and V. Khandetsky



- 3123 Shielding and Transmission of an Electromagnetic Wave (~ GHz) by an "On" or "Off" of a Visible Light Using Flexible CdS Films  
S. Hur, J. Ahn, N. Seong, G. Kim and S. Yoon
- 3124 Magnetic Properties of Electrodeposited Cobalt-Nickel Thin Films from Acidic Baths Containing Glycine  
O. Ergeneman, K. Sivaraman, E. Pellicer, M. Baro, A. Hirt, A. Teleki, S. Pane i Vidal and B. Nelson
- 3125 Catalytic Properties of Ternary Alloys Continuous Gradient - High Throughput Screening Microscope - CG-HTSM  
W. Moritz, A. Tausche, G. Cherkaschin, R. Molajew, T. Wirth, W. Unger and S. Linke
- 3126 Thermoelectric and Piezoresistive Properties of Nanocomposites Based on Oxide Semiconductors  
O. Gregory, X. Chen and G. Fralick
- 3127 Structural and Electrical Properties of CrSi Thin Film Resistors with a High Resistance  
K. Park, S. Hur, J. Ahn and S. Yoon
- 3128 Surface Functionalization by Monolayers of Thiophene-Based Linear  $\pi$ -Conjugated Systems  
P. Blanchard, K. Tran, S. Karpe, Q. Bricaud, M. Hardouin, M. Oçafraïn, J. Roncali, S. Lenfant, K. Smaali, S. Godey and D. Vuillaume
- 3129 Study of Thermosensitive Hydrogels for Microfluidic Flow Control  
J. Kurnia, E. Birgersson and A. Mujumdar
- 3130 Fabrication of Metal Nanowire Electrode and Its Catalytic and Sensing Performances  
S. Cherevko, X. Xing and C. Chung
- 3131 Growth of Epitaxial SnO<sub>2</sub> Thin Films on Various TiO<sub>2</sub> Substrates for Gas Sensing Applications  
D. Kim, S. Hong, S. Lee and M. Kim
- 3132 Preliminary Studies on the Electrodeposition of Cobalt-Yttrium from Baths Containing Glycine  
S. Pane i Vidal, O. Ergeneman, K. Sivaraman, E. Pellicer, M. Baro and B. Nelson
- 3133 Fabrication of High Aspect Ratio SU-8 Structures Using UV Lithography and Megasonic-Enhanced Development  
D. Figura and J. Bartel
- 3134 Blocking Nonspecific Uptake of Engineered Nanomaterials  
Z. Aguilar, H. Xu and A. Wang
- 3135 Simulation of Biofunctionalized Surface Layers Using Monte Carlo Algorithm  
A. Bulyha, C. Heitzinger and N. Mauser
- 3136 FTIR-ATR Spectroscopic Study of the Water Uptake of Silicon Rubber Based Ion-Selective Membranes and Preparation of Potentiometric Calcium-Selective Solid-Contact Ion-Selective Electrodes with Low Water Uptake and Detection Limit  
T. Lindfors, F. Sundfors, L. Höfler and R. Gyurcsányi
- 3137 FTIR-ATR Study of Water Uptake and Diffusion through Ion-Selective Membranes Based on Polyacrylates  
F. Sundfors, T. Lindfors, L. Höfler and R. Gyurcsányi
- 3138 Bottom Up Approach for Potentiometric Ion Sensing: From Inorganic to Hybrid Organic/Inorganic Materials  
N. Dormoy, P. Rouge, M. Benazza, A. Dassonville, C. Guery, P. Sonnet and E. Baudrin
- 3139 Development of Sensing System of Endocrine Disrupting Chemicals Based on Interaction with a Model of Cell Membrane  
Y. Nakane and I. Kubo
- 3140 CO<sub>2</sub> Detection in Nanostructured CoSb<sub>2</sub>O<sub>6</sub> Prepared by a Nonaqueous Colloidal Method  
C. Michel, A. Martínez, J. Morán and A. Chávez-Chávez
- 3141 The Grain Size Influence on Boron Doped Diamond Sensitivity for Electrochemical Reduction of Nitrate  
J. Matsushima, A. Azevedo, M. Baldan and N. Ferreira
- 3142 Express Diagnostics of Bovine Leucosis Using Biosensor on the Basis of Nanostructured Silicon  
Y. Sytnyk, Y. Shumovsky, M. Melnichenko, M. Starodub and O. Shmyryeva

- 3143 Electrodeposited Pt-Ni Alloy Electrode for Amperometric Determination of Ascorbic Acid  
Y. Weng and Y. Hsiao
- 3144 Development of a Nucleic Acid Biosensor for the Electrochemical Detection of Salmonella  
M. Diaz, A. Rosado, J. del Pilar, E. Vega and A. Guadalupe
- 3145 Development of Biosensory Sponge Consisting of CNT-DNA Nanowires  
C. Lee, S. Lee, K. Cho and J. Shim
- 3146 Hydrogen Sensor Using Reflectance Change of Switchable Mirror Thin Film  
K. Yoshimura, K. Nomura, T. Kanai, S. Nakabayashi, K. Harada and N. Uchiyama
- 3147 Rapid Screening of Multicomponent Electrocatalysts for the Hydrogen Oxidation by Scanning Electrochemical Microscopy  
Y. Weng and C. Hsieh
- 3148 Diffusion Polysiloxane Membrane to Extend the Linearity of Amperometric Glucose Sensors Integrated with Silicon Technologie  
I. Burdallo, C. Jiménez Jorquera and A. Baldi
- 3149 Fabrication and Application of Ag-In-S Ternary Metal Sulfide Thin Film for Hydrogen Ion-Sensitive Extended-Gate FETs  
Y. Chiang, K. Zeng, C. Chang, Y. Ji and J. Chen
- 3150 Electrochemical Investigation of Porous Silicon/Gold System in Biological Electrolyte  
M. Simion, I. Kleps, M. Miu, M. Danila and A. Bragaru
- 3151 Nitrogen Dioxide Solid-State Electrochemical Sensor with Ionic Liquid-Polymer Composite  
M. Nadherná, F. Opekar and J. Reiter
- 3152 Electrochemical Reduction of 4-Nitrophenol at Modified Electrodes Based on Organic Polymer Films  
C. Lete, M. Marin, N. Totir and M. Badea
- 3153 Label-Free Electrochemical Sensing Based on Electrostatic Interactions between Thrombin and a Positively Charged Redox Marker  
A. De Rache and C. Buess-Herman
- 3154 Antireflective Subwavelength Structures on 4H-SiC for UV Photodetectors  
Y. Hirabayashi, M. Yasui, K. Sakurazawa, S. Kaneko and K. Akiyama
- 3155 Characterization of SiO<sub>2</sub>/PTFE as Selective Membrane for Hydrogen Gas Detectors  
L. Gonçalves, S. dos Santos Filho and N. Morimoto
- 3156 Fabrication of Near-Infrared Sensor by Using Polyaniline Conducting Polymer Thin Film  
D. Bang, J. Yang, S. Haam and K. Yoo
- 3157 Highly NO<sub>2</sub> Gas Responsive SnO<sub>2</sub>/ZnO Nanofibers-Based Chemosensor  
T. Zyung, J. Moon, J. Park, S. Kim and S. Lee
- 3158 Electrical Current Suppression of Pd-Doped Nanowire Network Due to Hydrogen Adsorption  
B. Kim, S. Oh, H. Jeong, H. Yu, Y. Yun, Y. Kim, W. Kim and J. Lee
- 3159 The Dependence of Cathodic Pretreatment on H-Terminated Diamond Surface for Different Doping Levels  
M. Baldan, F. Decker, A. Azevedo, J. Matsushima and N. Ferreira
- 3160 Sensitive and Selective Chemical Q-DLTS Sensor Based on Metal/DLC/SiO<sub>2</sub>/p-Si Structure  
V. Polyakov, A. Rukovishnikov, A. Krikunov, L. Avdeeva and B. Druz
- 3161 Porous SiO<sub>2</sub> and TiO<sub>2</sub> Thin Films with Gold and NiO Nanoparticles for Optically Based Gas Sensors  
M. Post, A. Martucci, E. Della Gaspera and D. Buso

## **J2 - Impedance Techniques: Diagnostics and Sensing Applications**

*Sensor / Physical and Analytical Electrochemistry / Corrosion / Industrial Electrochemistry and Electrochemical Engineering*

- 3162 Electroacoustic Impedance Measurements: Principle and Applications  
C. Gabrielli and H. Perrot

- 3163 On the Relations between Constant Phase Elements and Capacitance  
B. Tribollet, B. Hirschorn, M. Orazem, I. Frateur and V. Vivier
- 3164 On the Simultaneous Measurements of Two Components of the AC-Current Density for Localized Electrochemical Impedance Spectroscopy  
M. Keddam, M. Orazem, N. Portail, B. Tribollet and V. Vivier
- 3165 Electrochemical Impedance Spectroscopy in the Presence of a Nonstationary Behavior: Detection and Quantification  
T. Breugelmans, E. Tourwé, J. Jorcin, Y. Van Ingelgem, R. Pintelon and A. Hubin
- 3166 Studies of Ionic Mobility and Ionic Association of Supporting Electrolytes for Organic Solvents  
P. Vanýsek, H. Tavassol and C. Chen
- 3167 AC Impedance Investigation of Conductivity of Automotive Lubricants Using Two- and Four-Electrode Electrochemical Cells  
V. Lvovich and M. Smiechowski
- 3168 Magnetic Field Effect on Molybdenum Based Alloys Electrodeposition  
O. Aaboubi and J. Chopart
- 3169 Simultaneous Electrochemical, Mass, and Color Impedances of Polymer Films  
J. Agrisuelas, J. García-Jareño, D. Giménez-Romero and F. Vicente
- 3170 A High Measurement Channel Density Impedance Array Analyzer: Instrumentation and Implementation Approaches  
K. Cooper, M. Smith and D. Johnson
- 3171 A Consistent Uncertainty Discussion of Physical Parameters Evaluated by EIS, Based on Automatic Measurement Error Determination  
C. Schiller and R. Kaus
- 3172 Determination of the Mobility of Ions by Transient Current Measurements and Utilization of Ionic Polarization for Field Induced Orientation of Nanostructured Soft Ion Conductors  
P. Kohn, K. Schroeter and T. Thurn-Albrecht
- 3173 Inverse Method to Model EIS and to Optimize Ion-Sensor Response with Nernst-Planck-Poisson Theory  
B. Wierzba, B. Gryszakowski, A. Lewenstam and M. Danielewski
- 3174 Electrochemical Properties of Interface Formed by Interlaced Layers of DNA- and Lysozyme-Coated Single-Walled Carbon Nanotubes  
V. Pedrosa, T. Gnanaprakasa, E. Olsen, V. Davis and A. Simonian
- 3175 Pulse Electrosynthesis of Polypyrrole in N-Methyl-N-butylpyrrolidinium(bistrifluoromethanesulfonyl)imide Ionic Liquids to Assemble an Interference-Free Glucose Biosensor  
G. Appetecchi, C. Bianchini, A. Curulli, S. Passerini and D. Zane
- 3176 Electrochemical Sensing for Aerobic Marine Bacterial Biofilms within Seawater Piping Systems  
S. Werwinski, J. Wharton, R. Wood, D. Iglesias-Rodriguez and K. Stokes
- 3177 Microelectronic Impedance Sensor for Adherent Ex Vivo Cell Cultures  
M. Hufnagl, M. Fischeneder, A. Hoefler, S. Damjanovic, H. Wanzenboeck, E. Bertagnolli, M. Wirth and F. Gabor
- 3178 Probing the Modulation of Surface Charge on Semiconductors by Impedance Spectroscopy  
F. Camacho Alanis, L. Wu, G. Zangari, H. Castaneda Lopez and N. Swami
- 3179 Analysis by EIS of the Relationship Between Structural, Textural, and Electrical Properties in Ceramics:  $\text{Li}_{1-x}\text{Al}_x\text{A}_{2-x}(\text{PO}_4)_3$  (A = Ge and Ti) Case  
A. aboulaich, R. Bouchet, L. Tortet, G. Delaizir, V. Seznec, V. Vialet and M. Dolle
- 3180 Electrochemical Impedance of Oxygen Reduction in PEFCs  
M. Itagaki, J. Nakanishi, Y. Itakura, I. Shitanda and K. Watanabe
- 3181 The Mechanism of Impedance-Based Gas Sensing with  $\text{Cr}_2\text{O}_3$  Thin Film Electrodes at Na-Zeolites  
A. Dubbe

- 3182 EIS Characterization of Ni/Zn and Ni-Co/Zn Stainless Steel Based Electrodeposits for the Hydrogen Evolution Reaction  
I. Harraiz-Cardona, E. Ortega, V. Pérez-Herranz, R. Beneito and A. Merlos

#### **J4 - Physics and Chemistry of Luminescence Materials, W. M. Yen Memorial Symposium**

##### *Luminescence and Display Materials*

- 3183 High Pressure Study of Localized States Related to Lanthanide Ions in Solids  
M. Grinberg
- 3184 VUV Sensitization of  $\text{Mn}^{2+}$  and  $\text{Eu}^{3+}$  Emission by  $\text{Tb}^{3+}$  Ions in Wide Bandgap Oxides  
V. Mikhailik
- 3185 Comparing  $\text{Ce}^{3+}$ ,  $\text{Pr}^{3+}$ , and  $\text{Bi}^{3+}$  Luminescence in the Scandate Perovskites  
A. Setlur and U. Happek
- 3186 Search for Phosphors for Use in Displays and Lightings Using Heuristics-Based Combinatorial Materials Science  
K. Sohn and A. Kumar Sharma
- 3187 Modeling of Optical Properties of 3d and 4f Ions  
M. Brik
- 3188 On the Luminescence of Octahedrally Coordinated  $\text{Eu}^{2+}$  in  $\text{CsCaF}_3$   
U. Happek, M. Aycibin, A. Srivastava, H. Comanzo and S. Camardello
- 3189 Luminescence Spectroscopy and Dynamics of Pr-Doped  $\text{YPO}_4$   
J. Collins, M. Bettinelli and B. Di Bartolo
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