218th ECS Meeting Abstracts 2010

Las Vegas, Nevada, USA
10-15 October 2010

Volume 1 of 3

ISBN: 978-1-61782-094-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571

Some format issues inherent in the e-media version may also appear in this print version.

Printed by Curran Associates, Inc. (2011)

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Meeting Abstracts — MA 2010-02

218th ECS Meeting

October 10-15, 2010 — Las Vegas, Nevada

Table of Contents

To use this table of contents, scroll down the page or use the bookmarks in the left-hand frame to move to a new location. Click on the number or the title of the abstract you wish to view.

A1 - General Student Poster Session

All Divisions

13 Effects of Hydrogen Treatment on Electrical and Optical Properties of Sputtering-Deposited CdTe Thin Film
C. Lim, J. Park, K. Myung, N. Kim, and W. Lee

14 Crystal and Electronic Structures and Conduction Property of $(Ce,Sr)PO_4$ and $Ce(P,V)O_4$ Nanoparticles Prepared by Hydrothermal Synthesis
K. Uchino, N. Kitamura, and Y. Idemoto

15 Change of Crystal and Electronic Structure at High Temperature and Ionic Conduction Property of $LaM(Ga, Mg)O_{4-\delta}$(M = Ba, Sr)
N. Hamao, N. Kitamura, and Y. Idemoto

16 High-Speed Resistive Switching Behaviors of Pt-Embedded $SrZrO_3$ Memory Devices
M. Lin, C. Huang, M. Wu, C. Lin, and T. Tseng

17 Electrical Conduction Property and Crystal Structure of $Pr_{1+x}Sr_{1-x}GaO_{4+\delta}$, $Pr_{1+x}Sr_{1-x}Ga_3O_{7+\delta}$
T. Kosuge, N. Kitamura, and Y. Idemoto

18 Fabrication of Macroporous Secondary ZnO Particles and Their Dye-Sensitized Solar Cell Application
N. Hitachi and S. Fujihara

19 Crystal Structures and Dielectric and Piezoelectric Properties of $BaTiO_3$ Prepared by the Polymerized Complex Method
M. Tashiro, N. Kitamura, and Y. Idemoto

20 Substitution Effect on Crystal, Electronic Structure Using Neutron and Synchrotron Sources and Cathode Performance of $Li(Mn_{0.5-x}M_xNi_{0.5-y}M_y)O_2$ (M = Al,Ti, M = Mg)
H. Endo, N. Kitamura, and Y. Idemoto

21 The Electroanalysis of Janus Green B and the By-Products thereof in Acid Copper Plating Bath
X. Lu and W. Dow

22 Determination of Current Distribution at Hydrogen Starvation Conditions
D. Ploerer, A. Stadlhofer, and V. Hacker

23 Electrochemical Studies of Sulfur and Selenium in Room-Temperature Ionic Liquids
N. Abdul Manan, C. Hardacre, and C. Lagunas

24 The Effect of Polymeric Additives on TSV Filling by Copper Electroplating
H. Tsai, S. Shen, and W. Dow

25 Simulation of Gate Coupling Effect on Three-Dimensionally Stacked Devices
I. Lee, P. Yang, C. Wang, H. Li, Y. Huang, C. Chang, Y. Chien, C. Tsai, and H. Cheng

26 Morphology Study of Perfluorosulfonic Acid Ionomer for PEM Fuel Cell Application
Y. Liu, J. Horan, G. Schlichting, S. Hamrock, G. Haugen, and A. Herring

27 Comparison of the Disposition of Three Butylated Ionic Liquids: Bmim-Cl, NBuPy-Cl, and BmPy-Cl in Rats
Y. Cheng, G. Knudsen, R. Kuester, and I. Sipes

28 Characterization of a-Plane ZnO Fabricated on (001)Si Substrate with $LaAlO_3$ Buffer Layer
W. Wang, J. Tian, C. Peng, W. Chen, and L. Chang

29 Preparation of $LiFePO_4$ by Nozzle-Spray-Pyrolysis
M. Juestel, M. Binnewies, and A. Schwinger

30 Application of Plasma Modified Multiwall Carbon Nanotubes to Ethanol Vapor Detection
C. Liu, J. Wu, and H. Shih

31 Formation and Detection of Catalyst Layer Cracks in a Catalyst Coated Membrane for a PEMFC
A. Perdue, A. Herring, N. Aieta, H. Dinh, G. Bender, and M. Ulsh

50 Electrochemical Behavior of Pt Electrode in Electrolytes Containing Calcium Salts
A. Kano, F. Sagane, K. Miyazaki, T. Fukutsuka, T. Abe, K. Nishio, and Y. Uchimoto

51 Fabrication of Proton-Conducting Hybrid Glass Using Leached Borosilicate Glass
S. Lee, S. Park, M. Park, and Y. Park

52 Electrochemical Behavior of Platinum Electrode in 2-Methyltetrahydrofuran Containing Magnesium Bromide
M. Shiraga, F. Sagane, K. Miyazaki, T. Fukutsuka, T. Abe, K. Nishio, and Y. Uchimoto

53 Characteristics of a-Si:H TFT Using Various Thickness and Concentration of Phosphorus Doping in a-SiN:H and a-Si:H Layers
B. Kim, Y. Cho, A. Kim, and S. Choi

54 Fabrication Compositionally Graded ZrO_2-P_2O_5 Glass Thin Films
J. Kim, S. Park, H. Yoon, and Y. Park

55 Proton Conducting Organic-Inorganic Hybrid Membranes
J. Cho, S. Park, and Y. Park

56 Sensitivity Analysis of Some Key Gas Diffusion Layer (GDL) Parameters in PEM Fuel Cells
A. Kulkarni and X. Wang

57 A Comparison of the Nonaqueous Electrochemistry of Nitrobenzenes and Nitroimidazoles upon Addition of L-Cysteine
M. King, T. Andres, C. Navarrete, and D. Smith

58 The Silicon Type Load Cell with SUS Diaphragm for Force Sensor
Y. Moon, S. Lee, S. Ryu, and S. Choi

59 Microwave Synthesis of $LiMPO_4$: Electrochemical Performance Dependence on Microwave Synthesis Conditions and Particle Size
A. Hashambhoy and J. Whitacre

60 Mechanism of Bilirubin Oxidase: Fabrication and Characterization of Efficient Biocathode
M. Falk, V. Andoralov, C. Reimann, T. Ruzgas, M. Srnec, U. Ryde, L. Rulíšek, and S. Shleev

61 Fabrication of p-Ag_2O/CdS Heterojunction for Solar Cell
J. Ji, K. Park, and S. Choi

62 RIE Texturing Optimization for Multicrystalline Silicon Solar Cell
K. Park, J. Jung, J. Hong, S. Choi, and M. Lee

63 Electrochemical Hydrogen Production from Ammonia Borane at Different Metal Electrodes
T. Baba, M. Shimada, E. Higuchi, and H. Inoue

64 Thermoelectric Properties of Electrodeposited BiSbTe Nanowires and Thin Films
R. Mannam, S. Pasem, and D. Davis

65 Fuel Cell Electrode Structures Containing Sulfonated Organosilane-Based Proton Conductors
J. Eastcott and E. Easton

66 Application of LA-ICP-MS/LA-ICP-OES and ICP-OES for the Determination of Impurities in Li-Ion Battery Compounds
S. Lux, S. Nowak, L. Terborg, M. Holtkamp, E. Krämer, F. Schappacher, U. Rodehorst, T. Gallasch, H. Meyer, U. Karst, and M. Winter

67 Characterization of Reactively Sputter Deposited Lithium Phosphorus Oxynitride Thin Films
P. Mani, K. Coffey, and A. Vijayakumar

68 Feasibility Studies for Use of Ammonia Electrolysis as a Source of Hydrogen for Distributed Power Production for Residential Applications
R. Palaniappan and G. Botte

102 Controlled Synthesis of ZnO Nanospheres Using Hydrothermal Process
K. Foe, P. Boland, D. Gu, H. Baumgart, T. Abdel-Fattah, M. Jeong, and G. Namkoong

103 Influence of Copper Diffusion on Structural, Optical and Electrical Properties of Cadmium Sulfide Thin Films Prepared by RF Sputtering
S. Ryu, J. Park, C. Lim, N. Kim, and W. Lee

104 Electrodeposition of Diamond-Like Carbon Films on Biomedical 316L Stainless Steel
I. Branzoi, M. Iordoc, F. Branzoi, A. Teisanu, and L. Lungu

105 Contact Probe Card with Large Overdrive
G. Kimoto, T. Watanabe, T. Kuroda, S. Matsusaka, and M. Saito

106 Homojunction Made by the Method of Laser Annealing
A. Huseynov

A2 - Nanotechnology General Session

All Divisions

107 Electrochemical Fabrication of Inverse Opal Silicon Structures
M. Roberts, A. Madsen, R. Johnson, P. Bartlett, and J. Owen

108 Si-Based Dielectric Stressors for C+L Band Operation of Ge Optical Modulators and Photodetectors on Si
R. Kuroyanagi, Y. Ishikawa, and K. Wada

109 Ammonia Detection Properties of Polycrystalline WO_3 Nanofiber Mats
T. Nguyen and Y. Kim

110 Vapor-Liquid-Solid Grown Indium-Tin-Oxide Nanowire-Based Photoelectrodes for Photoelectrocatalytic Water Splitting
S. Lee, S. Park, G. Han, J. Noh, H. Han, H. Jung, and K. Hong

111 Nanowire-Nanoparticle Conjugate Photolytic Devices
A. Kalkan, S. MacLaskey, and R. Bogle

112 Metal/Molecule Multilayers: A New Design Tool for Molecular Electronics
M. Saitner, F. Eberle, H. Boyen, J. Kucera, A. Gross, A. Romanyuk, P. Oelhafen, M. D'Olieslaeger, M. Manolova, and D. Kolb

113 A Novel Synthesis Method of Cu Nanopartices and Their Applications Acting as Seed Layer of TSV
Y. Chang and W. Dow

114 Low Ideality Factor and High Output Power Density Nanorod LED Array with Chemical Mechanical Process
L. Chen, Y. Huang, C. Chang, and J. Huang

115 Deposition and In-Plane Thermoelectric Properties of Highly-Oriented Zero- to Three-Dimensional Bi_2Te_3 Nanostructures
H. Chang, C. Chen, and T. Chung

116 Fabrication of Thermal Conductivity Film Using Silver Nanowires
C. Chen, C. Chen, S. Chang, M. Kao, W. Jehng, P. Chen, and S. Hsieh

117 Schottky Barrier Height Varied by the Thermal and the Charged Molecules Adsorption Effect
P. Yeh and Z. Wang

118 Synthesis of Pd-Au Nanoalloys Using Electrodeposition
M. Kim, T. Lim, K. Park, O. Kwon, and J. Kim

176 Template-Free Electrodeposition of Polypyrrole Nanowire Array
D. Ben Salem and C. Debiemme-Chouvy

A3 - Tutorials in Nanotechnology: Focus on Luminescence and Display Materials

All Divisions

177 Luminescent Quantum Dots
S. Rosenthal

178 Bringing Silicon to Light: Luminescence in Silicon Nanostructures
D. Lockwood

179 Functional Porous Silicon Nanostructures for In Vitro and In Vivo Diagnostics
M. Sailor

180 Optical Properties and Applications of Doped and Undoped Quantum Dots
A. Meijerink

181 Luminescent Nano-oxides
C. Dujardin

B1 - Battery / Energy Technology Joint General Session

Battery / Energy Technology

182 Simulation and Analysis of Electrolyte and Ionomer Materials in Redox Flow Batteries
J. Meyers

183 Sulfonated Polyphenylsulfone Membrane for all Vanadium Redox Flow Batteries
S. Kim, J. Yan, B. Schwenzer, J. Zhang, L. Li, J. Liu, Z. Yang, and M. Hickner

184 Investigation of Voltage Loss in Vanadium Redox Flow Battery
S. Kim, V. Viswanathan, J. Zhang, W. Wang, L. Li, and Z. Yang

185 Aging Studies of Vanadium Redox Flow Batteries
J. Noack, L. Vorhauser, K. Pinkwart, and J. Tuebke

186 Studies on the Stabilities of V^{2+}, V^{3+} and V^{4+} in H_2SO_4 Solution for all Vanadium Redox Flow Batteries
J. Zhang, L. Li, B. Chen, Z. Nie, S. Kim, W. Wang, B. Schwenzer, V. Murugesan, J. Liu, and Z. Yang

187 Liquid Metal Battery: An Electrometallurgical Approach to Large-Scale Energy Storage
D. Bradwell, D. Boysen, L. Ortiz, and D. Sadoway

188 Organometallic Acetylacetonate Complexes for Nonaqueous Single Metal Flow Batteries
A. Shinkle, Q. Liu, A. Sleightholme, L. Thompson, and C. Monroe

189 Battery Energy Storage System for Peak Shaving and Improving Local Power Availability
Y. Baghzouzons and R. Boehm

190 High Temperature Electrolysis Using a Pilot-Scale Cathode-Supported Tubular Solid Oxide Fuel Cell
K. Huang and G. Zhang

191 (Edward Goodrich Acheson Award) Energy Storage
J. Newman

192 Zinc Layer Current Distribution in Secondary Zinc Metal Batteries for Grid Scale Electrical Storage
J. Gallaway, Y. Ito, D. Desai, M. Nyce, S. Banerjee, and D. Steingart

193 Two-Phase Electrolysis Modeling: Two Scales Numerical and Experimental Investigation
P. Mandin, Z. Derhoumi, T. Percevault, F. Ricoul, and H. Roustan

194 Cycling Performance of a Metal Hydride-Air Rechargeable Battery
N. Osada, M. Morimitsu, and K. Takano

195 Improvement in Energy Density of Metal Hydride-Air Secondary Batteries
Y. Tsuchinaga, M. Morimitsu, and K. Takano

196 Primary Lithium Air Cell and Pack Development
J. Stone, R. Tamaki, M. Nagata, and H. Tsukamoto

197 Nanographene Platelets and Their Composites for Li-Ion Batteries
S. Cheekati, Y. Xing, Y. Zhuang, and H. Huang

198 Charging Time Dependence of a New Charging Method on the Direction of an Additional Oscillating Field
I. Abou Hamad, M. Novotny, D. Wipf, and P. Rikvold

199 Effect on Surface Modification of Pitch-Based Carbons for Anode Materials of Lithium-Ion Batteries
T. Lin and S. Wu

200 Optimization of Ratio and Amount of CMC/SBR Binder for a Graphite Anode
H. Zheng, G. Liu, X. Song, P. Ridgway, and V. Battaglia

201 Modeling of Lithium Plating in Lithium-Ion Batteries
M. Ecker, S. Käbitz, J. Gerschler, and D. Sauer

202 A Porous Silicon-Carbon Anode with High Overall Capacity on Carbon Fiber Current Collector
J. Guo, A. Sun, A. Manivannan, and C. Wang

203 Porous Silicon as Anode Materials for Li-Ion Batteries
W. Chen, A. Dhanabalan, C. Chen, and C. Wang

204 New Titanate Insertion Anode for Li-Ion Batteries
D. Dambournet, I. Belharouak, and K. Amine

205 One-Dimensional Magnéli Phases Ti_nO_{2n-1} as Anodes for Li-Ion Batteries
W. Han and X. Wang

206 Synthesis and Electrochemical Properties of $Li_4Ti_5O_{12}$/Graphene Nanocomposites for High-Rate Li-Ion Batteries
H. Kim and K. Kim

207 Microwave Plasma CVD of Li-Ion Composite Anodes
M. Marcinek, J. Syzdek, G. Żukowska, W. Wosko, E. Dudek, P. Wieczorek, and R. Kostecki

208 Visualization of Charge Distribution in a Lithium-Ion Battery Electrode
J. Liu, M. Kunz, K. Chen, N. Tamura, and T. Richardson

209 Characterization of Lithium-Ion Battery Materials: A Review of Analytical Techniques
S. Patel, I. Mowat, U. Sharma, B. Burrow, and X. Wang

210 Measuring Li Diffusion and Electrochemical Processes on the Nanoscale
N. Balke, S. Jesse, Y. Kim, L. Adamczyk, N. Dudney, and S. Kalinin

211 Comparison of Reduced-Order Models for Lithium-Ion Batteries
V. Ramadesigan, J. Pirkle Jr., R. Methekar, and V. Subramanian

212 In Situ Acoustic Emission and X-ray Diffraction of Cycling Lithium-Ion Batteries
K. Rhodes, C. Daniel, E. Lara-Curzio, and N. Dudney

213 EIS Measurements for Determining the SOC and SOH of Li-Ion Batteries
R. Mingant, J. Bernard, V. Sauvant Moynot, A. Delaille, S. Mailley, J. Hognon, and F. Huet

252 Synthesis and Characterization of Mixed Conductor for Solid Oxide Fuel Cell
J. Kim, Y. Park, and H. Kim

253 Thermal and Mechanical Properties of NiFe-Supported Solid Oxide Fuel Cells
K. Kim, J. Kim, Y. Park, and H. Kim

254 Electrochemical and Structural Properties of Li/K Carbonate Electrolyte in Matrix for MCFCs
S. Jang, M. Shin, B. Ryu, I. Jang, and T. Lee

255 PEM Fuel Cell Evaluation Using Pt/MWCNT
Y. Verde-Gomez, A. Valenzuela-Muñiz, M. Miki-Yoshida, B. Escobar-Morales, and G. Botte

256 Nanocomposite Solid Acid Fuel Cell Electrodes via Electrospray Deposition
A. Varga, N. Brunelli, M. Louie, K. Giapis, and S. Haile

257 Effects of Deposition Temperature on Electrochemical Properties in Atomic Layer Deposited Electrolytes
C. Chao, H. Jung, and F. Prinz

258 Performance of Newly Developed Co Doped $Sm_{0.95}Ce_{0.05}FeO_{3-\delta}$ as SOFC Anode Material
S. Bukhari and J. Giorgi

259 Electrochemical Impedance Spectroscopy of Liquid Tin Anode Solid Oxide Fuel Cell
S. Rayman, M. Koslowske, L. Bateman, T. Tao, and R. White

260 Transient One Dimensional Model of a Liquid Tin Anode Solid Oxide Fuel Cell
S. Rayman, G. Sikha, M. Koslowske, T. Tao, and R. White

261 Time Dependent of a Coupled SOFC-MHB System
K. Song and H. Knickle

262 Limiting Factors in Solid Oxide Fuel Cell Performance by Flowfield Design
M. Kornely, A. Weber, and E. Ivers-Tiffée

263 Performance of Solid Oxide Fuel Cells Operated with a Model Reformate Gas
A. Kromp, A. Leonide, A. Weber, and E. Ivers-Tiffée

264 Properties of 3-15 mol% YSZ Materials
C. Suciu, A. Hoffmann, E. Dorolti, R. Tetean, and A. Vik

265 Redox Behavior of Porous Ni/YSZ Composites for Anode-Supported Tubular Solid Oxide Fuel Cells
Y. Heo, J. Lee, S. Lee, T. Lim, S. Park, R. Song, and D. Shin

266 Novel Hydrogen Bromine Fuel Cell for High Power Density Applications
W. Braff and C. Buie

267 Proton Exchange Membrane Fuel Cell Operating at 150°C with Ionic Liquid as Electrolyte
J. Gao, J. Liu, Y. Xie, and Z. Zou

268 MnO_2 Electrode Regeneration by Oxygen Gas for Fuel Cell/Battery (FCB) System
B. Choi, S. Lee, C. Fushimi, and A. Tsutsumi

269 Identifying and Adapting a Solid Polymer Electrolyte for Ammonia Electrolysis
R. Palaniappan and G. Botte

270 Continuum Modeling of Polymer Bipolar Membranes with Water Dissociation
N. Craig and J. Newman

271 Comparison of Numerical Predictions and Experimental Results of Water Percolation in PEM Fuel Cell Porous Transport Layers
E. Medici and J. Allen

272 Modeling Carbon Corrosion Effects in PEM Fuel Cells
M. Baghalha, M. Eikerling, and J. Stumper

311 The Effect of Irreversible Capacity Delivered from KOH-Activated Soft-Carbon for High-Voltage Hybrid Electrochemical Capacitor (HEC)
I. Murayama, Y. Nagao, T. Aida, and M. Morita

312 Performance of Electrochemical Capacitor Utilizing Bromide Ion as Reaction Species
S. Yamazaki, T. Ito, M. Yamagata, and M. Ishikawa

313 Characterization of Self-Assembly Monolayer on FTO and Its Application in DSSCs
C. Lin, J. Lin, J. Lan, T. Wei, and C. Wan

314 A Transformational, High Energy Density, Secondary Aluminum Ion Battery
M. Paranthaman, G. Brown, X. Sun, J. Nanda, A. Manthiram, and A. Manivannan

315 Characterization of the Electroactive Species in Nonaqueous Mg Battery Electrolytes
H. Kim and J. Muldoon

316 Structural Changes Investigations of Zinc Based Electrode in Ni-Zn Secondary Batteries by XRD In Situ Analysis
F. Moser, F. Fourgeot, R. Rouget, and T. Brousse

317 Recent Advances in the Lithium/Sulfur System
C. Barchasz, J. Leprêtre, D. Krejcirova, F. Mesguich, M. Dolle, F. Alloin, and S. Patoux

318 The Effect of Metal Oxides or Silicate for Na/S Battery and MS (M:metal) Battery
J. Park, H. Ryu, and H. Ahn

319 Corrosion Behavior of Plasma Sprayed FeCr and NiCr Coatings on Al Alloy Substrates
S. Park, N. Cho, H. Kim, and J. Ahn

320 The Mathematical Modelling of ZnO Precipitation in Primary Alkaline Batteries
T. Farrell and J. Johansen

B2 - Battery Safety and Abuse Tolerance

Battery

321 Hazards Associated with High Voltage High Capacity Lithium-Ion Batteries
J. Jeevarajan

322 Lithium-Ion Battery Safety Field-Failure Mechanisms
R. Stringfellow, D. Ofer, S. Sriramulu, and B. Barnett

323 Battery Material Stability Studies Using Thermal and Evolved Gas Analysis
P. Ralbovsky, R. Campbell, and I. Beta

324 AC Impedance Behavior of Lithium-Ion Batteries Depend on the Cell and Environmental Condition
S. Koike, M. Shikano, H. Kobayashi, H. Sakaebe, and K. Tatsumi

325 Nondestructive Methods and Devices for Testing Hidden Defects in Initial Materials, Semi- and Final Products during Production of Batteries and Other Power Sources
V. Redko, E. Shembel, V. Khandetskyy, T. Pastushkin, Y. Sohach, S. Pukha, and D. Sivtsov

326 Assessing Cell-To-Cell Variations in Commercial Batteries
M. Dubarry and B. Liaw

327 Characterizing the Onset and Failure Signature of a Lithium-Ion Cell when Internal Cell Faults are Induced
J. Swart, A. Arora, B. Pinnangudi, and S. Dalal

328 Improving the Safety Characteristics of Lithium-Ion Batteries through Functionalized Electrolyte Additives
K. Amine, Y. Qin, Z. Chen, and Y. Sun

329 Comparison of the Thermal Stabilities of Li-Intercalated and Na-Intercalated Hard Carbon
X. Xia and J. Dahn

330 A Comparative Study of 3,5-di-tert-butyl-1,2-dimethoxybezene and 2,5-di-tert-butyl-1,4-dimethoxybenzene for Overcharge Protection of Lithium-Ion Batteries
L. Zhang, Z. Zhang, and K. Amine

331 Numerical Analysis of Multiphysics Behaviors of Lithium-Ion Batteries for Internal and External Short
G. Kim, K. Lee, L. Chaney, K. Smith, E. Darcy, and A. Pesaran

332 Modeling Thermal Abuse in Transportation Batteries
R. Muller, P. Schultz, R. Cygan, A. Frischnecht, G. Wagner, R. Larson, M. Kanouff, J. Hewson, H. Moffat, and P. Roth

333 Lithium-Ion Cell Safety Issues of Separators and Internal Short Circuits
C. Orendorff, P. Roth, and T. Lambert

334 Hybrid Polymer Electrolytes Based on Aluminum Oxygen Compound Distributed in Matrix: Electrochemical and Rheological Characterization
M. Siekierski, M. Marczewski, M. Piszcz, J. Wójcik, and W. Wieczorek

335 Tris(4-fluorophenyl) Phosphine and Tris(2,2,2-trifluoroethyl) Phosphite as Flame-Retarding Additives in Li-Ion Batteries
N. Nam, I. Park, and J. Kim

336 The Effect of VC Additive on SEI Formation in Li-Ion Batteries with MFA-Based Electrolyte
L. Zhao, K. Sato, M. Zhou, S. Okada, and J. Yamaki

337 The Influence of $LiCoO_2$ with Spinel Symmetry on Lithium-Ion Batteries Performance and Electrochemical Properties
H. He, A. Hsu, and R. Chen

B3 - Electrochemistry of Novel Materials for Energy Storage and Conversion

Energy Technology

338 Silicon-Air Batteries Opportunities and Limitations
Y. Ein-Eli

339 Physics-Based Modeling of the Li/Air Battery, With Comparison to Experiments
P. Albertus, J. Christensen, G. Girishkumar, B. McCloskey, and A. Luntz

340 Understanding the Chemical Reactions in the Lithium-Oxygen Battery
S. Freunberger, Z. Peng, L. Hardwick, Y. Chen, F. Barde, and P. Bruce

341 Multifunctional Carbon Nanoarchitectures as Air-Breathing Cathodes for Primary and Rechargeable Metal-Air Batteries
J. Long, C. Chervin, J. Wallace, N. Brandell, J. Dysart, and D. Rolison

342 Oxygen Reduction on Select Metal Surfaces and Supported Catalysts Using a Rotating Disk Electrode Configuration for Li-Air Batteries
Y. Lu, H. Gasteiger, and Y. Shao-Horn

343 Sulfur/Carbon Nanocomposites for High Energy Lithium Battery
C. Liang, N. Dudney, and J. Howe

344 News in Mg Electrochemistry
G. Gershinsky, E. Levi, and D. Aurbach

345 SiO_x and Si Electrode Materials for Li-Ion and Li-Alloy Air Batteries
K. Zaghib, J. Trottier, A. Guerfi, P. Charest, M. Dontigny, M. Lagacé, and P. Hovington

366 Carbon Nanotube Modified Microfiber Electrode as Support for Glucose Oxidation Bioanodes
H. Wen, V. Nallathambi, D. Chakraborty, and S. Barton

367 Development of Tin-Based Anode Material Using Glass Melting Process
H. Yamauchi, T. Nagakane, K. Yuki, A. Sakamoto, M. Zou, Y. Okumura, and T. Sakai

368 Characterization and Electrochemical Performance of High Rate $LiFe_{0.9}P_{0.95}O_{4-\delta}$
J. Chong, S. Xun, P. Ross, X. Song, G. Liu, J. Wang, H. Zheng, and V. Battaglia

369 Synthesis-Structure-Property Relations in Layered "Li-Excess" Oxides Electrode Materials $Li[Li_{1/3-2x/3}Ni_xMn_{2/3-x/3}]O_2$ (x = 1/3, 1/4 and 1/5)
C. Fell, K. Carroll, and S. Meng

370 The Unusual Structural Response of the Sol-Gel $Cr_{0.11}V_2O_{5.16}$ Mixed Oxide during Li Intercalation
J. Pereira-Ramos, R. Baddour-Hadjean, P. Soudan, and S. Bach

371 Electrochemistry of a Novel Silver Molybdenum Oxyfluoride Perovskite as Cathode Material for Lithium Batteries
W. Tong, W. Yoon, and G. Amatucci

372 Thermal Battery with Thin film LiV_3O_8 Cathodes
R. LaFollette, J. Dai, D. Reisner, and D. Briscoe

373 Rapid Microwave Synthesis of Sodium Manganese Oxide Intercalation Electrode Materials
A. Tevar and J. Whitacre

374 Studies of Ionic Fluxes in Activated Carbon Electrodes
M. Levi, S. Sigalov, G. Salitra, N. Levy, and D. Aurbach

375 The Interaction of Li^+ with Single-Layer and Few Layers Graphene
E. Pollak, B. Geng, K. Jeon, I. Lucas, T. Richardson, F. Wang, and R. Kostecki

376 Voltammetric and Capacitance Behavior of sp^3 and sp^2 Carbon Powders: A Comparison of an Aqueous Electrolyte and an Ionic Liquid
D. Kim, J. Yang, H. Kim, and G. Swain

377 Facile Adjustment of Doping Level in Carbon Doped TiO_2 Nanoparticle
H. Yun, H. Lee, N. Kim, M. Lee, S. Yu, J. Baek, Y. Choi, and J. Yi

378 A Study On Ultra High Capacity Nanostructured Silicon Anodes
J. Golightly, A. Pietz, J. Bonilla, L. McCoy, and M. Isaacson

379 The Surface Change of MWNT-Added Sulfur Electrode of Lithium/Sulfur Battery with Cycling
J. Park, J. Yu, K. Kim, H. Ryu, J. Ahn, and H. Ahn

380 Novel Electrolytes for Nonaqueous Electrochemical Double Layer Capacitors
A. Jänes, H. Kurig, T. Romann, and E. Lust

381 Ordered Hierarchical Nanostructured Carbon as an Efficient Anode Material in Li-Ion Battery
M. Kim, S. Lim, D. Yang, J. Kim, M. Song, M. Kim, and J. Yu

382 Understanding Structure/Composition-Activity Relationships of Novel Electrocatalyts towards Energy Storage and Conversion
Y. Liu, H. Abruña, and D. Nocera

383 Anodic Dissolution Behavior of Magnesium in Hydrophobic Ionic Liquids
I. Sasaki, K. Murase, T. Ichii, Y. Uchimoto, and H. Sugimura

384 A Promising Self-Organized ZnO-CNT Electrode for Organic Photovoltaic Cells
Y. Chien, P. Yang, I. Lee, Y. Lee, W. Tsai, C. Chang, C. Juan, and H. Cheng

385 Heterojunction ZnO Nanoswires Solar Cells
H. Li, P. Yang, S. Chiou, I. Lee, Y. Hung, H. Liu, M. Ho, M. Lan, and H. Cheng

405 A Study on the Effect of Surface Modifications of the Carbon Felt Electrode on the Performance of Vanadium Redox Flow Battery
K. Kim, M. Park, J. Kim, and Y. Kim

406 Recovery of $NaBH_4$ Using Silver Electrode
A. Sanli, A. Aytaç, B. Uysal, and M. Aksu

407 Synthesis and Electrochemistry of $Li_x(Ni_{0.25-y}Co_{2y}Mn_{0.75-y})O_z$ Electrode Materials with Integrated 'Layered-Spinel' Structure
D. Kim, K. Gallagher, and S. Kang

408 Photoelectrochemical Properties of $Rh:SrTiO_3/Nb:SrTiO_3(001)$ Heterostructure
M. Katayama, T. Ishihara, Y. Matsumoto, J. Kubota, and K. Domen

409 The Absorption of TiO_2 Nanotube-Dye Sensitization Solar Cells by Thermocompression Systems in Dye Molecules
W. Jehng, Y. Huang, and C. Chen

410 Anodizing of Pure Magneisum in Alkaline Solution
B. Aziz

411 Green Facile Synthesis of Transferable Electrochemically Reduced Graphene Oxide Film
X. Peng, X. Liu, D. Diamond, and K. Lau

412 Photoelectrochemical Water Oxidation of Metal Doped Iron Oxide Films
A. Bak and H. Park

413 Nitrogen-Containing Carbon Nanotubes as Alternative to Platinum for Oxygen Reduction Reaction
V. Chitturi and Y. Ishikawa

414 Proton Conducting Membranes via Thermally Cross-Linkable Diacetylene with Protic Ionic Liquids
Y. Ye, M. Cheng, J. Tseng, Y. Huang, F. Chang, and B. Hwang

415 Enhanced Power Output: Alkaline Batteries Modified with Micromagnets
P. Motsegood and J. Leddy

416 Surface Treatment Effects of Carbon Nanotube Support on Visible-Light Driven Hydrogen Production from Water in Carbon Nanotube-Cadmium Sulfide Hybrid Suspensions
Y. Kim and H. Park

417 Electrochemical Reduction of CO_2 at Various Metal Electrodes in Aqueous Potassium Hydrogen Carbonate Solution
M. Salazar-Villalpando and B. Reyes

418 Photocatalytic Hydrogen Production by Semiconductor Heterojunction Materials
Z. Zou

419 Stability of Garnet-Type Lithium-Ion Conducting Solid Electrolyte $Li_7La_3Zr_2O_{12}$ in Aqueous Electrolytes
Y. Shimonishi, N. Imansihi, T. Zhang, A. Hirano, Y. Takeda, and O. Yamamoto

420 Electrical Conductivity of NASICON-Type Lithium-Ion Conductor Sintered from the Precursor Prepared by Sol-Gel Method
J. Ohmura, Y. Shimonishi, P. Jonson, T. Zhang, N. Imanishi, A. Hirano, Y. Takeda, O. Yamamoto, and N. Sammes

421 TiN Coated ZnO Powder as Improved Electrode Material for Secondary Ni-Zn Batteries
F. Moser, C. Martin, Y. Borjon-Piron, and T. Brousse

B4 - Electrode-Electrolyte Interfaces in Li-ion Batteries

Battery / Physical and Analytical Electrochemistry

476 Analysis of Energy and Power Limitations of $LiFePO_4$ Composite Electrodes
C. Fongy, S. Jouanneau, D. Guyomard, and B. Lestriez

477 Characterization of Air Exposed $LiFePO_4$ Nanopowders for Li-Ion Batteries
M. Cuisinier, J. Martin, N. Dupré, A. Yamada, R. Kanno, and D. Guyomard

478 Interfacial Phenomena at a Composite $LiMnPO_4$ Cathode
N. Norberg, I. Lucas, E. Pollak, and R. Kostecki

479 In Situ EXAFS Study of SEI Formation on $LiCoO_2$ and $LiFePO_4$ Cathodes
C. Love, A. Korovina, D. Ramaker, and K. Swider-Lyons

480 An Investigation of Surface Structural Changes and Electrochemical Properties in $Li[Li_{1/5}Ni_{1/5}Mn_{3/5}]O_2$
C. Fell, B. Xu, M. Chi, and S. Meng

481 Study of the Cathode-Electrolyte Interface of $LiMn_{1.5}Ni_{0.5}O_4$
H. Duncan, Y. Abu-Lebdeh, and I. Davidson

482 Power Fade and Gas Generation Mechanims in $Li_4Ti_5O_4/LiMn_2O_4$ Cells
I. Belharouak and K. Amine

483 Characterization of the $LiMn_{1/2}Ni_{1/2}O_2$ Electrode/Electrolyte Interface of Using MAS NMR AND EELS Spectroscopies
M. Cuisinier, N. Dupré, J. Martin, P. Moreau, A. Gaillot, T. Epicier, R. Kanno, and D. Guyomard

484 On the Origin of the Dramatic Catalytic Effect of Doping Conductive Phospho-Olivines with Niobium and Zirconium
M. Reda

485 The Electrode/Electrolyte Interfaces in Li-Ion Batteries: The Hunt for Better Life-Time
K. Edström, S. Malmgren, K. Ciosek, H. Rensmo, M. Gorgoi, and H. Siegbahn

486 Anion Receptors for Lithium-Ion Batteries
Y. Qin, Z. Chen, and K. Amine

487 Surfaces of Electrode Material in Equilibrium with Water from First Principles
K. Persson, L. Wang, C. Dassonville, M. Kocher, and G. Ceder

488 Distinguishing Charge Transfer Kinetics at the Electrolyte/NCA Cathode and the Electrolyte/Graphite Anode Interfaces in Li-Ion Cells
T. Jow, M. Marx, and J. Allen

489 Computational Studies of Surfaces and Interfaces of Silicon as Li-Ion Battery Anodes
M. Chan, C. Wolverton, and J. Greeley

490 Physical and Chemical Properties of SEI
S. Harris, P. Lu, and A. O'Neill

491 Electrochemical Characterization of SEI-Type Passivating Films Using Redox Shuttles
M. Tang and J. Newman

492 A Quantum Chemistry and Reactive (ReaxFF) Molecular Dynamics Simulations Study of Mechanisms of SEI Formation in Lithium-Ion Batteries
D. Bedrov, G. Smith, and A. van Duin

493 Polyelectrolyte Membranes Containing Lithium Malonate(difluoro)borate for Lithium-Ion Systems
P. Driscoll, L. Yang, and J. Kerr

513 Preparation of Highly Crystallized $LiMn_2O_4$ Thin Films by RF Magnetron Sputtering and Their Electrochemical Properties
I. Takahashi, Y. Domi, T. Doi, T. Abe, and Z. Ogumi

514 Electrochemical Behavior of Al in a Nonaqueous Alkyl Carbonate Solution Containing LiBOB Salt
S. Myung, H. Natsui, Y. Sun, and H. Yashiro

515 Modification of Solid Electrolyte Interphase by Using Electrolytic Additives for Silicon Anode
S. Lee, Y. Ryu, D. Lee, D. Lim, A. Benayad, Y. Choi, and S. Doo

516 Lithium Phosphorous Oxynitride as an Artificial SEI on Graphite Anodes
L. Adamczyk, Y. Kim, G. Veith, and N. Dudney

B5 - Materials Design and Electrode Architecture for Batteries

Battery

517 Three-Dimensional Construction of Electrodes: Lithium Manganate
M. Zukalova, J. Prochazka, and L. Kavan

518 Button Cell Prototypes of Lithium Accumulator Based on the Three-Dimensional (3D) Construction of Electrodes: Lithium Manganate/Lithium Metal
J. Prochazka, M. Zukalova, and L. Kavan

519 Lithium Accumulator with Three-Dimensional (3D) Construction of Electrodes-Perfect Fit for 50V Automobile Starting Battery
J. Prochazka, M. Zukalova, and L. Kavan

520 Computational Methods for the Characterization of Aqueous Processed Cellulose-Based $LiFePO_4$/C Composite electrodes
H. Meyer, S. Lux, T. Gallasch, A. Wedi, D. Baither, C. Oberdorfer, T. Placke, M. Lux, G. Schmitz, and M. Winter

521 Electrochemical Characterizations of the $LiMn_2O_4$ Single-Particle Microelectrode for Lithium-Ion battery
C. Su and M. Liu

522 Tailored Growth of Novel Battery Materials by Molecular Layer Deposition (MLD)
R. Tenent, A. Dameron, Y. Lee, A. Cavanaugh, B. Yoon, W. Yin, S. George, A. Dillon, and Y. Yan

523 Lithium Accumulator Button Cell Prototypes Based on Three-Dimensional (3D) Construction of Electrodes: Lithium Manganate/Lithium Titanate
J. Prochazka, M. Zukalova, and L. Kavan

524 Large Prototypes of Lithium Accumulator Based on the Three-Dimensional (3D) Construction of Electrodes: NMC/Graphite/Lithium Titanate
J. Prochazka, M. Zukalova, and L. Kavan

525 Preparation and Characterization of the High Tap Density and High Capacity Performance of $Li_{1+X}[M]_{1-X}O_2$ ($M = Ni_{0.2}Co_{0.1}Mn_{0.7}$) Cathode Materials for Li-Ion Batteries
H. Kim, K. Amine, and Y. Sun

526 Bifunctional Air Electrodes for Electrically Rechargeable Zinc-Air Batteries
K. Froehlich, W. Taucher-Mautner, and V. Hacker

527 Pyrolytic Sucrose-Coated Carbon Oxide as Negative Electrode for Electrochemical Capacitors and High-Rate Batteries
S. Yang, I. Kim, I. Choi, M. Bae, and H. Kim

547 Generation of Realistic Particle Structures and Simulations of Internal Stress: A Numerical/AFM Study of $LiMn_2O_4$ Particles
J. Seo, M. Chung, M. Park, S. Han, X. Zhang, and A. Sastry

548 Microstructure Reconstruction and Direct Simulation of Li-Ion Battery Cathodes
F. Liu and N. Siddique

549 Micron-Sized $Li_4Ti_5O_{12}$ as an Anode for Lithium-Ion Batteries
J. Hong and J. Graetz

550 Role of the Carbon Coating, the Particle Size, and the Agglomeration on the Electronic Conductivity of $LiFePO_4$-Based Electrodes for Lithium-Ion Batteries
K. Seid, J. Badot, O. Dubrunfaut, S. Levasseur, D. Guyomard, and B. Lestriez

551 Interfacial Engineering by Atomic Layer Deposition for Highly Durable and Safe Lithium-Ion Batteries
Y. Jung, A. Cavanagh, C. Ban, S. George, S. Lee, G. Kim, A. Pesaran, and A. Dillon

552 Exploration of Novel Metal Oxide/Carbon Nanotube Papers as Composite Electrodes
C. Lee, A. Subramanian, A. Marschilok, K. Takeuchi, and E. Takeuchi

553 Aqueous Processed $LiFePO_4$/C Composite Electrodes: Optimization of the Preparation, Characterization and the Use of Alternative Electrolytes
S. Lux, T. Placke, A. Balducci, H. Meyer, S. Passerini, and M. Winter

554 Nonaqueous Oxygen Reduction Activity of Silver-Polymer-Carbon Composite Air Electrodes
S. Lee, S. Zhu, C. Milleville, C. Lee, E. Takeuchi, K. Takeuchi, and A. Marschilok

555 Multifunctional Metal Oxide-Carbon Nanoarchitectures as Designer Electrode Platforms for High-Rate Electrochemical Energy Storage Devices
M. Sassin, J. Long, A. Mansour, S. Greenbaum, J. Wallace, K. Pettigrew, and D. Rolison

556 Effect of Multiwalled Carbon Nanotubes on the Performance of 2-D and 3-D Lithium Manganate Spinel Cathodes for Li-Ion Batteries
L. Kavan, M. Bousa, B. Laskova, J. Prochazka, and M. Zukalova

557 3D Microbatteries: Conformal Electrodeposition of Battery Materials on Porous 3D Substrates
P. Johns, M. Roberts, and J. Owen

558 Free-Standing Electrodes for 3D Li-Ion Microbattery Applications
E. Perre, M. Shaijumon, P. Taberna, K. Edström, and P. Simon

559 The Electrochemical Properties of $LiCoO_2$ Thin Film Electrode Prepared by Aerosol Deposition
I. Kim, M. Jeon, K. Kim, J. Ahn, D. Park, G. Cho, and H. Ahn

B6 - Non-Aqueous Electrolytes for Lithium Batteries

Battery / Physical and Analytical Electrochemistry

560 Ionic Liquid-Based Membranes as Advanced Electrolytes in Lithium Batteries
M. Navarra and B. Scrosati

561 Composite Polymeric Electrolytes: Strategies Towards Application in Microbateries
M. Siekierski and W. Wieczorek

562 Li^+ Environment and Mobility in PEO-Based, Ternary Solid Polymer Electrolytes Containing Ionic Liquids
M. Joost, M. Kunze, R. Schmitz, G. Appetecchi, S. Passerini, and M. Winter

563 All Solid-State Lithium-Ion Battery for High-Temperature Service
Q. Hu, S. Osswald, R. Daniel, Y. Zhu, S. Wesel, L. Ortiz, and D. Sadoway

580 Improved Wide Operating Temperature Range of MCMB- $Li_{1+x}(Co_{1/3}Ni_{1/3}Mn_{1/3})_{1-x}O_2$ Cells with Methyl Butyrate-Based Electrolytes
M. Smart, R. Bugga, and K. Amine

581 Electrolytes in Support of 5 V Li-Ion Chemistry
A. von Cresce and K. Xu

582 Investigation of New Generation Anode with FEC as an Electrolyte Additive
T. Kubota, H. Nakai, A. Kawashima, A. Kita, A. Yamaguchi, and H. Inoue

583 Tailoring Interphases in Li-Ion Batteries to Enable New Capabilities
K. Xu and A. von Cresce

584 Cathode Solid Electrolyte Interphase Generation in Lithium-Ion Batteries with Electrolyte Additives
T. Markmaitree, L. Yang, and B. Lucht

585 Influence of Nonaqueous Electrolyte on Lithium-Ion Insertion in Nanostructured V_2O_5
J. Wu, K. Stevenson, W. Yu, D. Flaherty, and C. Mullins

586 Solvent Screening of the Electrolyte for Nonaqueous Li-Air Batteries
K. Takechi, E. Sudo, T. Inaba, F. Mizuno, H. Nishikoori, and T. Shiga

587 Investigation of Lithum Tetrafluorooxalatophosphate ($LiPF_4C_2O_4$) Based Electrolytes
L. Zhou, M. Xu, Z. Guo, and B. Lucht

588 Electrochemical Properties of New Glyme-Li Salt Equimolar Complexes for Lithium Batteries
K. Dokko, K. Yoshida, T. Tamura, N. Tachikawa, and M. Watanabe

589 Electrolyte Containing Fluorinated Carboxylate Ester for Lithium-Ion Battery
T. Chiga, N. Imachi, and H. Nakamura

590 Electrochemical Properties of a Blended Solvent Consisting of Boric and Carbonate Esters as a Novel Electrolyte
Y. Tanaka, A. Kishimoto, J. Kaneko, Y. Iriyama, and T. Fujinami

591 Electrolytes with Enhanced Safety and Electrochemical Stability for Application in Lithium-Ion Batteries
A. Lex-Balducci, P. Isken, R. Schmitz, C. Dippel, M. Kunze, and M. Winter

592 Novel Li-Ion Electrolytes for Extended Temperature and Voltage Conditions
B. Oh, D. Ofer, J. Rempel, S. Sriramulu, and B. Barnett

593 Structural Characterization of the PVA/NMP Organogel Electrolyte for Understanding Its Ionic Conducting Mechanisms
J. Chatterjee, T. Liu, B. Wang, and J. Zheng

594 A Molecular Dynamics Simulation Study of Ionic Liquid-Solvent Mixtures as Electrolytes for Lithium Batteries
Z. Li, O. Borodin, and G. Smith

595 Influence of Ionic Liquids as Additives for Lithium Electrolytes
D. Moosbauer, M. Amereller, S. Zugmann, and H. Gores

596 Mixtures of Ionic Liquid and Organic Carbonate as Electrolyte for Lithium-Ion Batteries
R. Kühnel, N. Böckenfeld, S. Passerini, A. Balducci, and M. Winter

597 Crystal Structure and Physical Properties of Lithium Difluoro(oxalato)borate (LiDFOB)
J. Allen, P. Boyle, and W. Henderson

598 Catechol Based Bororganic Compounds as New Potential Additives for Battery Electrolytes
E. Cieślik, M. Jakubczyk, L. Niedzicki, M. Marcinek, A. Adamczyk-Woźniak, I. Madura, A. Sporzyński, W. Wieczorek, and G. Żukowska

599 Interfacial Reactions of $LiMn_2O_4$ Thin Film Electrodes and Mixed Boric Ester Electrolytes
J. Kaneko, T. Horino, Y. Iriyama, Y. Tanaka, and T. Fujinami

600 DFT and MD Simulations of Li-Ion Pathway in Solid State Sulfide $Li_7P_3S_{11}$ Electrolyte
H. Yamasaki, A. Shirasawa, and N. Nishino

B7 - Polymer Electrolyte Fuel Cells 10

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrochemistry and Electrochemical Engineering

601 Phosphoric Acid Fuel Cells: Progress and Future Research Needs
T. Jarvi, S. Kanuri, and S. Motupally

602 FCV Development in Nissan: Challenges for Durability and Cost
A. Iiyama

603 Research Advances Towards Low Cost, High Efficiency PEM Electrolysis
K. Ayers, C. Capuano, B. Carter, L. Dalton, G. Hanlon, J. Manco, and M. Niedzwiecki

604 PEM Fuel Cell Degradation
R. Borup and R. Mukundan

605 Understanding the Impact of Dynamic Operating Conditions on High-Temperature PEFC Systems
I. Kaye

606 Anion-Exchange Polymers and Nonplatinum Catalysts for Alkaline Polymer Electrolyte Membrane Fuel Cells
J. Varcoe, L. Bruen, N. Chan, N. Flack, D. Girard, J. Handsel, J. Kizewski, S. Murphy, S. Poynton, R. C. T. Slade, T. Waller, and R. Zeng

607 PEMFC Electrocatalyst Development
D. Stevens, T. Hatchard, R. Sanderson, R. Atanasoski, M. Debe, and J. Dahn

608 Electro-Catalysis of Oxygen Reduction and Water Oxidation
J. Rossmeisl

609 Mechanisms of Morphology and Water Motion in Proton Exchange Membranes
M. Hickner

610 Electrochemical AFM Investigations of Proton Conducting Membranes
E. Aleksandrova, S. Hink, and E. Roduner

611 Carbon Support Structural Degradation Observed in Aged PEM Fuel Cells
K. More, K. Perry, M. Chi, and S. Reeves

612 Pt Utilization Analysis at Low RH Conditions
K. Shinozaki, H. Yamada, and Y. Morimoto

613 In Situ, Through-Plane Measurements of Ionic Potential in a PEMFC Catalyst Layer
K. Hess, W. Epting, S. Yu, and S. Litster

614 In Situ Measurement of Oxygen Partial Pressure in a Cathode Catalyst Layer
W. Epting, K. Hess, and S. Litster

615 Normal Pulse Voltammetry: In Situ Kinetic Analysis of Proton Exchange Membrane Fuel Cells
P. Stuckey, P. Pietrasz, and T. Zawodzinski

616 Analysis of the Ionomer Coverage of Pt Surface in PEMFC
K. Ikeda, N. Nonoyama, and Y. Ikogi

617 Analysis of Major Parameters in Catalyst Layer Structure Affecting on PEFC Performce
M. Nishino, Y. Tabe, and T. Chikahisa

671 Recent Advances in TOYOTA FCHV-adv Fuel Cell System
K. Sekizawa, N. Kitamura, K. Manabe, Y. Nonobe, M. Kizaki, and K. Kojima

672 Effect of NH_3 and Chlorinated Hydrocarbons on the Performance of PEM Fuel Cells
M. Martínez-Rodriguez, E. Fox, S. McWhorter, S. Greenway, and H. Colón-Mercado

673 A Room Temperature Indirect Formic Acid Fuel Cell
S. Ting, F. Li, H. Li, J. Tsui, and K. Chan

674 Enhancing Direct Methanol Fuel Cell Performance and Durability through Ion Implanted Carbon Supports
H. Dinh, S. Pylypenko, T. Olson, K. Neyerlin, A. Dameron, J. Leisch, K. Hurst, J. Bult, K. O'Neill, A. Queen, B. Pivovar, R. O'Hayre, and T. Gennett

675 Air Breathing Vanadium/Oxygen Fuel Cell
J. Noack, C. Cremers, K. Pinkwart, and J. Tuebke

676 Ammonia Borane Bead Reactor System Model for Hydrogen Storage
J. Holladay, K. Brooks, M. Devarakonda, S. Rassat, D. King, and D. Herling

677 Vanadium Redox Flow Battery: Stability of Vanadium (V) Electrolyte Solutions
L. Li, J. Zhang, V. Murugesan, Z. Nie, B. Chen, S. Kim, W. Wang, J. Liu, and Z. Yang

678 In Situ Studies of Ethanol Tolerance in an Alkaline Microfluidic Fuel Cell
M. Naughton, M. Jhong, F. Brushett, and P. Kenis

679 Hydroquinone Fuel Cells
S. Sachdeva, J. Ferrell, J. Haag, J. Yoon, C. Koh, and A. Herring

680 Water Utilization of Block Copolymers for Proton Exchange Membranes
M. Gross, G. Maier, T. Fuller, S. MacKinnon, and C. Gittleman

681 Rigid Rod Poly(p-phenylene Sulfonic Acid) PEMs: High Conductivity at Low Relative Humidity Due to "Frozen-In-Free Volume"
M. Litt

682 Molecular Design Aspect of Sulfonated Polymers for Direct Methanol Fuel Cells
D. Kim, M. Guiver, J. McGrath, B. Pivovar, and Y. Kim

683 Preparation and Characterization of New Sulfonated Partially Fluorinated Polyarylenesulfones and Their Blends with Polybenzimidazole
A. Katzfuß, K. Krajinovic, A. Chromik, and J. Kerres

684 Acidity Effect on Proton Conductivity of Hydrocarbon-Based Ionomers
Y. Chang and C. Bae

685 Effect of Pore Size Distribution on Cathode Performance of Membrane-Electrode Assembly with a Hydrocarbon-Based Binder
J. Kawaji, S. Suzuki, Y. Takamori, T. Mizukami, and M. Morishima

686 Activation of Nanostructured Platinum-Based Electrocatalysts by Zeolite-Type Cesium Salts of Polyoxometallates of Molybdenum and Tungste
P. Kulesza, A. Zurowski, A. Kolary-Zurowska, and R. Marassi

687 Insight into Oxygen Reduction on Platinum-Tantalum Oxyphosphate Electrocatalysts
A. Korovina, Y. Garsany, A. Epshteyn, K. Swider-Lyons, and D. Ramaker

688 Preparation of Low Loading Pt and Pt-Metal Alloy Electrodes by Pulse Electrodeposition for Efficient Fuel Cell Catalysts
H. Kim, S. Woo, I. Kim, and S. Bong

689 Extraordinary Oxygen Reduction Activity of Pt_3Ni_7
M. Debe, A. Steinbach, G. Vernstrom, S. Hendricks, M. Kurkowski, R. Atanasoski, and P. Kadera

690 RRDE Measurements of ORR Activity of $Pt_{1-x}Ni_x$ ($0 < x < 1$) on High Surface Area NSTF-Coated GC Disks
G. Liu, C. Burns, R. Sanderson, D. Stevens, G. Vernstrom, R. Atanasoski, M. Debe, and J. Dahn

691 Oxygen Reduction Kinetics and Potential Stability of Electrodeposited PtNi Alloys for PEMFC
K. Jayasayee and F. de Bruijn

692 Stable Oxygen Reduction Electrocatalysts from Presynthesized PdPt Nanoparticles on Carbon
D. Slanac, L. Li, K. Stevenson, and K. Johnston

693 Electrochemical Characterization of Various Carbon-Supported Pt-Pd Bimetallic Electrocatalysts Prepared by Electroless Deposition
M. Ohashi, J. Monnier, and J. Van Zee

694 Microstructure-ORR Activity Relationships in Pd_3M (M = Cu, Ni, Fe) Electrocatalysts Synthesized at Various Temperatures
M. Ramanathan, B. Li, J. Greeley, and J. Prakash

695 Development of New Pd Based Catalysts for Oxygen Reduction with Combinatorial Method and Thermodynamic Guideline
K. Lee, J. Lee, Y. Jung, and S. Woo

696 Oxygen Reduction on Dealloyed $PtCu_3$ Thin Films and $PtCu_3$(111)Surfaces
R. Yang, F. Schmitt, P. Strasser, and M. Toney

697 Oxygen Electroreduction on Core-Shell Nanocatalysts Prepared by Selective Electrochemical Metal Dissolution of $PtCu_3$ and $PtCo_3$ Alloy
M. Oezaslan, M. Heggen, F. Hasché, and P. Strasser

698 Perovskite Catalysts for Alkaline Fuel Cells
F. Bidault and A. Kucernak

699 Electrocatalysts for Direct Borohydride Fuel Cells from First Principles
G. Rostamikia and M. Janik

700 Effect of Carbonate on Oxygen Reduction, Hydrogen Oxidation and Anion Exchange Membrane Chemical Stability
J. Vega, S. Smith, C. Chartier, and W. Mustain

701 XAFS Analysis of Unpyrolyzed CoPPyC Oxygen Reduction Catalysts for Anion-Exchange Membrane Fuel Cells (AMFC)
K. Asazawa, K. Yamamoto, K. Yamada, H. Tanaka, D. Matsumura, K. Tamura, Y. Nishihata, and P. Atanassov

702 Iron-Cobalt Modified Electrospun Carbon Nanofibers as Oxygen Reduction Catalysts in Alkaline Fuel Cells
B. Jeong, S. Uhm, and J. Lee

703 Oxygen Electrocatalysis on Perovskite Oxides as Model Surfaces in Alkaline Environment
J. Suntivich, H. Gasteiger, N. Yabuuchi, and Y. Shao-Horn

704 Recent Advances in Nonprecious Metal Catalysts for Oxygen Reduction Reaction in Fuel Cells
B. Popov and X. Li

705 Non-Pt Cathode Catalysts for Alkaline Membrane Fuel Cells
W. Patterson, M. Robson, K. Artyushkova, P. Atanassov, B. Kiefer, K. Asazawa, H. Tanaka, R. Ito, S. Araki, and T. Banno

706 Electrocatalysis of Oxygen Reduction on Nonprecious Metallic Centers at High pH Environments
N. Ramaswamy and S. Mukerjee

849 Palladium-Coated Manganese Dioxide Catalysts for Oxygen Reduction Reactions in Alkaline Media
W. Sun, Y. Wang, D. Chu, and R. Chen

850 Oxygen Reduction Reaction on Substituted Fe and Co-Phthalocyanines Adsorbed on Carbon Substrates in Alkaline Solutions
H. Li, R. Chen, G. Wang, and D. Chu

851 Nanosized Transition Metal Nitrides Prepared Using mpg-C_3N_4 Template for Cathode Catalysts of PEFC
R. Ohnishi, J. Chen, K. Takanabe, J. Kubota, and K. Domen

852 Carbon-Supported Ag and Ag-Based Catalysts for Oxygen Reduction Reaction in Alkaline Solution
J. Guo, A. Hsu, D. Chu, and R. Chen

853 Electrochemical Characteristic Evaluation of Ag/Perovskite Oxide as Composite Electrocatalysts in Alkaline Medium
J. Kim and Y. Kim

854 Enhanced Activity of Ir-V as Anode Catalyst for PEMFC at Elevated Temperature
D. Yang, B. Li, K. Tao, H. Lv, J. Zheng, and J. Ma

855 Effect of Polyoxometalate Amount Deposited on Pt/C Electrocatalysts for CO Tolerant Electrooxidation of H_2 in Polymer Electrolyte Fuel Cells
S. Choi, M. Seo, H. Kim, E. Lim, and W. Kim

856 De-Alloying of $Pt_{1-x}M_x$ [M = Ni, Co] (0 □C; x □C; 1) Catalysts and Impact on Surface Area Enhancement
G. Liu, R. Sanderson, D. Stevens, G. Vernstrom, R. Atanasoski, M. Debe, and J. Dahn

857 A Combined Rotating Disk Electrode/X-ray Diffraction Study of Co Dissolution from $Pt_{1-x}Co_x$ Alloys
D. Stevens, S. Wang, R. Sanderson, G. Liu, G. Vernstrom, R. Atanasoski, M. Debe, and J. Dahn

858 A Novel Technique for Preparation of $Pt_{shell}/Au_{core}/C$ Core-Shell Catalysts and Their Activity for Oxygen Reduction Reaction
H. Tsuji, A. Kaneko, M. Banno, H. Yamada, M. Saito, A. Tasaka, and M. Inaba

859 Surface Reactivity and ORR Activity of Pt_3Co/C Electrocatalysts during PEMFC Operation
L. Dubau, F. Maillard, M. Chatenet, J. André, and E. Rossinot

860 EQCM Study of the Electrodeposition of Pt-WO_3 and Its Catalytic Activity Towards the ORR
A. Martín, A. Chaparro, and L. Daza

861 Performance of PEMFC Electrode Catalysts Using Tin Oxide and Carbon Composites
K. Nagano, T. Kinumoto, T. Tsumura, and M. Toyoda

862 g-C_3N_4-Functionalized Carbon Nanotubes for Oxygen Reduction Reaction
J. Ahn, K. Kang, H. Kim, and M. Han

863 Effect of the Kind of the Cathode Catalyst on the Cell Performance under Low and High Relative Humidity
H. Nakajima, K. Matsutani, T. Kaieda, and T. Tada

864 Stability, Catalytic Activity and Selectivity of Co-N_x/C Centers Towards Oxygen Reduction Reaction (ORR)
S. Kattel, B. Kiefer, and P. Atanassov

865 The Influence of Surfaces and Deposition Processes on Pt Structure and Properties
S. Coombs, A. Dameron, C. Engtrakul, B. Pivovar, and H. Dinh

937 New Approaches to Non-PGM Electrocatalysts Using Porous Framework Materials
G. Goenaga, S. Ma, S. Yuan, and D. Liu

938 Assessment of the Role of Co-N_x/C Centers in ORR from First-Principles Simulations
B. Kiefer, S. Kattel, and P. Atanassov

939 State of the Transition Metal, Nitrogen and Carbon in Non-PGM Electrocatalyst for Oxygen Reduction
K. Artyushkova, P. Atanassov, K. Stevenson, J. Wiggins-Camacho, K. Asazawa, K. Yamamoto, and H. Tanaka

940 Multiwalled Carbon Nanotube-Based Non-Noble Metal Catalysts for Oxygen Reduction Reaction
H. Byon, J. Suntivich, and Y. Shao-Horn

941 A Discussion on the Oxygen Reduction Mechanism of Nitrogen-Doped Carbon Nanotubes
J. Wiggins-Camacho and K. Stevenson

942 Functionalization of Carbon Nanotubes via Electrodeposition of Polyaniline for ORR and Visualization of Local Catalytic Activity by RC-SECM
T. Chikka Nagaiah, C. Jin, M. Muhler, and W. Schuhmann

943 Nitrogen Precursor Effects in Nonprecious Oxygen Reduction Catalysts
V. Nallathambi, N. Leonard, and S. Barton

944 Multistep Pyrolysis of Fe Phthalocyanine and Phenolic Resin for Nonprecious Metal Cathode Catalysts
Y. Nabae, L. Wu, S. Moriya, K. Matsubayashi, S. Kuroki, M. Kakimoto, J. Ozaki, and S. Miyata

945 Electrocatalysis on Well-Defined Shape Platinum Nanoparticles: A Link between Single-Crystals and Nanoparticles
S. Baranton, P. Urchaga, and C. Coutanceau

946 Facile Surface Functionalization of Carbon/Nafion for Enhancement of Methanol Electro-Oxidation
Y. Hsieh, L. Chang, P. Wu, J. Lee, and C. Liao

947 Characterization of Pt/Ru-Carbon Powder Matrix Produced via an IBAD-Fluidized Bed Type Reactor
A. Dameron, J. Martin, S. Pylypenko, T. Olson, J. Bult, J. Leisch, K. O'Neill, R. O'Hayre, H. Dinh, D. Ginley, and T. Gennett

948 Enhanced Methanol and CO Oxidation of PtRu Electrocatalyst via N-Doping of Carbon Support
K. Neyerlin, S. Pylypenko, T. Olson, J. Leisch, K. O'Neil, D. Ginley, R. O'Hayre, B. Pivovar, T. Gennett, and H. Dinh

949 DMFCs with Enhanced Catalytic Activity and Durability Using Transition-Metal Carbides as Catalyst Support
K. Nishanth, P. Sridhar, S. Pitchumani, and A. Shukla

950 Novel Single-Step Synthesis of PtPb Intermetallic Compound Catalysts for Direct Methanol Fuel Cell
H. Lee and P. Chu

951 Novel Sol-Gel Synthesis of Quaternary Pt-Ru-Ni-Ti Anode Electrocatalysts for Direct Methanol Fuel Cell
K. Kadakia, M. Datta, and P. Kumta

952 Time-Resolved, in Operando X-ray Absorption Spectroscopy Investigations and Modelling of the Ethanol Oxidation Reaction on Pt
D. Ramaker, J. Melke, A. Schökel, F. Ettingshausen, D. Dixon, C. Cremers, and C. Roth

969 Possible Oxygen Reduction Sites in Partially Oxidized Ta-Cabonitrides Probed by a Surface-Sensitive Conversion-Electron-Yield X-ray Absorption Spectroscopy
H. Imai, M. Matsumoto, T. Miyazaki, S. Fujieda, A. Ishihara, and K. Ota

970 Catalytic Activity of Zirconium Based Cathode without Platinum for Oxygen Reduction Reaction
Y. Ohgi, A. Ishihara, K. Matsuzawa, S. Mitsushima, K. Ota, M. Matsumoto, and H. Imai

971 Alternative Electrocatalyst Support Materials for Polymer Electrolyte Fuel Cells
K. Sasaki, F. Takasaki, Z. Noda, S. Hayashi, Y. Shiratori, and K. Ito

972 Titania Supported Platinum Catalyst with High Electrocatalytic Activity and Stability for Polymer Electrolyte Membrane Fuel Cell
S. Huang, P. Ganesan, and B. Popov

973 $Ru_xTi_{1-x}O_2$ as Catalyst Support for PEM Fuel Cell
C. Lo, A. Kumar, and V. Ramani

974 Development and Electrochemical Characterization of Pt Supported on Titanium Nitride for PEFC Cathodes
K. Kakinuma, Y. Wakasugi, M. Uchida, T. Kamino, H. Uchida, and M. Watanabe

975 Modification of Various Carbon Supported Pt with RuO_2 Nanosheets to Enhance Durability and Activity
W. Sugimoto, N. Ogiwara, T. Saida, C. Chauvin, and Y. Takasu

976 Electroreduction of Oxygen on Gold-Supported Nanostructured Pt and Pd Films
A. Sarapuu, A. Kasikov, and K. Tammeveski

977 Electrochemical and DFT Analysis of Deactivation of Pt Supported on Niobia
D. Konopka, B. Kiefer, Y. Jiang, T. Ward, and P. Atanassov

978 Towards Mediation of Phosphate Anion Poisoning to Anodic Pt/C Catalyst by Alloying Pt with Ni in Phosphoric Acid Fuel Cell
Q. He, B. Shyam, N. Ramaswamy, and S. Mukerjee

979 Kinetics of the Hydrogen Electrode Reaction
S. Vilekar, I. Fishtik, and R. Datta

980 Effect of Surface States on CO-Tolerance at Pt_2Ru_3/C Anode Catalysts Analyzed by In Situ ATR-FTIR
T. Sato, K. Okaya, H. Yano, K. Kunimatsu, M. Watanabe, and H. Uchida

981 Role of the Oxidation State of Tin in Pt-SnO_x/C Catalyst for H_2/CO Electrooxidation
G. Wang, T. Takeguchi, E. Muhamad, T. Yamanaka, and W. Ueda

982 The Role of Nitrogen Doping on Durability in the Pt-Ru/HOPG System
S. Pylypenko, A. Queen, K. Neyerlin, T. Olson, A. Dameron, K. O'Neill, D. Ginley, B. Gorman, S. Kocha, H. Dinh, T. Gennett, and R. O'Hayre

983 PtNi/CNT and PtRuNi/CNT as Catalysts for PEM Fuel Cells
A. Valenzuela Muñiz, G. Alonso-Nuñez, M. Miki-Yoshida, G. Botte, and Y. Verde

984 Control of PtSn Electrocatalyst Architecture for Enhancing Anode CO Tolerance in PEMFCs
R. Utz, Z. Liu, B. Eichhorn, and G. Jackson

985 Electrochemical Oxidation of CO on Pt(111)-Oriented Surfaces with Kinks
J. Inukai, K. Abe, M. Wakisaka, H. Uchida, and M. Watanabe

986 New Ir-V-W Electro-Catalyst Exceeding Pt for the Anode of Fuel Cells
B. Li, D. Yang, R. Lin, J. Qiao, H. Wang, and J. Ma

B8 - Rechargeable Lithium and Lithium Ion Batteries

Battery

987 Electrochemical Behavior of $xLi_2MnO_3(1-x)LiMn_{1/3}Ni_{1/3}Co_{1/3}O_2$ (x = 0.3; 0.5; 0.7) Positive Electrodes in Lithium Cells
F. Amalraj, D. Kovacheva, M. Talianker, L. Zeiri, J. Grinblat, N. Leifer, G. Goobes, B. Markovsky, and D. Aurbach

988 Study of the Lithium Deintercalation Mechanism from the $Li_{1.20}Mn_{0.54}Co_{0.13}Ni_{0.13}O_2$ Positive Electrode Material
H. Koga, L. Croguennec, M. Ménétrier, F. Weill, and C. Delmas

989 Understanding the High Capacity of $Li[Li_{1/3}Mn_{2/3}]O_2$-$LiMO_2$ Cathode Materials
Y. Wu, P. Lu, and M. Chi

990 Synthesis and Characterization of Nanocomposites xLi_2MnO_3•$(1-x)LiMO_2$(M = Cr, Mn, Co, Ni) for Li Secondary Batteries
J. Gim, D. Kim, J. Lim, J. Kang, D. Im, W. Choi, K. Park, J. Yoon, and J. Kim

991 An Investigation of Structure and Electrochemical Cycling Stability of $Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O_2$ Using Aberration-Corrected Z-Contrast Imaging and EELS
M. Chi, C. Fell, and S. Meng

992 Dependence of Local Structure Using PDF Analysis and XAFS, Average Crystal Structure, and Cathode Performance on Composition of zLi_2MnO_3-$(1-z)Li(Mn,Ni,Co)O_2$ as a Cathode Active Material for Li-Ion Battery
Y. Idemoto, K. Ueki, and N. Kitamura

993 Capacity and Power Fade of Graphite/xLi_2MnO_3•$(1-x)LiMO_2$ (M = Ni, Co, Mn) Li-Ion Cells
K. Gallagher, D. Kim, and S. Kang

994 The Effect of Substituents on the Performance of Lithium-Excess Positive Electrode Materials
A. Rowe and J. Dahn

995 Studies of Lithium-Rich Transition Metal Oxides
A. van Bommel and J. Dahn

996 Structure and Performance of Layered $Li_{1+x}M_{1-x}O_2$ Crystals
G. Chen, A. Shukla, and T. Richardson

997 Recent Achievements on High Energy Density Li-Ion Batteries
L. Daniel, C. Bourbon, L. Simonin, C. Pagano, S. Jouanneau, Y. Reynier, W. Porcher, S. Martinet, and S. Patoux

998 (Battery Division Research Award) Design of New Materials for Rechargeable Lithium Batteries
D. Guyomard

999 Synthesis of a Series of High Energy Cathodes via an Ion-Exchange Method
E. Wisniewski-Barker and C. Johnson

1000 The Effect of Al-Substitution in $LiNi_{0.45}Co_{0.1-x}Al_xMn_{0.45}O_2$ Layered Oxide Cathode Materials
T. Conry, J. Cabana, and M. Doeff

1001 High Power and Low Temperature Behavior of Nickel-Cobalt-Manganese (NCM) Cathode Materials
C. Wijayawardhana, P. Gulde, M. Kruft, and M. Schmidt

1002 Structural and Morphological Changes of Mg Substituted $Li(Ni,Co,Al)O_2$ during Overcharge Reaction
T. Sasaki, V. Godbole, H. Sommer, Y. Takeuchi, Y. Ukyo, and P. Novák

1003 Thermodynamics Study of Nanostructured Lithium Cobalt Oxide Cathode Material
D. Borivent and R. Yazami

1004 A Lithium Nickelate-Based Cathode Material for High-Energy, High-Power Lithium-Ion Batteries
A. Pullen, D. Ofer, D. Clatterbuck, J. Rempel, B. Oh, S. Dalton-Castor, B. Barnett, and S. Sriramulu

1005 Precision Coulometry of Blended Li-Mn-O Spinel and NMC Electrodes
A. Smith, C. Burns, and J. Dahn

1006 Electrochemical Shock: Fracture Mechanics of Lithium Battery Cathode Particles during Cycling
W. Woodford, W. Carter, and Y. Chiang

1007 Effect of Electrode Microstructure through Particle-Scale Modeling of $LiMn_2O_4$ Electrode
A. Gupta, J. Seo, X. Zhang, W. Du, A. Sastry, and W. Shyy

1008 Design of New Spinel Materials $LiM1_xM2_yMn_{2-x-y}O_4$ ($0<x<0.5, 0<y<0.5$) for Cathode of High Voltage High Rate Li-Ion Batteries by First-Principles Computation
B. Xu, M. Yang, and S. Meng

1009 Electronic, Structural and Electrochemical Properties of $LiNi_xCu_yMn_{2-x-y}O_4$ ($0<x<0.5, 0<y<0.5$) High-Voltage Cathode Materials in Li-Ion Batteries
M. Yang, B. Xu, S. Meng, J. Cheng, C. Pan, and B. Hwang

1010 A Comparative Study of Low- and High-Temperature Synthesis of 5 V Cathode Materials
X. Zhang and R. Axelbaum

1011 Electrochemical Reaction in the Rechargeable Li-Air Batteries Using β-MnO_2/Pd Air Electrode
A. Thapa, Y. Hidaka, and T. Ishihara

1012 High Capacity Pouch-Type Li-Air Batteries Operated in Ambient Condition
D. Wang, J. Xiao, W. Xu, and J. Zhang

1013 In Situ X-ray Absorption Spectroscopy (XAS) Study of Nanocomposite C-FeF_2, C-FeOF and C-FeF_3 Conversion Materials during Charge-Discharge Cycling
K. Nam, X. Wang, N. Pereira, G. Amatucci, and X. Yang

1014 Initial Investigation on Lithium/Air Batteries
M. Au, E. Fox, M. Kane, H. Colón-Mercado, T. Adams, G. Zhang, and J. Zheng

1015 TEM-EELS Investigation of the Conversion Mechanism in FeO_xF_{2-x}-C (0{less than or equal to}x<1) Nanocomposite Electrodes
F. Wang, J. Graetz, L. Wu, V. Volkov, Y. Zhu, N. Pereira, and G. Amatucci

1016 (Technology Award of the Battery Division) Advanced High Power and High Energy Systems for HEV and PHEV Applications
K. Amine, W. Wu, H. Deng, I. Belharoauk, A. Abouimrane, T. Tran, N. Ota, and Y. Sun

1017 Electrochemical Behavior and Shifts in the Redox Potentials of Olivine $LiM_{1-y}M_yPO_4$ (M = Fe, Mn, and Co) Solid Solutions
A. Manthiram and T. Muraliganth

1018 Solid State Synthesis of $LiFePO_4$ Studied by In Situ High Energy X-ray Diffraction
Z. Chen, Y. Ren, Y. Qin, H. Wu, and K. Amine

1019 Synthesis of $LiFePO_4$ Nanocrystals by Solvothermal Reaction in Polyol Medium and Their Electrochemical Properties
J. Lim, D. Kim, J. Kang, J. Gim, V. Mathew, L. Chen, Y. Guo, J. Lee, S. Song, D. Ahn, and J. Kim

1020 Surface Chemistry of $LiFePO_4$ for Aqueous Processing
J. Li, B. Armstrong, D. Wood, and C. Daniel

1021 Theory of Phase Transformations in $LiFePO_4$
P. Bai, M. Pinson, D. Cogswell, K. Thornton, and M. Bazant

1022 Synthesis and Electrochemical Properties of $LiFePO_4$/C Composite Prepared by Co-Precipitation Method
Y. Kadoma, Y. Ogino, K. Abiko, K. Ui, and N. Kumagai

1023 Evidence of Potential Issues with $LiMnPO_4$ as a Lithium Rechargeable Battery Cathode from First Principles Calculations: Polaron Mobilities and Thermal Stability
S. Ong, V. Chervier, A. Jain, G. Hautier, B. Kang, and G. Ceder

1024 Novel Cyclic Voltammetry Study for Phase Transformation Electrode
Y. Zhu and C. Wang

1025 Olivines: $LiMn_yFe_{1-y}PO_4$ for High Energy Li-Ion Batteries
K. Zaghib, M. Mathieu, J. Labrecque, A. Guerfi, R. Veillette, M. Trudeau, C. Julien, and A. Mauger

1026 Fabrication and Electrochemical Characteristics of Li_2MnO_3-Based Cathode for Advanced Lithium-Ion Batteries
J. Kang, H. Kim, D. Chang, H. Kim, Y. Lee, and W. Kim

1027 Study on $LiNi_{0.5}Mn_{0.5}O_2$ Cathode Active Material of Li-Ion Battery Synthesized by Oxalic Acid-Ethanol Coprecipitation Method
O. Sekizawa, N. Kitamura, and Y. Idemoto

1028 The Effects of Li_3PO_4 Coating on the Electrochemical Property of $Li[Ni_{0.4}Co_{0.3}Mn_{0.3}]O_2$ Cathode Material
H. Song, S. Kim, and Y. Park

1029 Synthesis and Electrochemical Properties of $xLi_2MnO_3(1-x)LiMO_2$(M = Ni.Co.Mn) Cathode Material
K. Shin, S. Park, D. Choi, J. Kim, M. Choi, and S. Park

1030 Li_2MnO_3-Stabilized $LiMO_2$ Cathode and ALD Coated MoO_3 Anode as a High Energy-Density Lithium-Ion Battery
L. Riley, S. Kang, A. Cavanagh, M. Thackeray, S. George, S. Lee, and A. Dillon

1031 Electrochemical Synthesis of $LiMn_2O_4$ Thin Film for Lithium-Ion Batteries
S. Yen, C. Li, W. Ho, L. Liu, and M. Wang

1032 Enhanced Rate Capability and Cyclic Performance of $LiMn_{1.5}$ $Ni_{0.5}O_4$ by Cl^- Doping for Li-Ion Batteries
W. Kim, W. Ryu, D. Han, R. Kim, S. Lim, and H. Kwon

1033 Effect of the Different Carbon Source of Nanocomposite $LiFePO_4$
A. Kumar, R. Thomas, M. Tomar, and R. Katiyar

1034 Development of High-Rate $LiFePO_4$ Cathodes for Lithium-Ion Capacitors
N. Böckenfeld, R. Kühnel, A. Balducci, S. Passerini, and M. Winter

1035 Synthesis of $LiFePO_4$ by a Novel Ultra Fast Combustion Method
E. Kim, I. Yoo, and J. Kim

1036 A Modified Solid-State Synthesis of Carbon Coated $LiFePO_4$ for Lithium-Ion Batteries
C. Woo, J. Lim, D. Kim, J. Gim, V. Mathew, G. Chung, S. Oh, and J. Kim

1037 Synthesis of $LiFePO_4$/C Cathode by a New Two-Step Microwave Process and Its Electrochemical Performances
S. Lim, D. Han, W. Kim, W. Ryu, and H. Kwon

1038 Hydrothermal Synthesis and Electrochemical Properties of Olivine-Type $LiFePO_4$ for Positive Electrode in Lithium-Ion Batteries
N. Honda, T. Hosomi, Y. Sosuke, M. Saito, A. Tasaka, and M. Inaba

1094 Synthesis and Characterization of Nanocrystalline Spinel $Li_4Ti_5O_{12}$ Anode in Polyol Medium for Lithium-Ion Batteries
V. Mathew, D. Kim, J. Lim, J. Kang, S. Ahn, S. Kim, and J. Kim

1095 TiS_2/S Composite Materials for All-Solid-State Lithium Batteries
J. Trevey, C. Stoldt, and S. Lee

1096 Evaluation of Positive Electrode Resistance by "Current-Rest-Method" Using "Four-electrode cell"
S. Yata, H. Satake, M. Kuriyama, T. Endo, and H. Kinoshita

1097 Electrochemistry and Structural Chemistry of Lithium Magnesium Titanium Oxides Having Superlattice Structure Based on Spinel
K. Ariyoshi, S. Harada, and T. Ohzuku

1098 Synthesis of Ti-Based Electrodes Using Ti-Salt Flocculated Sludge and Their Electrochemical Properties
I. Yoo, J. Lim, E. Choi, J. Kang, L. Chen, Y. Guo, J. Lee, S. Song, and J. Kim

1099 Development of High Energy and High Power Density Li-Ion Batteries
K. Nakura, M. Kinoshita, J. Sugaya, and T. Nanno

1100 Pulsed Battery Discharge in Hybrid Power Supplies for Wireless Sensors
Y. Zhang and J. Harb

1101 Cycle Performance and Molybdenum Dissolution into Electrolyte in MoO_2 Anode for Lithium Secondary Batteries
M. Takeuchi, H. Fujimoto, and Y. Kida

1102 Defect Spinel Ferrites as Li-Ion-Insertion Hosts for Rechargeable Batteries
J. Long, B. Hahn, K. Pettigrew, M. Osofsky, and D. Rolison

1103 Li Diffusion in $Li_xMn_{1/3}Ni_{1/3}Co_{1/3-y}Al_yO_2$ from First-Principles
M. Kocher and K. Persson

1104 Synthesis and Characterization of Single Ion Conductors Based on Polymethacrylate and Pedant Borate Salts
X. Sun and S. Dai

1105 Performance and Life Testing of Altairnano PHEV Lithium-Ion Cells
J. Belt and C. Ho

1106 Adiabatic and Isothermal Testing of Commercial Li-Ion 18650 Cells
P. Ralbovsky, R. Campbell, and I. Beta

1107 Comparison of Properties of Trialkyl Phosphate-Based and Cyclic Carbonate-Based Electrolytes from Molecular Dynamics Simulations
O. Borodin, G. Smith, and I. Halalay

1108 High Precision Coulometry Measurements of the Effects of Electrolyte Additives in Li-Ion Batteries
J. Burns, A. Smith, and J. Dahn

1109 AC Impedance Analysis of 20 Ah Lithium-Ion Cell for Stationary Applications
Y. Kobayashi, M. Aiba, T. Kobayashi, H. Iwasaki, M. Sonoyama, Y. Mita, N. Terada, and H. Miyashiro

1110 Comparison of Data and Modeling Results for an Optical Li-Ion Cell
D. Baker and S. Harris

1111 Restricted Diffusion in a Microstructured Polymer Electrolyte for Secondary Lithium Batteries
S. Mullin, G. Stone, A. Panday, and N. Balsara

1132 Analysis of Lithium Insertion/Deinsertion in $LiFePO_4$ with a Simple Mathematical Model
C. Delacourt and M. Safari

1133 Li Diffusion in Novel Cathode Materials through a Scalable Combined Empirical Potential and Ab Initio Method
C. Moore, R. Armiento, T. Mueller, and G. Ceder

1134 High Pressure Driven-Phase Transitions of Li-Based Electrode Materials Guided by First Principles Calculations
E. Arroyo y de Dompablo

1135 Elastic Softening of Amorphous and Crystalline Li-Si Phases with Increasing Li Concentration: A First-Principles Study
V. Shenoy, P. Johari, and Y. Qi

B9 - Solid State Ionic Devices 8 - NEMCA

High Temperature Materials / Energy Technology / Battery / Physical and Analytical Electrochemistry / New Technology Subcommittee

1136 Permanent Electrochemical Promotion of C_3H_8 Oxidation over Thin Sputtered Pt Films
S. Souentie, L. Lizarraga, E. Papaioannou, C. Vayenas, and P. Vernoux

1137 Electrochemical Promotion of Catalysis on Nanometric Sputter-Deposited Films
P. Vernoux, A. Billard, L. Lizarraga, V. Roche, and S. Souentie

1138 Exploration of Electric-Field Effects in Solid State Ionic Devices
B. Blackburn and E. Wachsman

1139 In Situ Spectroscopic Measurements of Local Potentials and Electrochemically Active Regions on Operating Solid Oxide Cells
C. Zhang, S. DeCaluwe, M. Grass, Z. Liu, H. Bluhm, Z. Hussain, G. Jackson, and B. Eichhorn

1140 Measuring Oxygen Reduction Reaction in Fuel Cells on the Nanoscale
A. Kumar, S. Kalinin, and S. Jesse

1141 In Situ Optical Studies of Reduction/Oxidation Kinetics in Solid Oxide Fuel Cells
B. Eigenbrodt, J. Kirtley, and R. Walker

1142 Characterization of Pt and Pt-Alloy Catalysts for the Oxidation of Glucose
A. Blaesi and C. Buie

1143 Pt-Ru Deposition Using ALD(Atomic Layer Deposition) for Methanol Oxidation Catalyst
S. Ha, S. Ji, and S. Cha

1144 (High Temperature Materials Division Outstanding Achievement Award Presentation) Measurement and Modeling of Electrical, Mechanical, and Chemical Properties of a Model Mixed Ionic Electronic Conductor: Pr Doped Ceria
S. Bishop, J. Kim, W. Jung, T. Stefanik, M. Qu, K. Van Vliet, and H. Tuller

1145 Tailoring Protonic and Mixed Protonic/Electronic Conductivity of Barium Zirconate by Y and Pr Co-Doping for Intermediate Temperature Solid Oxide Fuel Cells (IT-SOFCs)
E. Fabbri, L. Bi, D. Pergolesi, and E. Traversa

1146 Crystal and Electronic Structures of $CePO_4$-Based Proton-Electron Mixed Conductors by Using Synchrotron X-rays
N. Kitamura, K. Uchino, and Y. Idemoto

1147 Hydrogen Oxidation Reaction at the Ni/YSZ Interface: An Ab Initio Study
C. Cucinotta, M. Bernasconi, and M. Parrinello

1148 A Theory of Solid State Electrochemical Junction Devices
E. Fischer and J. Hertz

1184 Study on the Bonding Layer of Metal Supported Solid Oxide Electrolysis Cell with Long-Term Operating Condition
H. Yim, P. Kim-Lohsoontorn, and J. Bae

1185 Electrochemical Analysis of Microtubular SOFC under Fuel Contaminants
C. Andres Lozano, M. Ohashi, S. Shimpalee, J. Van Zee, and P. Aungkavattana

1186 Study for Current Collector of Tubular SOFC Cell
J. Park, H. Choi, and S. Cha

1187 P-Type Electrochemical Properties of Undoped $La_2NiO_{4+\delta}$
S. Jeon, M. Choi, H. Im, and S. Song

1188 Oxygen Chemical Diffusivity of $BaCo_{0.7}Fe_{0.22}Nb_{0.08}O_{3-\delta}$ via the Chemical Expansion Relaxation Method
M. Choi, S. Jeon, H. Im, and S. Song

1189 Solid solutions $La_{1-x}M'_{1x}Ga_{1-y}M''_{2y}O_{3-x}$ (M' = Ca, Sr, Ba, M'' = Mg, Zn, Fe) Prepared by Various Techniques
Y. Mateyshina, V. Zyryanov, and N. Uvarov

1190 Fabrication of a Glass-Ceramics Electrolyte for SOFC Application
T. Morikane, A. Mineshige, Y. Daiko, M. Kobune, T. Yazawa, H. Yoshioka, T. Nakao, T. Fukutsuka, and Y. Uchimoto

1191 Apatite-Type Ionic Conductors Fabricated from Lanthanum Oxide and Fluoride Sources
R. Sakamoto, A. Mineshige, Y. Daiko, M. Kobune, T. Yazawa, Y. Matsuo, and H. Yoshioka

1192 Highly Porous Anode for Application in Double Electrolyte Fuel Cell
S. Tomer, G. Grader, and Y. Tsur

1193 Highly Active Anode Materials for Ammonia Solid Oxide Fuel Cells
T. Tanaka, T. Fujimoto, M. Saito, A. Tasaka, M. Inaba, H. Yoshida, and T. Inagaki

1194 Structure, Thermal Stability and Electrical Properties of $CaMoO_3$ Anode for SOFC
H. Im, M. Choi, S. Jeon, and S. Song

1195 Nanofibers for Solid Oxide Fuel Cell Cathode
M. Zhi, N. Mariani, and N. Wu

1196 Development of a High Performance Fuel Cell Using an Apatite-Type Ionic Conductor
T. Mitsui, A. Mineshige, Y. Daiko, M. Kobune, T. Yazawa, H. Yoshioka, T. Nakao, T. Fukutsuka, and Y. Uchimoto

1197 Hydrocarbon Fueled Operation of Metal Foam-Supported SOFC with Catalytic Layer
J. Jeong, S. Baek, and J. Bae

1198 Charging Temperature Dependence of the Fuel Utilization and Ratio of Residual Carbon after Power Generation in Rechargeable Direct Carbon Fuel Cells
F. Ohba, Y. Tagawa, Y. Sakai, A. Yabuki, H. Shimada, and M. Ihara

1199 Rechargeable Direct Carbon Fuel Cells Using Directly Supplied Carbon Black Fuel
C. Takei, Y. Chen, Y. Jin, Y. Fujimoto, K. Oshima, and M. Ihara

1200 Hydrogen Charge/Discharge Measurement of In-Doped SnP_2O_7 Proton Conductor at Room-Temperature
D. Lim, M. Choi, C. Kim, C. Park, and S. Song

1201 Development of Pd/Ag-YSZ Cermet Dual Functional Hydrogen Separation Membranes
C. Kim, M. Choi, D. Lim, and S. Song

1202 Synthesis and Electrochemical Properties of Manganese Oxide Nanowires
J. Wu and X. Zhou

D1 - Corrosion General Poster Session

Corrosion

1203 (Corrosion Division H.H. Uhlig Award Address) Contributions to the Understanding of Localized Corrosion
G. Frankel

1204 (Morris Cohen Graduate Student Award Address) Multiscale Investigation of the Formation and Breakdown of Passive Films on Carbon Steel Rebar in Concrete
P. Ghods and O. Isgor

1205 Influence of Iodide Ions on Inhibitive Performance of Benzoic Acid on Iron in 0.5 M H_2SO_4
A. Dadgarinezhad and F. Baghaee

1206 Effect of Stray Current on Magnesium Anode Protection System
Q. Zhu, A. Cao, J. Song, and S. Chen

1207 Elimination of Surface Oxide Layer of Sn-Ag-Cu Alloy by Chemical Reaction with Halogen Surfactant
H. Takahashi, Y. Shimada, T. Tanaka, M. Hamada, and K. Tohji

1208 Study of Atmospheric Corrosion Initiation from Various Pre-Deposited Salt-Particle Species on Steel Using Raman Spectroscopy
S. Li and L. Hihara

1209 A Transport Mechanism of Initial Porous Film Growth in 0.4 M Phosphoric Acid Electrolyte
S. Han and H. Kim

1210 Corrosion Resistance of Superhydrophobic Surface on Magnesium Alloy Coated with Cerium Oxide Film
T. Ishizaki, N. Saito, and K. Teshima

1211 Electropolishing of Niobium in an HF-Free Electrolyte
M. Inman, A. Lozano-Morales, and E. Taylor

1212 Corrosion Behavior of Incoloy 800HT in Hydrogen Peroxide Containing Aqueous Solutions
T. Nickchi and A. Alfantazi

1213 Fabrication of Nanoporous of Magnesium Oxide by Anodization
E. Seo, S. Choi, and W. Kang

1214 Self-Lubricative Coatings Deposited by Microplasma Oxidation on 7075-T6 Aluminum Alloys in the Solution of Aluminate/Molybdenum Disulfide
C. Hua, J. Lee, C. Lu, Y. Lin, and M. Yang

1215 Corrosion Behavior of AISI 204Cu and AISI 304 Stainless Steels in Simulated Pore Solution
A. Kocijan, &. Donik, M. Godec, D. Mandrino, I. Paulin, and M. Jenko

1216 The Synthesis of New Organic Polymers with Anticorrosive and Antiscaling Action for Protection of Industrial Cooling Water Systems
F. Branzoi, I. Branzoi, and A. Stanca

1217 Cathodic Protection or Cathodic Prevention: Can We Optimize Efficiency and/or Reduce Side Effects?
D. Koleva, K. van Breugel, H. de Wit, and A. Mol

1218 Organic-Inorganic Sol-Gel Coatings for the Corrosion Protection of Metal Surfaces
A. Jiménez-Morales, D. Carbonell, A. A. El hadad, S. Feliu Jr., and J. Galván

1219 Corrosion of Carbon Steel in Supercritical CO_2 Fluids
J. Beck, M. Fedkin, S. Lvov, M. Ziomek-Moroz, G. Holcomb, and J. Tylczak

1237 The Wear and Corrosion Resistance of a Cr-C Deposited Steel Specimen with Cu Undercoat Observed with an Eco-Friendly Process
C. Chuang, Y. Lieu, and C. Huang

1238 An Eco-Friendly Electroplating Process to Obtain Decorative and Functional Cr Deposits on Magnesium-Lithium Alloy (LZ91)
C. Lin, Y. Yeh, and C. Huang

1239 Use of Corrosion Inhibitors in GMR Biosensor
Z. Liu, Y. Wang, P. Chinwangso, J. Litvinov, and D. Litvinov

D2 - Corrosion and Biofuels

Corrosion / Energy Technology

1240 Materials Compatibility in Biofuels
S. Papavinasam, J. Krausher, M. Paramesh, A. Anand, S. Mani, and S. Krishnamurthy

1241 High Temperature Corrosion of Fe-Cr Alloys: Effects of Water Vapor
N. Othman, J. Zhang, and D. Young

1242 Electrochemical Behavior of Metals Exposed to Alternative Fuels and Seawater
J. Lee, R. Ray, and B. Little

1243 Corrosion and Stress Corrosion Cracking of C-Steel in Ethanolic Environments
P. Singh, X. Lou, and L. Goodman

1244 Corrosion and Cracking of Carbon Steel in Fuel Grade Ethanol: Supporting Electrolyte and Susceptible Potential Regime
L. Cao, G. Frankel, and N. Sridhar

1245 Mechanistic Studies of Stress Corrosion Cracking of Carbon Steel in Alcoholic Solutions
A. Carcea and R. Newman

1246 Role of Oxygen in Localized Corrosion and Stress Corrosion Cracking of Carbon Steel in Fuel Grade Ethanol
F. Gui, N. Sridhar, and J. Beavers

1247 Electrochemical Testing and Monitoring Methods to Detect Corrosion Behavior of Carbon Steel in Biofuels
E. Trillo, J. Dante, F. Gui, and N. Sridhar

1248 Cathodic Activity of Carbon Steel in Simulated Fuel-Grade Ethanol and Its Impact on Hydrogen Embrittlement
X. Lou and P. Singh

1249 Corrosion of Stainless Steel in Amine Solutions for Carbon Dioxide Capture
O. Kongstein and B. Schmid

1250 Galvanic Corrosion Behavior between Duplex and Austenitic Stainless Steels
K. Cho, K. Kim, S. Ahn, J. Lee, J. Kim, and K. Kim

1251 SVET Study of the Electrochemical Behavior of Different Hot-Dip Zn-Based Coatings on Steel
J. Rodrigues and L. Dick

D3 - Corrosion Issues in Nuclear Waste Storage: A Symposium in Honor of the 65th Birthday of David Shoesmith

Corrosion / Sensor

D4 - Corrosion Modelling

Corrosion

1267 Multicomponent Multidimensional Transport of Charge and Mass with Corresponding Electric Field
G. Kennell and R. Evitts

1268 Using the Right Side of Poisson's Equation to Save on Numerical Calculations in FEM Simulation of Cathodic Protection Systems
R. Montoya, J. Galván, and J. Genesca

1269 A Thermodynamic Study of the Effect of Small-Scale Electrolytes on Equilibrium Redox Potentials
E. McCafferty

1270 Modeling and Prediction of Carbon Dioxide Corrosion for Complex Flow Geometry
A. Demeter, H. Li, J. Deconinck, and S. Nesic

1271 The Effect of Dissolution of Lithium Manganese Oxide Particles on Lithium-Ion Battery Performance
J. Park, J. Seo, W. Lu, G. Plett, and A. Sastry

1272 Theoretical, Experimental and Computer Simulated Galvanic Current and Corrosion Damage of Mg Alloys
G. Song

1273 Integrated Effects of Grain Boundary Characteristics on the Behavior of Intergranular Corrosion in 5XXX-Series Alloys
L. Chen, X. Wang, R. Kelly, and D. Brown

1274 Distribution of the Retained Less-Noble Element in Dealloyed Materials
D. Artymowicz, Z. Coull, and R. Newman

1275 Continuum and Kinetic Monte Carlo Modeling Hydrogen Absorption in Aluminum during Alkaline Corrosion
G. Zhang, K. Ho, C. Wang, and K. Hebert

1276 Stochastic Modeling of Pitting-Related Accumulation Damage in Aluminum Alloys
N. Murer and R. Buchheit

1277 Insights on Chloride Ion Attack of Aluminum Oxide: An Experimental and Theoretical Investigation
W. O'Grady, D. Roeper, and P. Natishan

1278 Oxide Networks, Graph Theory, and the Passivity of Fe-Cr-Ni Ternary Alloys
E. McCafferty

1279 Corrosion Mechanism of Refractory Immersed in Molten Slag
H. Sunayama, Y. Hiramatsu, and M. Kawahara

1280 Hot Corrosion of Copper
V. Belousov

1281 Measurement Model Analysis of the Thermal Degradation of a Mg-Rich Primer on AA 2024-T3
K. Allahar, M. Orazem, G. Bierwagen, and D. Butt

1282 Negative Resistances and Inductances in Equivalent Circuits for Adsorption-Reaction Kinetics
S. Ramanathan

1283 Analysis of Copper Dissolution in Glutamic Acid and Hydrogen Peroxide Using EIS
S. Ramanathan and N. Selvam

D5 - High Resolution Characterization of Corrosion Processes 2

Corrosion

1284 Submicrometer Surface Reactivity Investigation by Scanning Kelvin Probe Force and Nanocapillary Methods
P. Schmutz, J. Lübben, and T. Suter

1285 Electrochemical Activation of Surface Deformed Layers on Aluminum Alloys and Pure Aluminum
H. McMurray, A. Holder, G. Williams, and G. Scamans

1286 On the Application of SKPFM for In Situ Study of Corrosion Phenomena
C. Senöz and M. Rohwerder

1287 Movement of Hydrogen on SCC of SUS310S Stainless Steel
H. Masuda

1288 Microelectrochemical Investigation of Hydrogen Absorption and Dissolution Behavior of MnS Inclusions in Carbon Steel
I. Muto, J. Shinozaki, T. Omura, M. Numata, and N. Hara

1289 Microelectrochemical Characterization of the Roles of Hydrogen, Stress and Their Synergism in Pipeline Stress Corrosion Cracking under a Near-Neutral pH Condition
G. Zhang, X. Tang, and F. Cheng

1290 Microscopic and Spectroscopic Studies of the Evolution of Crevice Corrosion Damage on Ni-Cr-Mo Alloys
P. Jakupi, D. Zagidulin, J. Noël, and D. Shoesmith

1291 Combining Raman Microprobe and XPS to Study High-Temperature Oxidation of Metals
C. Windisch, C. Henager, M. Engelhard, and W. Bennett

1292 Investigating the Critical Pitting Temperature and Oxide Film Formation in a Duplex Stainless Steel
S. Policastro, R. Auyeung, A. Pique, F. Martin, R. Rayne, and P. Natishan

1293 A Novel Cell to Study In Situ the Corrosion of Steels Exposed to Corrosive Environments at High Pressure and High Temperature
J. Tuggle, W. Kovacs, S. Waters, H. Tsaprailis, and L. Garfias-Mesias

1294 Dealloying Studies of Cu_3Pd Single Crystal Surfaces
S. Meimandi, P. Keil, G. Ankah, D. Vogel, and F. Renner

1295 Synchrotron X-ray Studies of the Chemistry of Localized Corrosion Sites
A. Davenport, A. Dent, M. Monir, J. Hammons, M. Ghahari, M. Amri, P. Quinn, and T. Rayment

1296 Aluminum Passive Oxide Breakdown and Pit Initiation Explored Using In Situ and Ex Situ Electron Microscopy
K. Zavadil, P. Lu, J. Sullivan, and J. Huang

1297 Anodic Activation of Aluminum Containing Trace Elements Gallium and Tin
E. Senel and K. Nisancioglu

1298 Evaluation of the Local Chloride Concentration and the Local Mechanical Stresses in Intergranular Damages Grown on a 2024 Aluminum Alloy
C. Larignon, J. Alexis, E. Andrieu, C. Baret-Blanc, and G. Odemer

1299 The Effect of Fluoride Ions on the Behavior of Titanium and Its Alloys in Artificial Saliva
I. Milošev

1300 Local Electrochemical Impedance Spectroscopy Investigation of a Partially Blocked Electrode
J. Ferrari, H. Gomez de Melo, B. Tribollet, and V. Vivier

1301 In Situ Interface Imaging with a Shielded Probe in SG/TC Mode SECM
K. Fushimi, K. Matsushita, Y. Hasegawa, and H. Konno

1302 The Influence of Non-Stoichiometry on the Corrosion Kinetics of Uranium Dioxide
H. He, Z. Qin, and D. Shoesmith

1303 Corrosion Behaviors of Boiler Steel T91 Investigated by In Situ Electrochemical AFM in Aqueous Solution
J. Lee, Y. Liao, J. Huang, S. Chyou, and C. Yang

1304 In Situ Monitoring of the Microstructural Corrosion Mechanisms of Zinc-Magnesium-Aluminum Alloys Using Time Lapse Microscopy and ICP-MS Ionic Analysis
S. Mehraban and J. Sullivan

1305 Combinatorial Corrosion Studies of PVD Deposited, Thermally Interdiffused, Magnesium Coated Galvanized Steel
Z. Barrett, H. McMurray, and G. Williams

1306 Effect of Phase on the Electrochemical and Morphological Properties of Praseodymium-Based Coatings
B. Treu, W. Pinc, W. Fahrenholtz, M. O'Keefe, E. Morris, and R. Albers

1307 Physical, Chemical and Electrochemical Investigations of Trivalent Chrome Process (TCP) Coatings Applied to Aluminum Alloys
D. Woodbury, A. Howells, G. Swain, and G. Swain

1308 The Effect of Peroxide Stabilizers on the Corrosion Protection of Sprayed and Electrodeposited Cerium-Based Conversion Coatings on Al 2024-T3
E. Kulp, S. Maddela, W. Fahrenholtz, and M. O'Keefe

1309 The Chain Length Influence of Nonionic Co-Surfactants on Inhibition Effect of Cationic Surfactant on Steel Corrosion
D. Asefi, M. Arami, and N. Mahmoodi

1310 Electrochemical Effect of Gemini Surfactant and Co-Surfactants on Corrosion Inhibition of Steel in Acid Medium
D. Asefi, M. Arami, and N. Mahmoodi

1311 Effect of pH on the Corrosion Behavior of Reinforcing Steel in Simulated Concrete Pore Solutions: A Scanning Microreference Electrode Study
R. Du, H. Xu, W. Chen, and C. Lin

1312 Local Hydrogen Enrichment Induced by Corrosion in a 2024 Aluminum Alloy
C. Larignon, J. Alexis, E. Andrieu, C. Baret-Blanc, L. Lacroix, and G. Odemer

1313 Corrosion Performance of Composite Galvanic Coatings with Variable Concentration of Polymeric Nanoaggregates and/or Cr(III) Conversion Layers
D. Koleva, P. Taheri, N. Tsvetkova, N. Boshkov, K. van Breugel, H. de Wit, and A. Mol

D6 - Pits and Pores 4: New Materials and Applications - In Memory of Ulrich Goesele

Corrosion / Luminescence and Display Materials

1314 Remembering Ulrich Gösele
H. Föll

1315 Silicon Nanowire Arrays Combining Nanosphere Lithography and Metal-Assisted Etching
X. Wang, P. Pittet, and C. Lévy-Clément

1316 Towards Self-Ordered Silica Nanotubes by Electrochemical Anodization of Si (100)
M. Yang, N. K Shrestha, and P. Schmuki

1355 Porous Silicon in Mass Spectrometry: Rapid Roadside Drug Detection in Oral Fluids
T. Guinan, R. Lowe, H. Kobus, and N. Voelcker

1356 The Photoelectrical Properties of a-Si:H Thin Films Deposited on Porous Silicon by DC-Magnetron Sputtering
F. Hamadache, L. Zougar, K. Mokeddem, A. Brighet, and B. Gelloz

1357 Capacitance-Voltage Hysteresis Behavior of Organic Memory Device Monolayered Biomolecule-Capped Au Nanoparticle
S. Jung, H. Kim, B. Kim, T. Yoon, Y. Kim, and H. Lee

1358 Pd Assisted HF Etching of Si: Electrochemical Measurement
M. Tashiro, Y. Morii, N. Fukumuro, S. Yae, and H. Matsuda

1359 Nano-Branched Gold Deposits Prepared by Electrochemical Deposition Using Porous Silicon
R. Miyagawa, K. Fukami, M. Chourou, T. Sakka, and Y. Ogata

1360 Gold Electrodeposition into Mesoporous Silicon: The Effect of Solution Composition
M. Chourou, K. Fukami, R. Miyagawa, T. Sakka, and Y. Ogata

1361 Thin Porous Silicon Films Displaying a Near-Surface Dip in Porosity
J. Selj, A. Thøgersen, S. Foss, and E. Stensrud Marstein

1362 Modification of Luminescent Nanostructured Silicon in Water Solutions
V. Shevchenko, V. Makara, and O. Dacenko

1363 Self-Assembled Formation of Porous $In_{0.52}Al_{0.48}As$ by Electrochemical Anodization
Y. Jiang and F. Liu

1364 A Study on Mass Spectrometry of Alkylated [60] Fullerenes Using the "In-beam" Electron Impact Technique
H. Al-Matar and S. Badawy

1365 Self-Assembled Formation of Porous InAlAs by Electrochemical Anodization
Y. Jiang and F. Liu

1366 A Correlation between the Kinetics and Thermodynamics for the Photoelectrochemical Etching of n-Si in 2MHF-Ethanolic Solutions
W. Jehng and J. Lin

1367 Corrosion Inhibition of 304 Stainless Steel, Copper and Nickel Metals Using Mesoporous Silica (MCM- 41) and 2, 5-Distyrylpyrazine Photopolymer
M. Zakaria, M. El-Morsi, and E. Ebied

E1 - Solid State Topics General Session

Dielectric Science and Technology / Electronics and Photonics

1368 Comparison of Diffusion Mechanisms in Si Bulk, Nanomembranes, and Nanowires
C. Ndoye, T. Liu, and M. Orlowski

1369 Suppression of Lateral Encroachment of Ni Silicide into Si Nanowires Using Nitrogen Incorporation
N. Shigemori, S. Satou, K. Kakushima, P. Ahmet, K. Tsutsui, A. Nishiyama, N. Sugii, K. Natori, T. Hattori, and H. Iwai

1370 Electrodeposition and Thermoelectric Properties of Sb Doped BiTe Nanowires
R. Mannam and D. Davis

1371 Hydrogen Doped ZnO:Al Thin Films by Reactive Sputtering
K. Sundaram, B. Shantheyanda, V. Todi, A. Vijayakumar, and I. Oladeji

1391 Atmosphere, Temperature and Pressure Dependent Segregation of Bulk Impurities in yttria-Stabilized Zirconia
T. Andersen, K. Jensen, M. Mogensen, and I. Chorkendorff

1392 Influence of Ni on the Microstructure and Thermoelectric Properties of Polycrystalline $Na(Co_{1-x}Ni_x)_2O_4$ ($0 \leq x \leq 0.15$) Ceramics
K. Park and J. Choi

1393 Effect of Dy on the Microstructure and Electrical Conductivity of Polycrystalline $Ce_{0.8}Gd_{0.2-x}Dy_xO_{2-\delta}$ ($0 \leq x \leq 0.2$) Ceramics
K. Park, H. Hwang, and Y. Choi

1394 Improvements of Resistive Switching Properties of $Pt/ZrO_2/Pt$ Device Using Pyramid-Like Metal Array
C. Huang, I. Yao, M. Lin, P. Lin, and T. Tseng

1395 Study on Improvement of 6,13-bis(triisopropylsilylethynyl) (TIPS) Pentacene Crystalline Morphology for Organic Thin Film Transistor
J. Han, K. Kim, I. Bae, and I. Chung

1396 New Implantation Method to Incorporate Deuterium into the Gate Oxide Film in the Metal-Oxide-Semiconductor (MOS) Structure
Y. Seo, S. Do, J. Kim, C. Bu, Y. Lee, and J. Lee

1397 Irradiation Effects of Electron-Cyclotron-Resonance Argon Plasma on Various Conducting Oxides
T. Miyata, J. Nomoto, Y. Nishi, and T. Minami

1398 Composition Control of Evaporated $BaTiO_3$ Films by Optical Emission Spectroscopy
S. Park

1399 High Tg and Low Dielectric Constant Poly(arylene ether)s
W. Liu, W. Huang, C. Lee, and W. Sie

E2 - Atomic Layer Deposition Applications 6

Dielectric Science and Technology / Electronics and Photonics

1400 Thermally Stable Nanoporous Gold-Alumina Core-Shell with Tunable Optical Transmission
L. Qian and B. Das

1401 ALD on High Mobility Channels: Engineering the Proper Gate Stack Passivation
S. Sioncke, H. Lin, G. Brammertz, A. Delabie, T. Conard, M. Caymax, M. Meuris, H. Struyf, S. De Gendt, M. Heyns, C. Fleischmann, K. Temst, A. Vantomme, M. Müller, M. Kolbe, and B. Beckhoff

1402 Atomic Layer Deposition for Nanoelectrode Devices
B. Willis

1403 Electrophoretic Light Scattering for Surface Zeta Potential Measurement of ALD Metal Oxide Films
D. Gu, S. Yalcin, H. Baumgart, S. Qian, O. Baysal, and A. Beskok

1404 Atomic Layer Deposition for Epitaxial Oxides on Silicon
B. Willis

1405 ALD High-k for All-Oxide Electronics
P. Ye

1406 The Influence of Ions and Photons during Plasma-Assisted ALD of Metal Oxides
H. Profijt, P. Kudlacek, M. van de Sanden, and W. Kessels

1407 Designing and Fabricating Coatings with Targeted Tunable Electrical Properties via ALD: Al_2O_3/ZnO and Nb_2O_5/Ta_2O_5
A. Brodie, Y. Gotkis, P. Petric, C. Bevis, R. Bhatia, G. Sundaram, and E. Deguns

1408 All-Solid-State Batteries: A Challenging Route towards 3D Integration
M. Donders, L. Baggetto, J. Oudenhoven, H. Knoops, M. van de Sanden, W. Kessels, and P. Notten

1409 Atomic Layer Deposition of LiOH and Li_2CO_3 Using Lithium t-Butoxide as the Lithium Source
A. Cavanagh, Y. Lee, B. Yoon, and S. George

1410 Microstructural Observation of an Efficient Si Light-Emitting Diode Based on an n-ZnO/SiO_2-Si Nanocrystals-SiO_2/p-Si Heterostructure
H. Tsai, W. Li, J. Liao, E. Sun, M. Chen, and J. Yang

1411 Reactions during Atomic Layer Deposition on Polymer Films and Fibers
G. Parsons, J. Spagnola, B. Gong, J. Jur, and G. Hyde

1412 The Surface Chemistry of Atomic Layer Deposition (ALD) Processes for Metal Nitride Film Growth
F. Zaera

1413 Structural and Electrical Analysis of Thin Interface Control Layer Effects of MgO or Al_2O_3 Deposited by Atomic Layer Deposition, Incorporated at the High-k/IIIV Interface of MO_2/$In_xGa_{1-x}As$ (M = Hf|Zr, x = 0|0.53) Gate in Metal-Oxide-Semiconductor Capacitors
A. O'Mahony, S. Monaghan, R. Chiodo, I. Povey, A. Blake, K. Cherkaoui, R. Nagle, E. O'Connor, R. Long, V. Djara, D. O'Connell, F. Crupi, P. Hurley, and M. Pemble

1414 Capacitors with an Equivalent Oxide Thickness of < 0.5 nm for Nanoelectronic Semiconductor Memory
S. Kim, S. Lee, J. Han, B. Lee, S. Han, and C. Hwang

1415 Enhanced Voltage Linearity of HfO_2 Metal-Insulator-Metal Capacitors by H_2O Prepulsing Treatment on Bottom Electrode
C. Lin, Y. Chen, C. Lee, H. Chang, W. Chang, and C. Liu

1416 New Mechanisms for Ozone-Based ALD Growth of High-k Dielectrics via Nitrogen-Oxygen Species
S. Jung, P. Raisanen, M. Givens, E. Shero, A. Delabie, J. Swerts, S. Van Elshocht, and J. Maes

1417 Plasma Enhanced Atomic Layer Deposition of TaN Thin Films
P. Ma and J. Lu

1418 Plasma-Enabled ALD of Niobium Nitride with Organometallic Nb Precursors
E. Deguns, M. Sowa, M. Dalberth, R. Bhatia, R. Kanjolia, D. Moser, G. Sundaram, and J. Becker

1419 ALD TaN from PDMAT and a New Monoguanidinate Tantalum Molecule Precursor in TSV Architectures
V. Brizé, R. Boichot, S. Daniele, B. Doisneau, A. Mantoux, and E. Blanquet

1420 Interactions of Metal-Organic PEALD TaN with Ultra-Low k Dielectric Materials
O. van der Straten, H. Shobha, J. Demarest, and J. Maniscalco

1421 Ultra-Conformal CVD at Low Temperatures: The Role of Site Blocking and the Use of Growth Inhibitors
J. Abelson

1422 Developments of ALD Processes: Experiments and Thermodynamic Evaluations
E. Blanquet, V. Brizé, R. Boichot, A. Mantoux, I. Nuta, P. Violet, and S. Daniele

1441 High Throughput ALD Production Systems for Cadmium Free CIGS and Enhanced Efficiency c-Si Solar Cells
J. Skarp

1442 Raman Spectroscopy of ZnO Thin Films by Atomic Layer Deposition
K. Tapily, D. Gu, H. Baumgart, M. Rigo, and J. Seo

1443 Frank van der Merwe Growth of ALD ZnO Studied by X-ray Diffraction
K. Tapily, D. Gu, and H. Baumgart

1444 Synthesis of NbN Thin Films for Superconducting Radiofrequency (SRF) Applications by Atomic Layer Deposition to Fabricate Superconductor-Insulator-Superconductor (S-I-S) Layers
D. Gu, K. Tapily, H. Baumgart, and R. Crooks

1445 Structural and Electrical Characterization of TiO_2 and Al-Doped TiO_2 Films on Ir Electrode for Next Generation DRAM Capacitor
S. Han, S. Kim, and C. Hwang

1446 On the Structural and Optical Characteristics of In_2O_3 Films Grown on (0001) Sapphire Substrates by ALD Using Trimethyl-Indium and Nitrous Oxide
H. Su, W. Chi, K. Yen, H. Ni, and J. Gong

1447 Plasma-Enhanced Atomic Layer Deposition of Ir Thin Films for Copper Adhesion Layer
Y. Shin, J. Choi, W. Kwack, and S. Kwon

1448 The Structure and Ultraviolet Electroluminescence of n-ZnO-SiO_2-ZnO Nanocomposite/p-GaN Heterojunction LED
H. Tsai, W. Li, M. Chen, M. Shiojiri, and J. Yang

1449 Atomic Layer Deposition of Functional Materials Using Pilin as a Biological Substrate
Y. Zhu, R. Nicholas, C. Mao, and M. Kane

1450 Atomic Layer Deposition of Ta doped TiO_2 Electrodes for Dye-Sensitized Solar Cells
J. Choi, Y. Shin, S. Kwon, and K. Kim

1451 Properties of Hafnium Oxide Deposited with Ozone or Oxygen Plasma
M. Dalberth, M. Sowa, E. Deguns, R. Bhatia, A. Bertuch, G. Liu, G. Sundaram, and J. Becker

1452 Plasma Enhanced Atomic Layer Deposition of SiN Using N_2 and Silane Gases
S. King

1453 Performance of Barrier Coatings Deposited by Atomic Layer Deposition for Photovoltaic Applications
S. Christensen, A. Dameron, R. Sundaramoorthy, I. Repins, and L. Simpson

1454 Gold Functionalized ALD Grown ZnO Nanotubes
T. Abdel-Fattah, K. Tapily, D. Gu, and H. Baumgart

E3 - Chemical Mechanical Polishing 11

Dielectric Science and Technology

1455 Using CMP Model for 45nm/32nm BEOL Process and Design Evaluations
L. Economikos, J. Bao, K. Low, T. Wei-Tsu, and G. Matusiewicz

1456 Recent Advances in Ultra Low Erosion Cu CMP Process Development
L. Cook, M. Krishnan, J. Nguyen, M. Lofaro, J. Thompson, and D. Koli

E5 - High Dielectric Constant and Other Dielectric Materials for Nanoelectronics and Photonics

Dielectric Science and Technology / Electronics and Photonics

1490 Role of Hetero Interface of Ionic/Covalent Oxides for Pt/High-k/SiO_2/Si MOS Capacitors on Vfb Shift
T. Nabatame, A. Ohi, and T. Chikyow

1491 Impact of Alkali Earth Elements Incorporation on V_{fb} Roll-Off Characteristics of La_2O_3 Gated MOS Device
T. Koyanagi, K. Kakushima, P. Ahmet, K. Tsutsui, A. Nishiyama, N. Sugii, K. Natori, T. Hattori, and H. Iwai

1492 Optimizing Band-Edge High-κ/Metal Gate n-MOSFETs with ALD Lanthanum Oxide Cap Layers: Oxidant and Positioning Effects
R. Clark, H. Jagannathan, S. Consiglio, P. Jamison, C. Wajda, L. Edge, V. Paruchuri, V. Narayanan, and G. Leusink

1493 The Role of Oxygen in the Development of Hf-Base High-k/Metal Gate Stacks for CMOS Technologies
E. Cartier

1494 Scanning Probe Microscopy Imaging of Nucleation and Electronic Structure Passivation during Atomic Layer Deposition on a Compound Semiconductor Surface
W. Melitz, J. Clemens, J. Shen, E. Chagarov, S. Lee, J. Lee, J. Royer, M. Holland, S. Bentley, D. Macintyre, I. Thayne, R. Droopad, and A. Kummel

1495 Bonding Structure at the SiO and In_2O/III-V Semiconductor Interface
J. Shen, W. Melitz, D. Feldwinn, S. Lee, E. Chagarov, and A. Kummel

1496 Fermi-Level Unpinning of HfO_2/$In_{0.53}Ga_{0.47}As$ Gate Stack Using Hydrogen Anneals
Y. Hwang, R. Engel-Herbert, N. Rudawski, and S. Stemmer

1497 Electronic and Structural Properties at Ge/GeO_2 Interfaces: A Density-Functional Investigation
A. Pasquarello

1498 Evaluation of Narrow Gap Filling Ability in Shallow Trench Isolation by Organosiloxane Sol-Gel Precursor
K. Watanuki, A. Inokuchi, A. Banba, N. Manabe, H. Suzuki, T. Koike, T. Adachi, T. Goto, A. Teramoto, Y. Shirai, S. Sugawa, and T. Ohmi

1499 Development of Lanthanides Precursors as Dopants for Advanced High-k Materials
V. Rao, B. Besancon, V. Omarjee, and C. Dussarrat

1500 Methodology of ALD HfO_2 High-κ Gate Dielectric Optimization by Cyclic Depositions and Anneals
H. Jagannathan, R. Clark, S. Consiglio, P. Jamison, B. Linder, M. Hopstaken, G. Leusink, V. Paruchuri, and V. Narayanan

1501 Electronic Properties of Silicene: Insights from First-Principles Modelling
M. Houssa, G. Pourtois, M. Heyns, V. Afanas'ev, and A. Stesmans

1502 Electrical Characterization of $TbScO_3$/TiN Gate Stacks of MOS Capacitors and MOSFETs on Strained and Unstrained SOI
E. Durğun Özben, A. Nichau, J. Lopes, S. Lenk, A. Besmehn, K. Bourdelle, Q. Zhao, J. Schubert, and S. Mantl

1503 $(ZrO_2)_x(La_2O_3)_{1-x}$ Alloy as High-k Gate Dielectric for Advanced CMOS Devices
C. Hou, L. Chen, J. Wu, M. Wu, R. Lyu, and Y. Wu

1504 Liquid Injection MOCVD Grown Binary Oxides and Ternary Rare-Earth Oxide as Alternate Gate-Oxides for Logic Devices
R. Thomas and R. Katiyar

1505 Growth and Interfacial Structure of Epitaxial Complex Oxides on Silicon
J. Reiner

1506 Synchrotron Radiation Photoelectron Spectroscopy of Metal Gate/HfSiO(N)/SiO(N)/Si Gate Stacks
M. Oshima and S. Toyoda

1507 The Effect of Hf/(Hf+Si) Ratios in $Hf_{1-x}Si_xO_y$ Dielectric Film on Physical and Electrical Stabilities
H. Kim, H. Jung, J. Jang, S. Lee, and C. Hwang

1508 Effect of Remote Surface Roughness Scattering on Electron Mobility in MOSFETs with High-k Dielectrics
M. Mamatrishat, M. Kouda, T. Kawanago, K. Kakushima, P. Ahmet, A. Aierken, K. Tsutsui, A. Nishiyama, N. Sugii, K. Natori, T. Hattori, and H. Iwai

1509 Multiparameter Admittance Spectroscopy
O. Engström and B. Raeissi

1510 Dielectric Relaxation in Polycrystalline Thin Film Colossal Dielectric Constant $La_{2-x}Sr_xNiO_4$
A. Podpirka and S. Ramanathan

1511 Electron Spectroscopic Measurements of Band Alignment in Metal/Oxide/Semiconductor Stacks
R. Bartynski

1512 Identity of the Conducting Nano-Filaments in TiO_2 and Resistance Switching Mechanism of TiO_2/NiO Layer
K. Kim, D. Kwon, J. Jang, M. Lee, S. Song, G. Kim, J. Seok, B. Lee, S. Han, M. Kim, and C. Hwang

1513 Interface Analysis of MIM Capacitor Using ZrN Electrodes and ALD-ZrO_2 Dielectrics
J. Choi, Y. Kim, J. Lim, M. Park, S. Chung, S. Kang, K. Cho, C. Yoo, and J. Moon

1514 Stress-Induced Deterioration of Nanocrystalline ITO Embedded ZrHfO High-k Nonvolatile Memories
C. Yang, Y. Kuo, C. Lin, and W. Kuo

1515 MOCVD of NiO Thin Films Using $Ni(dmamb)_2$
J. Meersschaut, M. Toeller, M. Schaekers, X. Wang, L. Goux, B. Govoreanu, D. Wouters, M. Jurczak, L. Altamime, H. Bender, T. Conard, A. Franquet, B. Brijs, S. Van Elshocht, and E. Vancoille

1516 Size-Dependent Switching and Reliability of NiO RRAMs
D. Ielmini

1517 Non-Planar Transistors with High-Mobility SiGe/Ge Channels for CMOS Applications
T. Tezuka, Y. Kamata, K. Ikeda, Y. Kamimuta, Y. Moriyama, M. Koike, M. Oda, and T. Irisawa

1518 Maxwell-Wagner Instabilities and Defects Generation during CVS in REO-HfO_2 Gate Stacks Grown on Germanium Based MOS Devices
M. Rahman, E. Evangelou, and A. Dimoulas

1519 Direct $LaLuO_3$/Ge Gate Stack Formation by Interface Layer Scavenging and Subsequent Low Temperature O_2 Annealing
T. Tabata, C. Lee, K. Kita, and A. Toriumi

1520 High Performance InGaAs MOSFETs with High Mobility Using InP Barrier Layer
J. Lee, H. Zhao, Y. Chen, Y. Wang, F. Xue, and F. Zhou

1521 First-Principles Investigation of High-k Dielectrics for Nonvolatile Memories
G. Pourtois, K. Sankaran, I. Radu, R. Degraeve, M. Zahid, S. Van Elshocht, C. Adelmann, S. De Gendt, M. Heyns, D. Wouters, J. Kittl, M. Jurczak, G. Rignanese, and J. Van Houdt

1522 Leakage Current Improvement of Doped and Bilayer High-k for MIM Capacitor
H. Lim, K. Cho, C. Yoo, S. Nam, and J. Moon

1523 $LaHfO_x$ Films Analyses for NVM Applications
A. Del Vitto, R. Piagge, E. Ravizza, S. Spadoni, A. Sebastiani, C. Scozzari, C. Wiemer, G. Ghidini, M. Alessandri, M. Fanciulli, J. Maes, and M. Verghese

1524 Performance and Reliability of Nanocrystals Embedded High-k Nonvolatile Memories
Y. Kuo

1525 Fixed Charge, Interface States and Equivalent Oxide Thickness Correction in the High-k/$In_{0.53}Ga_{0.47}As$ System
P. Hurley, E. O'Connor, T. O'Regan, S. Monaghan, R. Long, V. Djara, M. Negara, A. O'Mahony, I. Povey, A. Blake, R. Nagle, D. O'Connell, M. Pemble, and K. Cherkaoui

1526 Atomic Identification of Intrinsic Point Defects at Ge_xSi_{1-x}/Oxide Interfaces Based on ESR Probing
A. Stesmans and V. Afanas'ev

1527 ALD High-k Integration on CNT and Graphene
P. Ye

1528 Metallic Oxygen Barrier Diffusion Applied to High-k Deposition
E. Rauwel, P. Rauwel, F. Ducroquet, I. Matko, and A. Lourenço

1529 A Study of Dielectric Breakdown Mechanisms in MG/HK MISFETs: From the Viewpoint of TDDB Statistics
I. Hirano, K. Kato, Y. Nakasaki, S. Fukatsu, M. Sato, S. Inumiya, M. Goto, K. Sekine, and Y. Mitani

1530 The Effect of Nitrogen in HfO_xN_y and ZrO_xN_y on Dielectric Properties and BTI Characteristics
H. Jung, H. Kim, J. Kim, S. Lee, J. Park, W. Kim, M. Song, N. Lee, and C. Hwang

1531 TiN Capping Effect on High Temperature Annealed RE-Oxide Devices for Scaled EOT
D. Kitayama, T. Koyanagi, K. Kakushima, P. Ahmet, K. Tsutsui, A. Nishiyama, N. Sugii, K. Natori, T. Hattori, and H. Iwai

1532 Leakage Current in TiN/HfO_2/TiN MIM Capacitors and Degradation Due to Electrical Stress
S. Cimino, A. Padovani, L. Larcher, V. Afanas'ev, H. Hwang, Y. Lee, M. Jurczac, D. Wouters, B. Lee, H. Hwang, and L. Pantisano

1533 Nitrogen Effect on Charge Trap Suppression in AlON Passivation Films
D. Lee, D. Kwak, C. Shin, D. Kim, Y. Lee, S. Heo, K. Park, and H. Cho

1534 Charge Trapping and the Negative Bias Temperature Instability
W. Goes, F. Schanovsky, P. Hehenberger, P. Wagner, and T. Grasser

1535 Field Dependent Electrical Conduction in TiN/HfO_2/SiO_2/P-Si (nMOS) Capacitor for Before and After Stressing
S. Sahoo and D. Misra

1536 Competing Charge Relaxation Mechanisms in HfSiON Insulator Field Effect Transistors
J. Mee, R. Devine, and L. Trombetta

1537 Synthesis of La_xAlyO_3 Films Using Ultrasonic Spray Pyrolysis Technique
A. Meza-Rocha, L. Pérez-Arrieta, E. Zaleta-Alejandre, Z. Rivera, R. Balderas-Xicohténcatl, and C. Falcony

1538 Determining Whether a Thin Film Grown at Room Temperature Can Have a Dielectric Constant that is Higher than that of Its Bulk Material
H. Jung, J. Ahn, C. Kim, J. Lee, S. Park, and S. Yoon

1539 Electrical Properties of $LaLuO_3$/Si(100) Structures Prepared by Molecular Beam Deposition
Y. Gomeniuk, Y. Gomeniuk, A. Nazarov, P. Hurley, K. Cherkaoui, S. Monaghan, H. Gottlob, M. Schmidt, J. Schubert, J. Lopes, and O. Engström

1540 Stress-Induced Leakage Current and Charge Trapping in Cerium Dioxide Thin Film
S. Chang, P. Lee, C. Feng, C. Lai, and F. Chiu

1541 Characteristics of SiO_x Thin Films Deposited by Atmospheric Pressure Chemical Vapor Deposition Using Dual Frequency
E. Gil, J. Park, J. Oh, and G. Yeom

1542 Improved Current Spreading and Blocking Designs for High-Power Vertical-Structure GaN-Based LEDs
P. Wang, S. Wang, K. Uang, T. Chen, W. Lee, and D. Kuo

1543 Study of HfO_2/Si/Strained-Ge/SiGe Using Angle Resolved X-ray Photoelectron Spectroscopy
A. Komatsu, K. Nasu, Y. Hoshi, T. Kurebayashi, K. Sawano, M. Myronov, H. Nohira, and Y. Shiraki

1544 Effect of Thermal Treatments on HfO_2/$In_{0.7}Ga_{0.3}As$ Metal-Oxide-Semiconductor Capacitor Characteristics
C. Chang, T. Shie, Y. Lin, K. Kakushima, H. Iwai, P. Lu, T. Lin, G. Huang, and E. Chang

1545 Density and Grain Size of the IrO_x Metal Nanocrystals in n-Si/SiO_2/Al_2O_3/IrO_x/Al_2O_3 Memory Capacitors
W. Li, W. Banerjee, S. Maikap, J. Liao, and J. Yang

1546 Comparison of $HfSiO_x$ Thin Film Deposited by ALD with Moisture Using Different Silicon Sources
B. Besancon, C. Weiland, V. Omarjee, V. Rao, and C. Dussarrat

1547 Combinatorial Investigation of ZrO_2-Based Dielectric Materials for DRAM Capacitors
Y. Kiyota, Y. Iwashita, K. Itaka, T. Adachi, T. Chikyow, and A. Ogura

1548 Investigation of Surface Channel InGaAs MOSFETs with ALD Gate Dielectric
F. Xue, H. Zhao, Y. Chen, Y. Wang, F. Zhou, and J. Lee

1549 Atomic-Layer-Deposition HfO_2-Based InP n-Channel MOSFETs Using Different Thicknesses of Al_2O_3 as Interfacial Passivation Layer
Y. Wang, H. Zhao, Y. Chen, F. Xue, F. Zhou, and J. Lee

1550 Characteristics of ALD High-k $HfAlO_x$ Nanocrystals in Memory Capacitors Annealed at High Temperatures
W. Li, S. Maikap, A. Das, L. Chang, and J. Yang

1551 Simulation of the Breakdown Spots Spatial Distribution in High-K Dielectrics and Model Validation Using the Spatstat Package for R Language
E. Miranda, E. O'Connor, and P. Hurley

1552 Hall Effect, DLTS and C-V Characterization of ALD HfO_2 and ZnO Thin Films
K. Tapily, A. Raj, G. Rozgonyi, D. Gu, and H. Baumgart

E6 - High Purity Silicon 11

Electronics and Photonics

1553 Nano Characterization of Materials
D. Schroder

1554 Recent Advances in Smart Cut Technology for CMOS Applications
O. Kononchuk, D. Landru, C. Veytizou, and E. Guiot

1571 Combined IV and CV Analysis of Laser Annealed Carbon and Boron Implanted SiGe Epitaxial Layers
D. Kobayashi, M. Bargallo-Gonzalez, E. Rosseel, A. Hikavyy, K. Hirose, E. Simoen, and C. Claeys

1572 Nano-Beam Diffraction: Crystal Structure and Strain Analysis at the Nanoscale
P. Favia, M. Popovici, G. Eneman, G. Wang, M. Bargallo-Gonzalez, E. Simoen, N. Menou, and H. Bender

1573 Impact of Stress and Defects on Advanced Junction Leakage
V. Moroz and M. Choi

1574 Recent Insights into Solid Phase Epitaxy of Silicon and Germanium
B. Johnson, N. Stavrias, S. Kandasamy, A. Holland, and J. McCallum

E7 - Low-Dimensional Nanoscale Electronic and Photonic Devices 4

Electronics and Photonics / Sensor

1575 Nanoelectronic Devices from Nanowire Heterostructures
Y. Huang

1576 Nanoelectronics and Macroelectronics Based on Carbon Nanotubes
C. Zhou

1577 Colorimetric DNA Detection via Nicking Endonuclease-Assisted Nanoparticle Amplification
X. Liu

1578 Formation of InAs Nanowire by Solid Source Reaction: A Promising Material as the High Mobility Channel for Nanoelectronics
Y. Chueh, A. Ford, J. Ho, and A. Javey

1579 In Situ Growth of Carbon for Nanoelectronics: From Nanotubes to Graphene
L. Rispal, P. Ginsel, and U. Schwalke

1580 Rational Design of Freestanding Photoelectric Nanodevices as Highly Efficient Photocatalysts
X. Duan

1581 Nanostructured Materials as Antireflection Coatings and Their Optoelectronic Applications
J. He

1582 Self-Assembly of Magnetically Responsive Photonic Structures
Y. Yin

1583 Electrochemically Tunable Photonic Metamaterial
L. Shao, M. Ruther, S. Linden, J. Weissmüller, and M. Wegener

1584 Metal Oxide Nanowire Arrays for Photoelectrochemical Hydrogen Generation
G. Wang, J. Hensel, J. Zhang, and Y. Li

1585 Scanning Photocurrent Microscopy of Carbon Nanotube Devices in a Liquid Environment
Y. Ahn, J. Park, J. Park, and S. Lee

1586 Growth of Nanowhiskers of Al, Ti, Cr, Mn, Fe, Co, Ni, Zn, Cu, Ag and Au by High-Temperature Glancing Angle Deposition
M. Suzuki, K. Hamachi, K. Nagai, R. Kita, K. Nakajima, and K. Kimura

1587 3D Ordered Assemblies of Micro/Nanowires Using Fibrous Building Blocks
M. Su and Y. Hong

1588 Metal/Polymer Wire Growth Studied by X-ray Imaging
J. Kim, S. Seol, and J. Je

E8 - Photovoltaics for the 21st Century 6

Energy Technology / Industrial Electrochemistry and Electrochemical Engineering / Electrodeposition / Dielectric Science and Technology

1606 Reflectometry: A New Technique to Determine Grain Orientations in Multicrystalline Silicon
Y. Wang, J. Murphy, and P. Wilshaw

1607 Crack Propagation in PV Silicon
P. Kulshreshtha, K. Youssef, and G. Rozgonyi

1608 Mono-Crystalline Silicon Solar Cell Optimization and Modeling
J. Huang and V. Moroz

1609 Fixed Charge Control in the Passivation Films Using Binary Oxide Dielectrics for Crystalline Silicon Solar Cells
T. Tachibana, T. Sameshima, Y. Iwashita, Y. Kiyota, T. Chikyow, H. Yoshida, K. Arafune, S. Satoh, and A. Ogura

1610 The Effect of Oxygen and Carbon on the Structural and Electrical Properties of mc-Si
C. Radue, Y. Yoon, and G. Rozgonyi

1611 (Invited) Epitaxial Film Crystal Silicon Photovoltaics on Inexpensive Substrates: Progress and Challenges
H. Branz, D. Young, P. Stradins, I. Martin, K. Alberi, M. Romero, and C. Teplin

1612 Electrochemical Etching of Zinc Oxide for Silicon Thin Film Solar Cell Applications
S. Pust, J. Worbs, J. Hüpkes, S. Klemm, and K. Mayrhofer

1613 Recovery of Light Induced Degradation of Micromorph Solar Cells by Reverse Bias
H. Sun, W. Chen, T. Cheng, Y. Yang, and C. Liu

1614 Light Trapping in Thin-Film Silicon Solar Cells for Superstrate and Substrate Configurations
D. Madzharov, R. Dewan, and D. Knipp

1615 Effects of Microwave Power on Thermal Annealing Behaviors of Hydrogenated Amorphous Silicon
P. Wu, C. Wu, C. Hsieh, I. Chen, C. Lien, Y. Chu, J. Chang, T. Li, and C. Su

1616 Electrodeposition of Low-Resistivity Y-Doped ZnO and Its Thermal Stability as a TCO Layer
X. Han and M. Tao

1617 A Conductive Antireflection Coating Using Porous ITO on Sputtered ITO Double Layers for Silicon-Based Solar Cells
A. Chu, W. Tien, J. Lu, W. Huang, and C. Lee

1618 Light Trapping of Zinc Oxide Nano Particle Films
M. Marinkovic, S. Arabi, A. Raykov, S. Phadke, R. Noriega, A. Salleo, and D. Knipp

1619 Enhancement of Light Absorption in Organic Solar Cells Using Porous ITO/ITO Electrode
A. Chu, J. Lu, W. Tien, Y. Chen, and M. Chang

1620 Porous Germanium Layers by Electrochemical Etching for Layer Transfer Processes of High-Efficiency Multi-Junction Solar Cells
E. Garralaga Rojas, J. Hensen, J. Carstensen, H. Föll, and R. Brendel

1621 The Effect of the Pattern of Circle-Grid Electrode on Concentrated GaAs Solar Cells Efficiency
C. Chung, H. Yu, L. Hsu, C. Kuo, N. Quan, Y. Chiu, and E. Chang

1622 Metrology for Process Solutions Used in Photovoltaic Industry
E. Shalyt, G. Liang, J. Tyutina, M. Pavlov, N. Weeks, C. Bai, and P. Bratin

1623 Syntheses of Fluorene/Carbazole-Thienothiadiazole Copolymers for Organic Photovoltaics
D. Vyprachticky, I. Kmimek, P. Pavlačková, and V. Cimrova

1659 Dependency of Donor and Acceptor Weights on Power Conversion Efficiency of Polymer Photovoltaic Cells
J. Kim, D. Kim, Z. Wang, and J. Park

1660 Electrodeposited Low Platinum Loaded Films as Efficient Counter Electrodes for Dye-Sensitized Solar Cells
L. Li, C. Chang, C. Chen, and E. Diau

1661 Single-Crystalline Si Nanowire on Pyramid with Extremely Low Reflectivity Independing on Light Incident Angle
G. Lee, I. Lee, J. Shim, and J. Park

1662 Enhanced Photovoltaic Properties of Hybrid Structured Titania Layer for Dye-Sensitized Solar Cell
M. Kim and Y. Jeong

1663 Electrochemical Etching of p-Si for the Double Layer Porous Silicon Fabrication
J. Lee, H. Lee, and J. Lee

1664 Plasmon Effects in Silicon Solar Cells Coated with Polymer Thin Film Containing Silver and Gold Nanoparticles
Y. Tanaka, H. Hachimura, T. Mishima, and M. Ihara

1665 Natural Resource Limitations to Terawatt Solar Cell Deployment
C. Tao and J. Jiang

1666 Supramolecular Solar Cells
N. Subbaiyan and F. D'Souza

1667 Estimation of Organic Tandem Solar Cell Power Conversion Efficiency via Optical Simulation Methods
P. Boland, K. Foe, D. Gu, H. Baumgart, K. Lee, and G. Namkoong

1668 Porous Silicon Formation and Photoluminescence Decay Analysis
A. Karoui and H. Zhang

1669 Characterizations of Electronic and Ionic Processes in Nanocrystalline TiO_2 Dye-Sensitized Solar Cell
H. Mai, H. Nguyen, and P. Nguyen

E9 - Processing, Materials, and Integration of Damascene and 3D Interconnects

Electronics and Photonics / Dielectric Science and Technology

1670 Integration and Frequency Dependent Parametric Modeling of Through Silicon via Involved in High Density 3D Chip Stacking
L. Cadix, C. Fuchs, M. Rousseau, P. Leduc, H. Chaabouni, A. Thuaire, M. Brocard, A. Valentian, A. Farcy, C. Bermond, N. Sillon, B. Fléchet, and P. Ancey

1671 Modeling of Electromigration Induced Contact Resistance Reduction of Cu-Cu Bonded Interface
R. I Made, C. Gan, K. Pey, and C. Tan

1672 Formation of Electroless Barrier Layer Using Au Nanoparticles Catalyst for All-Wet TSV-Fill Technology
F. Inoue, T. Yokoyama, T. Shimizu, T. Terui, S. Tanaka, and S. Shingubara

1673 Improvement in the Deposition Profile of Electroless Plated Barrier on TSV Sidewall and Evaluation of the Barrier Film Properties
T. Yokoyama, F. Inoue, S. Tanaka, T. Terui, and S. Shingubara

E11 - Semiconductor Wafer Bonding 11: Science, Technology, and Applications in Honor of Ulrich Gösele

Electronics and Photonics

E12 - State-of-the-Art Program on Compound Semiconductors 52 (SOTAPOCS 52)

Electronics and Photonics / Sensor

1779 The Control of Optical and Structural Properties of ZnO:Mg Films Deposited by the Electrochemical Techniques
H. Ishizaki and S. Ito

1780 Large-Scale Automated Identification and Quality Control of Exfoliated and CVD Graphene via Image Processing Technique
C. Nolen, D. Teweldebrhan, G. Denina, B. Bhanu, and A. Balandin

1781 Optical Degradation of Yellow-Phosphor Converting White GaN-based Light-Emitting Diodes under High Electrical Stress and High Temperature
E. Jung and H. Kim

1782 In Situ Depostion of High-k Dielectrics on Compound Semiconductor in MOCVD System
C. Cheng and E. Fitzgerald

1783 Properties of Mechanically Exfoliated Quasi-Two-Dimensional Crystals of Titanium Ditelluride
J. Khan, C. Nolen, D. Teweldebrhan, and A. Balandin

E13 - Thin Film Transistors 10 (TFT 10)

Electronics and Photonics

1784 Performance and Modeling of Thin Film Transistor Implemented Using Different Materials Systems
M. Shur

1785 A Charge Based Compact Modeling Technique for Monocrystalline TFTs on Glass
C. Nassar, T. J. Tredwell, C. Kosik Williams, J. Revelli, and R. Bowman

1786 Downscaling Issues in Polycrystalline Silicon TFTs
G. Fortunato, M. Cuscunà, P. Gaucci, L. Maiolo, L. Mariucci, A. Pecora, and A. Valletta

1787 AMOSFET Devices: The Simplest Transistors
S. Fonash

1788 Stabilities of TFTs under Bias-Stress
J. Jang and J. Choi

1789 The Influence of Electromechanical Stress on the Stability of Nanocrystalline Silicon Thin Film Transistors Made on Colorless Polyimide Foil
I. Chiu, J. Huang, Y. Chen, I. Cheng, J. Chen, and M. Lee

1790 The Electrical Properties of Atomic Layer Deposition ZnO:N Thin Film Transistors Exposed with Ultraviolet
J. Kim, S. Lim, D. Kim, and H. Kim

1791 The Stability of Oxide TFTs under Electrical Gate Bias and Monochromatic Light Illumination
S. Lee, S. Kim, Y. Lee, K. Yoon, W. Lee, J. Kwon, and M. Han

1792 The Effect of Light Illumination on Transfer Curve and Stability of Amorphous Hf-In-ZnO Thin Film Transistors
J. Kim, U. Kim, Y. Chung, S. Rha, H. Jung, S. Lee, J. Jung, S. Lee, and C. Hwang

1793 Reliability of Polycrystalline Silicon Thin-Film Transistors (Poly-Si TFTs): Laser- and AMFERTA- Crystallized poly-Si TFTs
S. Choi and M. Han

1794 The AC-Bias Stability of Short Channel a-Si:H TFT
S. Park, S. Lee, J. Woo, J. Yoo, and M. Han

1795 Enhanced Performance and Thermal Stability of a-Si:H TFTs
A. Indluru and T. Alford

1813 Electrical and Environmental Stability of Organic Transistors
J. Bedolla, J. Northrup, D. Belaineh, V. Wagner, and D. Knipp

1814 Flexible Poly (3-hexylthiophene) Thin-Film Transistor with Improved Reliability
J. Meena, M. Chung, J. Tiwari, and F. Ko

1815 Flow Rate's Influence on Low Temperature Silicon Oxide Deposited by Atmospheric Pressure Plasma Jet for Organic Thin Film Tranisitor Application
K. Chang and S. Huang

1816 Characterize of Two Types of Rectifier Using Organic Thin Film Transistor
L. Dong-Hoon, K. Jung-Min, and K. Yong-Sang

1817 The Application of Organic Electrochemical Transistors in Biosensors
F. Yan

1818 Fully Transparent Zinc Oxide Based Thin Film Transistors Deposited at Low Temperature: Choice of Gate Dielectric and Effect of Bias Stress
F. Li, M. Mann, A. Flewitt, W. Milne, J. Dutson, S. Wakeham, and M. Thwaites

1819 Metal-Channel-Aided Oxide Thin Film Transistor
E. Kim, M. Ryu, K. Son, T. Kim, K. Lee, K. Park, J. Park, W. Maeng, H. Kim, J. Seon, W. Choi, and S. Lee

1820 Improved Thermal Stability of Indium Zinc Oxide TFTs by Low Temperature Post Annealing
A. Indluru and T. Alford

1821 Quantitative Calculation of Oxygen Incorporation in Sputtered Indium Gallium Zinc Oxide (IGZO) Films and the Subsequent Impact on the Electron Transport and Thin Film Transistor Properties
S. Kwon, J. Noh, J. Noh, P. Rack, I. Papautsky, and J. Heikenfeld

1822 Low Temperature, High-Performance, Solution-Processed Indium Oxide Thin Film Transistors
S. Han, G. Herman, and C. Chang

1823 Study of the Effect of Electrical Stress on ZnO TFTs
L. Su, H. Lin, S. Wang, Y. Yeh, C. Cheng, L. Peng, and J. Huang

1824 Solution-Processed Oxide Thin-Film Transistor with Spin-Coated Zinc Tin Oxide Active Layer and Indium Zinc Oxide Source/Drain Electrodes
Y. Kim, J. Lee, Y. Lee, and M. Han

1825 Mechanism and Performance of Floating-Gate a-Si:H TFT Nonvolatile Memory Devices
Y. Kuo

1826 High Retention-Time Nonvolatile Amorphous Silicon TFT Memory for Static Active Matrix OLED Display Without Pixel Refresh
Y. Huang, B. Hekmatshoar, S. Wagner, and J. Sturm

1827 Amorphous Oxide Semiconductor Memory Using High-k Charge Trap Layer
S. Rha, J. Ji-Sim, K. Jeong Hwan, U. Kim, Y. Chung, H. Jung, L. Sang-Yoon, and C. Hwang

1828 Nonvolatile Pentacene Thin Film Transistor Memory with CdSe Nanoparticles
J. Kim, D. Lee, H. Lee, T. Yoon, and Y. Kim

1829 TFTs for Flexible Electronics
R. Street

1830 Towards EPC Compatible Plastic RFID Tags
K. Myny, S. Steudel, P. Vicca, S. Smout, M. Beenhakkers, N. van Aerle, F. Furthner, B. van der Putten, A. Tripathi, G. Gelinck, J. Genoe, W. Dehaene, and P. Heremans

1831 Low Voltage Driven CMOS Circuits Based on SiOG
M. Choi, J. Choi, S. Park, W. Choi, M. Mativenga, J. Jang, R. Mruthyunjaya, T. J. Tredwell, E. Mozdy, and C. Kosik Williams

1832 Foldable, Ultraflexible, and Stretchable Organic Transistor Integrated Circuits
T. Someya and T. Sekitani

1833 Poly-Si TFT Based Technologies and Circuits for Multipurpose Sensors
O. Bonnaud and T. Mohammed-Brahim

1834 Polysilicon Source-Gated Transistors for Mixed-Signal Systems-on-Panel
R. Sporea, X. Guo, J. Shannon, and S. Silva

1835 Excimer Laser Crystallization of Thick a-Si for Photo Diode and Solar Cell Applications
M. Tajari Mofrad, K. Huet, C. Boniface, R. Ishihara, J. Derakhshandeh, J. van der Cingel, J. Venturini, and K. Beenakker

1836 Medical X-ray Imaging Sensors for Digital Radiography and Fluoroscopy
J. Rowlands and W. Zhao

1837 Characterization and Reliability of Gate-All-Around Poly-Si TFTs with Multinanowire Channels
H. Liu, S. Chiou, C. Hung, and F. Wang

1838 The Effect of Illumination on the Negative Bias Temperature Instability in Zinc Tin Oxide Thin Film Transistors
U. Kim, J. Kim, H. Oh, Y. Chung, and C. Hwang

1839 Capacitance Model for Thin-Film Transistors with Interface Traps
H. Tsuji, Y. Kamakura, and K. Taniguchi

1840 Using Fluorine-Ion Implanted a-Si Layer to Reduce Ni Contamination and Passivate the Defects in NILC poly-Si
C. Chen and Y. Wu

1841 Solution-Processed Oxide Thin Film Transistors with Indium Zinc Tin Oxide Semiconductor: Nitrogen Effect
B. Kim, H. Kim, S. Jung, T. Yoon, Y. Kim, and H. Lee

1842 Improved Performance of Pentacene OTFT with HfLaO Gate Dielectric by Annealing in NH_3
L. Deng and P. Lai

1843 Fabrication of Location-Controlled Zinc Oxide Thin Film Transistors by Hydrothermal Method
P. Yang, J. Wang, W. Tsai, S. Wang, P. Chen, I. Lee, C. Chang, C. Wang, H. Li, Y. Huang, C. Wu, Y. Wei, C. Lin, and H. Cheng

1844 A Metal Source/Drain Bottom Gate Polycrystalline Silicon Thin Film Transistors Utilized Inverted Aluminum-Induced Layer Exchange
C. Wang, I. Lee, P. Yang, C. Chang, C. Wu, Y. Cheng, and H. Cheng

1845 Poly-Si SONOS-TFT Devices with Single Grain Boundary by Excimer Laser Crystallization
I. Lee, Y. Po-Yu, W. Chao-Lung, C. Chia-Tsung, T. Chun-Chien, K. Hsu-Hang, T. Chien-Yun, and C. Huang-Chung

1846 High Performance and Reliability of Poly-Si TFTs Using Nickel Drive-In Induced Lateral Crystallization
Y. Wu and C. Chang

1847 Improved Electrical Performance of NILC Poly-Si TFTs Manufactured Using H_2SO_4 and HCl Solution
Y. Chen, Y. Chao, and Y. Wu

1848 Low Temperature Solution-Processed Zinc Tin Oxide Thin Film Transistor with O_2 Plasma Treatment
J. Lee, Y. Kim, Y. Lee, Y. Kim, J. Kwon, and M. Han

1849 High Performance Micro-Crystalline Silicon TFT Using Indirect Thermal Crystallization Technique
B. Choi, K. Kim, J. Bae, S. Lee, H. Lee, S. Kim, K. Park, C. Kim, Y. Hwang, and I. Chung

1850 The Effects of Oxygen Partial Pressure and Annealing Temperature in the IGZO TFTs
J. Bak, W. Cheong, S. Yang, S. Ko Park, C. Hwang, S. Yoon, H. Oh, K. Cho, and H. Kim

1851 Fabrication of a P3HT Transistor Using Ionic Liquid and Investigation of the Operation Mechanism
Y. Kimura, S. Fukase, and M. Niwano

1852 Influence of Bank Structure on the Film Morphology and Electrical Properties of Ink-Jet Printed TIPS Pentacene Thin-Film Transistors
Y. Kim, M. Oh, S. Park, and M. Han

E14 ~ E22 - SiGe, Ge, and Related Compounds: Materials, Processing, and Devices 4

Electronics and Photonics

1853 Past, Present and Future: SiGe and CMOS Transistor Scaling
K. Kuhn and A. Murthy

1854 Scaling Energy and Form Factor with Germanium Microphotonics
L. Kimerling

1855 Strain Scaling and Modeling for FETs
V. Moroz and M. Choi

1856 Feasibility of Ge CMOS for Beyond Si-CMOS
A. Toriumi, C. Lee, T. Nishimura, K. Kita, S. Wang, M. Yoshida, and K. Nagashio

1857 Strain Mapping of Layers and Devices Using Electron Holography
A. Claverie, N. Cherkashin, F. Hue, S. Reboh, F. Houdellier, and M. Hytch

1858 Applications of SiGe for Semiconductor Technology
D. Sadana, S. Bedell, T. Adam, A. Reznicek, and H. He

1859 Beyond CMOS Devices as Enablers of Future Energy Efficient Integrated Circuits and Systems
A. Ionescu, G. Salvatore, and L. Lattanzio

1860 Strain Engineering and Junction Design for Tunnel Field-Effect Transistor
Y. Yeo, G. Han, Y. Yang, and P. Guo

1861 MnGe Nanostructures for Nonvolatile Spintronics
K. Wang and F. Xiu

1862 Novel Electronic and Optoelectronic Devices in Germanium Integrated on Silicon
K. Saraswat

1863 Achievement of Excellent C-V Characteristics in GeO_2/Ge System Using Post Metal Deposition Annealing
H. Koumo, Y. Suzuki, Y. Oniki, Y. Iwazaki, and T. Ueno

1864 Comparative Experimental Study between Diamond and Conventional MOSFET
S. Gimenez and D. Alati

1865 Growth of Epitaxial Silicon-on-Insulator Substrates by Solid State Epitaxy
E. Arkun, S. Semans, G. Vosters, and A. Clark

1885 Enablement and Optimization of SiGe HBTs for Extreme Environment Electronics
G. Niu

1886 A Physics-Based Trap-Assisted Tunneling Current Model for Cryogenic Temperature Compact Modeling of SiGe HBTs
Z. Xu, G. Niu, L. Luo, and J. Cressler

1887 f_{MAX} Increase to 500 GHz of SiGe HBTs at Low Temperature
N. Zerounian, M. Diallo, F. Aniel, P. Chevalier, and A. Chantre

1888 Technology Computer-Aided Design (TCAD) Feasibility Study of Silicon Based 0.5 Terahertz Cutoff Frequency SiGe HBTs
R. Camillo-Castillo, A. Stricker, J. Johnson, A. Appaswarmy, R. Malladi, and A. Joseph

1889 Influence of the Selectively Implanted Collector Integration on +400 GHz f_{MAX} Si/SiGe:C HBTs
T. Lacave, P. Chevalier, Y. Campidelli, L. Depoyan, L. Berthier, F. André, M. Buczko, G. Avenier, C. Gaquière, and A. Chantre

1890 Direct Parameter Extraction of Base and Emitter Resistances for SiGe HBTs Using DC Data Only
M. Mudholkar, A. Mantooth, G. Niu, and J. Cressler

1891 2.4/5.7-GHz Dual-Band Dual-Conversion Low-IF Downconverter Using 0.35 μm SiGe HBT Technology
J. Syu, C. Meng, S. Yu, and G. Huang

1892 Are Si/SiGe Tunneling Field-Effect Transistors a Good Idea?
S. Koester, I. Lauer, A. Majumdar, J. Cai, J. Sleight, S. Bedell, P. Solomon, S. Laux, L. Chang, S. Koswatta, W. Haensch, S. Thomas, and P. Tomasini

1893 Boosting the On-Current of Si-based Tunnel Field-Effect Transistors
A. Verhulst, W. Vandenberghe, D. Leonelli, R. Rooyackers, A. Vandooren, G. Pourtois, S. De Gendt, M. Heyns, and G. Groeseneken

1894 Axial Ge/Si Nanowire Heterostructure Tunnel FETs
S. Dayeh and S. Picraux

1895 Room-Temperature Resonant Tunneling Diode with High-Ge-Fraction Strained $Si_{1-x}Ge_x$ and Nanometer-Order Ultrathin Si
M. Sakuraba, K. Takahashi, and J. Murota

1896 Advanced Processes for the SEG of Si and SiGe Recessed and Raised Sources and Drains in FETs
J. Hartmann

1897 High-Mobility Ge on Insulator (GOI) by SiGe Mixing-Triggered Rapid-Melting-Growth
T. Sadoh and M. Miyao

1898 Formation of High Aspect-Ratio Ge-Fin Structures with {110} Facets by Anisotropic Wet Etching
Y. Moriyama, K. Ikeda, Y. Kamimuta, and T. Tezuka

1899 Germanium on Nothing for Nanowire Devices
P. Thomas, D. Pawlik, E. Freeman, B. Romanczyk, and S. Rommel

1900 The Germanium Surface and Its Passivation by Rare Earth Oxides
A. Dimoulas, D. Tsoutsou, Y. Panayiotatos, G. Mavrou, S. Galata, and E. Golias

1901 Monolayer Passivation of Ge(100) Surface via Nitridation and Oxidation
J. Lee, S. Bishop, T. Kaufman-Osborn, E. Chagarov, and A. Kummel

1902 Germanium Interface Structure and Defect Passivation in High-k MOS Devices
P. McIntyre

1903 Formation of Dipole Layers at Oxide Interfaces in High-k Gate Stacks
K. Kita, L. Zhu, T. Nishimura, K. Nagashio, and A. Toriumi

1904 Control of Gate Metal Effective Work Functions and Interface Layer Thickness by Designing Interface Thermodynamics Based on Heteroatom Incorporation into High-k HfO2 Gate Dielectrics
K. Shiraishi, T. Hosoi, H. Watanabe, and K. Yamada

1905 Strain Engineering for Fully-Depleted SOI Devices
A. Khakifirooz, P. Kulkarni, S. Bedell, K. Cheng, D. Sadana, B. Doris, and G. Shahidi

1906 Critical Factors for Enhancement of Compressive Strain in SGOI Layers Fabricated by Ge Condensation Technique
S. Takagi, K. Tomiyama, S. Dissanayake, and M. Takenaka

1907 Strain Stability in Nanoscale Patterned Strained Silicon-on-Insulator
O. Moutanabbir, M. Reiche, A. Hähnel, W. Erfurth, M. Motohashi, A. Tarun, N. Hayazawa, S. Kawata, F. Naumann, M. Patzold, M. Holt, and J. Maser

1908 Effects of Growth and Surface Cleaning Conditions on Strain Relaxation on SiGe Films Beyond a Critical Thickness on Si(001) Substrate
J. Park, M. Ishii, R. Balasubramanian, and S. Kuppurao

1909 Assessment of $Ge_{1-x}Sn_x$ Alloys for Strained Ge CMOS Devices
S. Takeuchi, Y. Shimura, T. Nishimura, B. Vincent, G. Eneman, T. Clarysse, J. Demeulemeester, K. Temst, A. Vantomme, J. Dekoster, M. Caymax, R. Loo, O. Nakatsuka, A. Sakai, and S. Zaima

1910 Band-Engineered Ge-on-Si Lasers for Si Photonics
J. Liu, X. Sun, R. Camacho-Aguilera, Y. Cai, L. Kimerling, and J. Michel

1911 Characterizations of Direct Band Gap PL and EL from epi-Ge on Si
S. Cheng, G. Shambat, J. Lu, H. Yu, K. Saraswat, J. Vuckovic, and Y. Nishi

1912 Extrinsic Effects of Indirect Radiative Transition of Ge
S. Jan, C. Lee, T. Cheng, Y. Chen, K. Peng, S. Chan, C. Liu, Y. Yamamoto, and B. Tillack

1913 Enhancements of Direct Band Radiative Recombination from Ge
T. Cheng, K. Peng, C. Ko, C. Chen, S. Chan, and C. Liu

1914 Optoelectronic Monolithic Integration of Waveguided Metal-Germanium-Metal Photodetector and Ge CMOSFETs on SOI Wafer
H. Zang, J. Wang, G. Lo, and S. Lee

1915 Kinetic Model of SiGe Selective Epitaxial Growth Using RPCVD Technique
M. Kolahdouz, L. Maresca, R. Ghandi, A. Khatibi, and H. Radamson

1916 300mm Cold-Wall UHV/CVD Reactor for Low-Temperature Epitaxial (100) Silicon
T. Adam, S. Bedell, A. Reznicek, D. Sadana, A. Venkateshan, T. Tsunoda, T. Seino, J. Nakatsuru, and S. Shinde

1917 Atomic Control of Doping during Si Based Epitaxial Layer Growth Processes
B. Tillack, Y. Yamamoto, and J. Murota

1918 Advances in SiGeSn/Si Technology: From Molecules and Materials to Prototype Devices
J. Kouvetakis

1919 Selective Epitaxial Growth (SEG) of Highly Doped Si:P on Source/Drain Areas of NMOS Devices Using $Si_3H_8/PH_3/Cl_2$ Chemistry
M. Bauer and S. Thomas

1920 Toward Si/SiGe Quantum Dot Spin Qubits
C. Simmons, M. Thalakulam, B. Rosemeyer, B. Van Bael, D. Savage, M. Lagally, R. Joynt, M. Friesen, S. Coppersmith, and M. Eriksson

1921 Surface Orientation Effects on SiGe Quantum Dots and Nanorings Formation
C. Lee, W. Tu, C. Lin, H. Chang, S. Lee, and C. Liu

1922 Self-Align Formation of Si Quantum Dots
K. Makihara, M. Ikeda, H. Deki, A. Ohta, and S. Miyazaki

1923 Fabrication and Properties of Abrupt Si-Ge Heterojunction Nanowire Structures
C. Wen, M. Reuter, J. Tersoff, E. Stach, and F. Ross

1924 Ge/Si core/multi-shell Heterostructure FETs
S. Dayeh and S. Picraux

1925 Advanced Strained-Silicon and Core-Shell $Si/Si_{1-x}Ge_x$ Nanowires for CMOS Transport Enhancement
P. Hashemi, C. Poweleit, M. Canonico, and J. Hoyt

1926 Vapor-Liquid-Solid Growth of $Si_{1-x}Ge_x$ and Ge-Rich $Si/Si_{1-x}Ge_x$ Axial Heterostructured Nanowires
S. Minassian, X. Weng, and J. Redwing

1927 Ge/Si Core/Shell Nanowire Structures for Tunneling Devices
J. Smith, Y. Zhao, C. Yang, and J. Appenzeller

1928 Advances in SiGeSn/Si Technology
J. Kouvetakis

1929 High Power Waveguide Ge/Si Photodiodes
J. Bowers, M. Piels, A. Ramaswamy, and T. Yin

1930 Monolithic Ge-on-Si Lasers: What's Next?
J. Liu

1931 Performance and Reliability of a 25Gb/s Ge Waveguide Photodetector Integrated in a CMOS Process
S. Sahni, D. Song, M. Sharp, D. Kucharski, D. Guckenberger, and G. Masini

1932 Integration of Germanium Photodetectors on Silicon for On-Chip Optical Interconnects
S. Assefa, F. Xia, and Y. Vlasov

1933 Ge/Si Waveguide(WG) Avalanche Photodiodes on SOI Substrates for High Speed Communication
Y. Kang, Y. Saado, M. Morse, M. Paniccia, J. Campbell, J. Bowers, and A. Pauchard

1934 Development of Extended Performance Near IR Photodiodes: A New Approach Based on Ge-Sn Materials Integrated on Silicon
J. Mathews, R. Roucka, C. Weng, R. Beeler, J. Tolle, J. Menendez, and J. Kouvetakis

1935 Si, SiGe, Ge, and III-V Semiconductor Nanomembranes and Nanowires Enabled by SiGe Epitaxy
M. Orlowski

1953 Novel Heterostructures for Integration of III-V Semiconductors on Si Platforms for Photovoltaic Applications
R. Beeler, C. Weng, J. Tolle, R. Roucka, J. Mathews, D. Ahmari, J. Menendez, and J. Kouvetakis

1954 Graphene Transistors: Promises and Challenges
C. Miao, Y. Park, W. Liu, J. Zhu, Y. Wang, B. Huang, J. Woo, and Y. Xie

1955 Aspect Ratio Trapping: A Unique Technology for Integrating Ge and III-Vs with Silicon CMOS
J. Fiorenza, J. Park, J. Hydrick, J. Li, J. Li, M. Curtin, M. Carroll, and A. Lochtefeld

1956 Epitaxial Growth on High Aspect Ratio Structures
S. Chopra, V. Tran, B. Wood, Y. Kim, and S. Kuppurao

1957 HCl Selective Etching of SiGe versus Si in Stacks Grown on (110)
V. Destefanis, J. Hartmann, G. Rabillé, and S. Monfray

1958 Phosphorus Atomic Layer Doping in Si Using PH_3
Y. Yamamoto, K. Köpke, J. Murota, and B. Tillack

1959 Non-Contact and Non-Destructive Characterization of Laser Spike Annealed $Si_{1-x}Ge_x$/Si Using Very High Resolution Multiwavelength Raman Spectroscopy
W. Yoo, T. Ueda, T. Ishigaki, and K. Kang

1960 Defect-Induced Surface Morphological Evolution in Epitaxial Germanium Growth on Silicon
Y. Huang, X. Tao, M. Jin, C. Wang, and E. Sanchez

1961 The Use of LEXES to Measure the Chemical Composition of In Situ Doped Epitaxial SiGe and SiC for High Performance CMOS Technology
M. Moret, H. Francois-Saint-Cyr, C. Hombourger, J. Holt, F. Zhu, P. Ronsheim, D. Shneyder, D. Snoeyenbos, and M. Schuhmacher

1962 Self-Aligned NiGeSi Contacts on Gallium Arsenide for III-V MOSFETs
X. Zhang, H. Guo, H. Chin, X. Gong, P. Lim, and Y. Yeo

F1 - Electroless Deposition Principles, Activation, and Applications

Electrodeposition / Energy Technology

1963 Electrochemical Behavior of Nickel ACD-Electroless Deposition
P. Cavallotti, P. Cojocaru, and L. Magagnin

1964 Electroless Deposition and Electrodeposition of Metallic Powders: A Comparison
S. Djokić, N. Nikolić, P. Živković, K. Popov, and N. Djokić

1965 Study and Application of DMAB Oxidation on Copper Electrodes for Low pH Copper Electroless Deposition
N. Kulyk, S. Cherevko, and C. Chung

1966 New Surface-Activation-Process for Electroless Deposition of Adhesive Metal (Ni, Cu) Films on Si Substrates
S. Yae, K. Sakabe, N. Fukumuro, and H. Matsuda

1967 Activation Free Electroless Ni for High Aspect Ratio Submicron Vias for Microchip Application
C. Tiwari

1968 Formation of CoWP Barrier Layer by Electroless Deposition for TSV Metallization
C. Chou and W. Dow

1969 Open Circuit Copper Deposition on Aluminum Assisted by Absorbed Hydrogen: Quartz Crystal Microbalance and Atom Probe Tomography Studies
J. Ai, S. Liu, S. Adhikari, Y. Zhang, A. Hillier, and K. Hebert

1970 Novel Pd Anodes for Direct Formic Acid Fuel Cells
S. Sanii and E. Gyenge

1971 Silver-Assisted Electroless Etching of Si Nanowires
S. Gielis, M. van der Veen, S. De Gendt, and P. Vereecken

1972 Synthesis of Pt-Cu Nanowires by Spontaneous Galvanic Displacement as Novel Catalyst Materials
B. Larsen, S. Pylypenko, T. Olson, K. Neyerlin, and B. Pivovar

1973 Influence of Reducibility of Reductants on Morphologies and Activities of Ni and Ag Nanoparticles Formed on Polyimide
S. Huang, F. Shen, and W. Dow

1974 Effects of Additives on Nanoscale Electroless Plating of Palladium on a Nonconductive Substrate
E. Bird, K. Nelson, D. Wheeler, and J. Harb

1975 Fabrication of Metal-Coated Carbon Nanotubes by Electroless Deposition and Their Wettability with Molten Metal
S. Arai, T. Yamamoto, J. Nakagawa, Y. Suzuki, and M. Endo

1976 Monolayer Restricted Galvanic Displacement (MRGD) for the Growth of Pt/Ru Alloy Nanofilms via Electrochemical Atomic Layer Deposition (E-ALD)and the Oxidation of CO
N. Jayaraju and J. Stickney

1977 A Novel Oxidative-Reductive Approach to Fabricate RuO_x Films Electrolessly
J. Chen, S. Huang, L. Wang, and P. Wu

1978 Preparation of DSSC Photoanode Nanotitania Thin Films by Electrophoretic Deposition
N. Parsi Benehkohal and G. P. Demopoulos

1979 Pt Catalyst Monolayer Synthesis via SLRR Approach
D. Gokcen, S. Bae, O. Miljanic, P. Liu, and S. Brankovic

1980 Galvanic Displacement of Nanostructured Gold for Flavoenzyme Adsorption in Biotechnology
L. Magagnin, P. Cojocaru, F. Secundo, A. Turolla, and G. Ottolina

1981 Fabrication of DNA-Templated Ni Nanowires
J. Liu, S. Gyawali, N. Myung, and J. Harb

1982 Synthesis of Platinum and Ruthenium Nanostructures on Au Films and Au Nanoparticles: Use of Mixed Sacrificial Metals in Surface-Limited Redox-Replacement Reactions in Electrochemical Atomic Layer Deposition
T. Mkwizu, M. Mathe, and I. Cukrowski

1983 Well Ordered Hollow Urchin-Like ZnO by Electrodeposition
J. Elias, C. Lévy-Clément, M. Bechelany, J. Michler, and L. Philippe

1984 Electrochemical Deposition of p-type Semiconductors in Nanoporous n-type Semiconductors: Factors Governing the Deposition Morphology
J. Kim, Q. Wang, K. Zhu, A. Halverson, and A. Frank

1985 Investigation of Dimethyl Sulfoxide Electrolytes for Electrodepositing Thermoelectric Bismuth Telluride Films
H. Nguyen, J. Su, Z. Wang, R. Vullers, P. Vereecken, and J. Fransaer

1986 Electrodeposition of n-CdTe and p-CdTe in an Aqueous Medium and Aluminum Metal in a Nonaqueous Medium
B. Ashead and S. Khan

1987 Growth of Nanostructured ZnO on Textured Silicon from Aqueous Chemical Solution by Microreactor Assisted- Nanomaterial Deposition (MAND^{TM})
S. Han, B. Paul, and C. Chang

1988 Electroless Nickel Plating on Porous Carbon Substrate for the High Surface Area Nickel Electrode
S. Chun, I. Kang, Y. Rhyim, D. Kim, and J. Lee

F2 - Electronics and 3-D Packaging 4

Dielectric Science and Technology

1989 Future Directions for Through Silicon Vias
P. Fischer, P. Morrow, K. O'Brien, and R. Baskaran

1990 Frontiers in Microelectronics and 3D Integration
H. Deligianni and F. Liu

1991 TSV Cu Plating and Implications for CMP
A. Radisic, H. Philipsen, M. Honore, Y. Wang, N. Heylen, Z. El-Mekki, S. Armini, K. Vandersmissen, S. Rodet, A. Van Ammel, H. Bender, C. Drijbooms, K. Vanstreels, and W. Ruythooren

1992 Electrodeposition of Cu in TSV Structures
J. Reid

1993 Electroplating of Interconnects: Scaling from Nanoscale Dual-Damascene to Micron-Scale Through Silicon Vias
U. Landau

1994 Mechanistic Insights of Copper Damascene Plating in Small and Large Features
P. Vereecken and W. Ruythooren

1995 New Concept for Advanced 3D TSV Copper Plating Additives
M. Arnold, C. Emnet, A. Flügel, M. Hahn, A. Wagner, D. Mayer, and P. Broekmann

1996 Investigation of Cu Plating and Additive Interactions in the Presence of Fe^{2+}/Fe^{3+} Redox Couple for the TSV Application
I. Volov, A. West, J. van Eisden, and R. Preisser

1997 An Alternate of MPS and SPS Used for Cu Fill of Microvia and TSV
Y. Chiu and W. Dow

1998 Determination of Additives Adsorption and Transport Parameters with Application to Copper Interconnect Metallization
J. Adolf and U. Landau

1999 The Effect of Acid on Through Hole Filling by Cu Electroplating
C. Lu, J. Yan, and W. Dow

2000 Analysis of Natural Convection for Copper Deep Via Filling
A. Suzuki, N. Mizukoshi, K. Aota, and M. Hayase

2001 The Influence of Supporting Electrolyte on Through Hole Filling by Copper Electroplating
C. Chen and W. Dow

2002 Additive Adsorption and Transport Effects on the Void-Free Metallization of Through Silicon Vias
J. Adolf and U. Landau

2003 Coupling of Electroanalysis with Multiblock and Hierarchical PCA and PLS Models for Copper ECD Process Control
A. Jaworski, H. Wikiel, and K. Wikiel

2004 Conformal Electroless Deposition of Barrier and Cu Seed Layers for Realizing All-Wet TSV Filling Process
S. Shingubara, F. Inoue, T. Yokoyama, T. Shimizu, H. Miyake, T. Terui, S. Tanaka, and K. Kondo

2005 Through Silicon Vias and Holes Metallization by Cu Nanoparticles Coating and Cu Electrodeposition
W. Dow, S. Shen, C. Lu, Y. Chang, M. Kubo, T. Kamitamari, E. Cheng, J. Lin, and F. Hsu

2006 Electroplating Application of Dimensionally Stable Anode for Copper Interconnects in 3D IC Manufacturing
M. Wang, W. Dow, and S. Lin

2007 Effect of Centrifugal Force on Copper Electrodeposition for Through Silicon Via Filling
N. Mizukoshi, A. Suzuki, and M. Hayase

2008 All Copper Interconnection for Chip-to-Package Bonding
H. Koo and P. Kohl

2009 Thermomechanical Modeling of All-Copper Chip-to-Substrate Connections
P. An, H. Koo, and P. Kohl

2010 Role of Additives in the Electrodeposition of Sn, Ag and Sn-Ag Films from Iodide-Pyrophosphate Solution
V. Venkatasamy, S. Riemer, I. Tabakovic, and M. Kief

2011 Matrix Scoring Method for the Evaluation of TSV Development Using a Magnetically Enhanced Plasma Etcher
K. Han, Y. Choi, C. Shin, S. Jeong, S. Youn, and K. Maruyama

2012 Simulation of Cobalt Hard Gold Electrodeposition: Including Hydrogen Evolution Reaction and Reversed Current
Z. Liu, M. Zheng, R. Hilty, and A. West

2013 Electrochemical Approach and Apparatus for Analysis of Oxides Located on the Surface of Copper Wires
M. Pavlov, E. Shalyt, I. Tsimberg, and P. Bratin

2014 All-Copper Chip-to-Substrate Interconnection
H. Koo, P. An, and P. Kohl

F3 - Magnetic Materials, Processes, and Devices 11

Electrodeposition

2015 Electrodeposition of Fe-Pt Alloys from Complex Electrolytes: Electrochemical and Structural Investigations
D. Liang, J. Mallett, and G. Zangari

2016 Electrodeposition of PtFeCo Alloys and Multilayered Thin Films for Catalytic Applications
A. Avekians and E. Podlaha

2017 Epitaxial Electrodeposition of Fe-Pt Alloys
D. Liang, J. Mallett, and G. Zangari

2018 Composition Gradients and Magnetic Properties of Ultrathin NiFe and CoNiFe Films Obtained by Electrodeposition
J. Gong, S. Riemer, I. Tabakovic, and M. Kief

2019 Mass Transfer of Protons during Electrodeposition of Cobalt in Chloride Electrolytes
O. Kongstein, G. Haarberg, and J. Thonstad

2020 Additive Design for High Deposition Rate Permalloy Bath
J. George, P. Lantonkpode, D. Lee, P. Smeys, P. Johnson, and S. Brankovic

2021 Stress Control in NiFe Films
B. Kagajwala, A. Adesanya, J. Geroge, D. Lee, P. Smeys, P. Johnson, and S. Brankovic

2022 Electrodeposited Au/FeAu Porous Nanowires and Composites
S. Lucatero and E. Podlaha

2023 Aqueous Electrodeposition and Mechanism of Iron Group-Vanadium Ternary Alloys
M. Schwartz, B. Yoo, and K. Nobe

2024 Assembly and Embedding of Nanoparticles in a Ni-Matrix
M. Wurz, P. Wagner, J. Caro, and L. Rissing

2025 Electrodeposited Thick Amorphous Fe-P Foils Having Improved Soft Magnetic Properties
E. Potvin, R. Lacasse, J. Cave, M. Trudeau, F. Allaire, and G. Houlachi

2026 Electrodeposition of Ni/Cu Multilayers Nanowires Using Alumina Template
P. Cojocaru, A. Leserri, L. Magagnin, M. Vazquez, and G. Badini-Confalonieri

2027 Effect of Substrate Temperature on the Magnetic Tunnel Junction Material Etching Using Inductively Coupled CH_3OH Plasma
M. Lee, S. Cho, B. Jung, C. Shin, M. Choi, G. Song, J. Roh, S. Park, and W. Lee

2028 Active Magnetic Micro and Nano Electro-Mechnical Systems (MNEMS)
H. Gatzen

2029 Fabrication of MEMS on Printed Circuit Boards
S. Cvetkovic, A. Wienecke, and L. Rissing

2030 Investigations on Micromolds for Dispensing Low Viscosity Epoxies for MEMS Applications
C. Leng, C. Ruffert, and L. Rissing

2031 Processdevelopment of an Electroplated Permalloy Layer on Magnetic Magnesium for Gentelligent Products
A. Belski, M. Wurz, and L. Rissing

2032 Development on Technique for Arrangement of FePt Alloy Particles by Chemical Synthesis
T. Hachisu, A. Sugiyama, and T. Osaka

2033 Fabrication of Magnetic Nanodot Array Using Nanoimprint Lithography: In Combination with Electrochemical Deposition or Ion Irradiation
T. Homma, T. Ouchi, Y. Konishi, J. Mizuno, S. Shoji, M. Aniya, and Y. Sonobe

2034 Submicrometer-Sized Magnetic Capsules with FePt Nanoparticles/Polymer Nanocomposite Shell
T. Fuchigami, Y. Kitamoto, R. Kawamura, M. Nakagawa, and Y. Namiki

F4 - Molecular Structure of the Solid-Liquid Interface and Its Relationship to Electrodeposition 7

Electrodeposition

2035 Additive Effect on Magnetic, Corrosion and Mechanical Properties of 2.4 T CoFe Alloys
S. Brankovic, B. Kagajwala, J. George, A. Adesanya, and P. Lantonkpode

2036 Alternative Pathway of SPS Action: Impact on Electrochemistry and Additive Action
M. Arnold, C. Emnet, A. Flügel, M. Hahn, A. Wagner, D. Mayer, and P. Broekmann

2056 (2010 Electrodeposition Division Research Award) Electrochemical Fabrication of Functional Micro/Nanostructures: Process Development and Mechanistic Understandings
T. Homma

2057 Exploring the Au/Electrolyte Interface Using Single Nanoslits and Nanoslit/Groove Pairs
C. Susut, A. Agrawal, G. Stafford, J. Weiner, H. Lezec, and A. Talin

2058 Materials Electrodeposition at Lithographically Patterned Electrodes
R. Penner

2059 The Interface Ionic Liquid(s)/Metal Electrode(s): Investigation of the Complex Solvation and Electrochemical Double Layers by In Situ Scanning Probe Microscopy
F. Endres

2060 Metal Deposition from Ionic Liquids
M. Gnahm, T. Pajkossy, and D. Kolb

2061 In Situ STM Studies of Electrodeposition of Magnetic Metals in a Non-Chloroaluminated Ionic Liquid
C. Sun, Y. Wei, J. Li, J. Yan, and B. Mao

2062 Electrodeposition of Li in Ionic Liquid
T. Nishida, K. Nishikawa, T. Mori, T. Homma, and Y. Fukunaka

2063 Electrolytic CaP/Gelatin/Gentamicin Composite Coatings on Post HA/TiO_2 Coated Ti Alloy
S. Yen, T. Lin, and C. Yang

2064 Electrolytic Vancomycin/CaP Composite Coating on Post Bioceramics Coated Ti Alloy
S. Yen, Y. Chen, and C. Yang

I1 - Physical and Analytical Electrochemistry General Session

Physical and Analytical Electrochemistry

2065 Development and Characterization of a Single Channel Microfluidic Electrolysis Cell
J. Kuleshova, D. Pletcher, P. Birkin, R. Brown, J. Hill-Cousins, and T. Underwood

2066 Side-Reaction Free Electrodes for Electrokinetic Lab-On-A-Chip Applications
P. Erlandsson and N. Robinson

2067 Improving the Efficiency of Biofuel Cells with Enzymatic Cascades
S. Minteer, D. Sokic-Lazic, P. Addo, and M. Moehlenbrock

2068 Electrochemical Impedance Testing of Enzymes from Directed Evolution Microbes in Non-Terrestrial Environmental Conditions
C. DiCarlo and G. Kortman

2069 Highly Sensitive and Selective Dopamine Biosensor Fabricated with Silanized Graphene
S. Hou, M. Kasner, and S. Su

2070 Acetyl Salicylic Acid (Aspirin) and Antioxidative Agents in Joshanda: A Herbal (Medicinal) Tea
M. Soomro, M. Mohammad, and Z. Aqeel

2071 Chemical and Electrochemical Properties of Alkyl-Terminated GaP and GaAs Interfaces
J. Mukherjee and S. Maldonado

2072 High Speed Etching of SiO_2 Using Modified Dielectric Barrier Discharges
J. Oh, J. Park, E. Gil, and G. Yeom

2073 Anodic Catalyst Development for the Hybrid Sulfur Cycle
J. O'Brien, S. Donne, and J. Hinkley

2074 Solid State Electrochemistry of AgCN, Ag_2S, $Cu(OH)_2$ and AuCl(octadecylamine) Nanofibers: Fundamentals and Applications
G. Bourret and R. Lennox

2075 The Effect of Nanometric Metal / Metal Oxide Vapor Deposited Surface Coatings on TiO_2 Photocatalysed PVC Degradation
A. Robinson and D. Worsley

2076 Surface Electrochemistry Study of Iron Oxides Particles in LiOH Solution Using Electrochemical Impedance Spectroscopy
H. Zebardast, S. Rogak, and E. Asselin

2077 Characterize of Ring Striation Pattern Distributed COP in Czochralski Silicon Wafer
J. Kim, W. Lee, D. Hwang, and B. Lee

2078 Analysis of Fine Bulk Micro Defects in Denuded Zone of Silicon Wafer
E. Lee, S. Lee, D. Hwang, and B. Lee

2079 Confirmation that Concentration Polarization is Controlling during Electrochemical Measurement
M. Reda

2080 Possibilities and Limitations of Non-Traditional Electrodes for Voltammetry and Amperometry
J. Barek and J. Wang

2081 Novel Strategy for Finding the Optimal Parameters of Ion Selective Electrodes
J. Jasielec, B. Wierzba, B. Grysakowski, T. Sokalski, M. Danielewski, and A. Lewenstam

2082 Novel Electrochemiluminescent Platinum (II) Schiff-Base Complexes
E. Reid, C. Hogan, and V. Cook

2083 Mechanistic Aspects of Carbon Monoxide Oxidation on Unsupported Platinum Nanoparticles
E. Ciapina and E. Gonzalez

2084 An Imaging Ammeter for Electrochemical Measurements
P. Sides, C. Wirth, and D. Prieve

2085 Adsorption of Poly-L-Lysine on Platinum Electrodes as a Function of Applied Potential
S. Nilsson, M. Fahlman, F. Björefors, and N. Robinson

2086 Amperometric H_2 Sensors Using a Pt NPs-Decorated MWNT Working Electrode
D. La, S. Park, and Y. Kim

2087 Kinetics of Hydrogen Sorption in Pt-Pd Alloy Nanoparticles
A. Januszewska, A. Lewera, and R. Jurczakowski

2088 Measurement of Calcium Activity in Liquid Calcium-Bismuth Alloys by EMF Method
H. Kim, S. Poizeau, W. Wei, K. Jiang, A. Tomaszowska, D. Bradwell, D. Boysen, and D. Sadoway

2089 Copper Analysis Using NanoBand Electrode System and Its Removal in Wastewater by Electrocoagulation
J. Gomes, K. Islam, K. Das, M. Rahman, G. Irwin, P. Bernazzani, and D. Cocke

2090 The Many Mechanisms of Proton-Coupled Electron Transfer: The Effect of Added Base on the Non-Aqueous Electrochemistry of p-Phenylenediamines
D. Smith, L. Clare, L. Rojas, S. Pavlovsky, and J. Woods

2091 Voltammetry of N-bromosuccinimide in Hexafluoropropan-2-ol
I. Haque, W. Akram, and A. Khan

2092 Determination of Organic Compounds in Coal Extracts Using Cyclic Voltammetry
A. Valenzuela Muñiz and G. Botte

2111 (Ga,N) and (Cu,Ga) Co-Doped ZnO Films for Improving Photoelectrochemical Response for Solar Driven Hydrogen Production
S. Shet

2112 Nanoporous Composite Based on Carbon Nanotubes and Conducting Polymers for Obtaining of Modified Electrodes
I. Branzoi, F. Branzoi, and L. Pilan

2113 Electrochemical Behavior to Electron Transfer through L-Cysteine Monolayer on Palladium Surface Using Redox Probe
I. Feliciano, M. Caban, and C. Cabrera

2114 Synthesis, Characterization and Use of Ru-Fc Intercalation Complex as an Electrochemical Label for the Detection of Pathogen-DNA
M. Díaz, A. Rosado, J. del Pilar, E. Vega, and A. Guadalupe

2115 Very Strong Redox-Dependent Hydrogen Bonding between a bis-Dimethylaminophenylurea and a Cyclic Diamide
K. Valencia, J. Woods, A. Cooksy, and D. Smith

I2 - Electrochemistry in Nanospaces

Physical and Analytical Electrochemistry

2116 Nanostructured Materials for the Electrocatalysis of Biomolecules and Biosensors Applications
S. Chen, A. Periyasamy, Y. Umasankar, S. Thiagarajan, and A. Balamurugan

2117 Renewable Gold Nanopores as Support for (Bio)Functionalized Electrodes
J. Lenz, R. Hempelmann, S. Ravaine, and A. Kuhn

2118 Pressure Effects on Supercapacitors from Activated Carbon Fabrics and Single-Wall Carbon Nanotubes
X. Li, C. Masarapu, J. Rong, Q. Zhang, and B. Wei

2119 Ionic Diffusion Analysis of Layer by Layer Films Embedded with Polyoxometalate
R. Vyas, K. Li, and B. Wang

2120 Enhanced Raman Spectroscopy at Electrochemically-Synthesized Metal-Organic-Metal Nanojunctions
F. Zamborini and R. Dasari

2121 Three-Dimensional Nanoscale Imaging of Electrochemical Interfaces Using Atom Probe Tomography
A. Hillier and Y. Zhang

2122 Electrochemical Correlation Spectroscopy (ECS) in Nanofluidic Channels
P. Singh, M. Zevenbergen, E. Goluch, and S. Lemay

2123 Ionic Nanopore Devices
S. Smirnov, I. Vlassiouk, and Z. Siwy

2124 Electroosmotic Flow Rectification in Pyramidal-Pore Mica Membranes
H. Mukaibo, P. Jin, G. Bishop, F. Tongay, L. Horne, P. Guo, and C. Martin

2125 Electrochemical Microscopy of Nanoporous Materials
L. Baker, M. Deryo, C. Chen, S. Niya, and C. Morris

2126 Cationic and Anionic Transport through Single Nanopipettes
G. Wang, J. Liu, J. Feng, W. Brown, B. Wu, D. Robinson, Z. Tang, and B. Nadia

2127 Organic Solvent-Induced Permeability Changes of PS-*b*-PMMA-Derived Nanoporous Films Studied Using Electrochemical Impedance Spectroscopy
D. Perera and T. Ito

2128 Investigation of Electron Transport through Ferrocene Moieties Covalently Linked to the Surface of PS-*b*-PMMA-Derived Nanopores
F. Li and T. Ito

2129 Electrochemical Investigation of Diffusion of Cytochrome c within PS-*b*-PMMA-Derived Nanopores
B. Pandey and T. Ito

2130 Electrochemically Assisted Fabrication of Cooper Atomic Wires on Chip for Their Quantum Conductance Measurement
Y. Yang, J. Liu, J. Yang, F. Yang, M. Lv, and Z. Tian

2131 Characterization of Novel SnO_2 Nanowire Supported Pd Catalyst for Methanol-Electro Oxidation
S. Lee, J. Oh, M. Song, and Y. Yoon

I3 - International Symposium on Molten Salts and Ionic Liquids 17

Physical and Analytical Electrochemistry / High Temperature Materials / Electrodeposition / Energy Technology

2132 Controlled Chemistry of Moisture Sensitive Reagents in Ionic Liquids
E. Amigues, C. Hardacre, G. Keane, M. Migaud, S. Norman, and W. Pitner

2133 Extraction of Phenols from Aqueous Solution by Magnetic Ionic Liquids for Environmental Remediation
N. Deng, M. Li, S. de Rooy, B. El-Zahab, and I. Warner

2134 Process Variables that Control Natural Fiber Welding
L. Haverhals, H. Sulpizio, Z. Fayos, W. Reichert, M. Foley, H. De Long, and P. Trulove

2135 POSS-Modified Cellulose Using 1-ethyl-3-Methylimidazolium Acetate as a Reaction Solvent
D. Fox, J. Lee, J. Jones, M. Zammarano, and J. Gilman

2136 Characterization of Polymer Movement in Fiber Welded Cellulose Composites
L. Haverhals, Z. Fayos, H. Sulpizio, W. Reichert, M. Foley, P. Trulove, and H. De Long

2137 Grass to Gas: Application of Ionic Liquids to Biomass
M. Foley, W. Reichert, W. McIlvaine, H. De Long, and P. Trulove

2138 Selective Gas Absorption by Ionic Liquids
S. Shunmugavel, S. Kegnæs, J. Due-Hansen, T. Gretasdottir, A. Riisager, and R. Fehrmann

2139 New Functionalized Imidazolium-Based Room-Temperature Ionic Liquids and Composite Materials for Gas Separation and Selective Transport Applications
D. Gin, R. Noble, T. Carlisle, B. Voss, J. Bara, A. LaFrate, A. Miller, Y. Hudiono, B. Wiesenauer, and M. Reynolds

2140 New Ionic Liquids Containing Fluorosulfonyl(trifluoromethylsulfonyl)amide and 5-Phosphoniaspiro[4.4]nonan
H. Matsumoto, T. Umecky, and S. Tsuzuki

2141 Ionic Liquid/Zeolite Composites: Synthesis and Characterization Using Vibrational Spectroscopy
S. Ntais, A. Moschovi, V. Dracopoulos, and V. Nikolakis

2142 Syntheses of Applications of Frozen Ionic Liquid Nanomaterials
B. El-Zahab, A. Tesfai, D. Bwambok, S. de Rooy, M. Li, S. Das, and I. Warner

2216 Fundamental Questions on the Capacitance of Room-Temperature Ionic Liquids
M. Kobrak

2217 Electrochemical Capacitors Using Fluorohydrogenate Ionic Liquid Electrolytes
K. Matsumoto, K. Takahashi, A. Senda, T. Nohira, and R. Hagiwara

2218 High Conductivity of Ionic Liquids, Based on the Symmetrical Guanidinium Cation
Z. Zhao and C. Angell

2219 Ionic Liquids and Ionic Liquid Binary Mixtures as Electrolytes for Lithium Batteries
M. Kunze, G. Kim, S. Jeong, G. Appetecchi, M. Schönhoff, M. Winter, and S. Passerini

2220 Spiro-Ammonium TFSI Ionic Liquids for Lithium Battery Electrolytes
A. Yeates

2221 Electrowinning of Lithium from Molten Salt Containing LiOH for Hydrogen Storage and Transportation
O. Takeda, M. Li, M. Hoshi, and Y. Sato

2222 Synthesis of New Protic Ionic Liquids for Fuel Cells on the Basis of In Situ FT-IR Measurements
H. Munakata, T. Tashita, M. Haibara, and K. Kanamura

I4 - Oscillations and Pattern Formation in Electrochemistry

Physical and Analytical Electrochemistry

2223 Oscillations and Pattern Formation in an Electrochemical Membrane Reactor Exposed to H_2/CO Mixtures
R. Hanke-Rauschenbach, S. Kirsch, and K. Sundmacher

2224 PEMFC Oscillatory Behavior on a Pd-Pt/C Electrocatalyst
P. Lopes, H. Varela, and E. Ticianelli

2225 Time Dependent Oscillations during the Electrocatalytic Oxidation of Aqueous Sulfur Dioxide
J. O'Brien, J. Hinkley, and S. Donne

2226 Interfacial Electrochemistry vs. the Homogeneous Redox Chemistry: Interpretation of the Potentiometric Responses of Various Electrodes Monitoring the Oscillatory Course of the Cu^{2+}- Catalyzed Oxidation of Thiocyanates with Hydrogen Peroxide
M. Orlik, A. Wisniewski, and K. Pekala

2227 Spatio-Temporal Instabilities during CO Bulk Electrooxidation on Pt
A. Bonnefont, P. Bauer, S. Malkhandi, and K. Krischer

2228 Fractal Silicon Micropatterns: Surface Analysis with Spatial Resolution
M. Lublow, B. Bouabadi, C. Pettenkofer, and H. Lewerenz

2229 Pattern Formation during Anodic Etching of Semiconductors
H. Föll and J. Carstensen

2230 Pattern Formation of Sulfur Deposition/Dissolution in the Electrochemical Oxidation of Sulfide on a Platinum Electrode
S. Wang, J. Yang, X. Hu, J. Feng, and Q. Gao

2231 Cell-Cell Communication in Electricity-Producing Bacteria
S. Nakanishi and K. Hashimoto

2232 Nonlinear Electrochemical Emulation of Unidirectional Wave Propagation Along Upper Urinary Tract
S. Nakabayashi and H. Koyama

2233 Optimal Waveform for the Entrainment of a Weakly Forced Electrochemical Oscillator
I. Kiss, T. Harada, H. Tanaka, and M. Hankins

2234 Bursting Oscillations, Synchronization and Resonance during Anodic Dissolution of Metals
A. Karantonis

2235 Impact of Fluctuations on Electrochemical Oscillations at Nonoscale Electrodes
T. Pourrostami, V. Garcia-Morales, and K. Krischer

2236 Synchrony and Precision of Chaotic Electrochemical Oscillators: Effects of Temperature and Coupling
M. Wickramasinghe and I. Kiss

2237 Decoding Complexity: Application of Principal Critical Simplification to Electrochemical Systems
G. Yablonsky and I. Kiss

2238 Effect of Preceding Chemical Reaction Rate on Dynamical Instability in an Electrochemical System
V. Pototskaya, O. Gichan, and A. Omel'chuk

2239 The Role of Oxotungstate in Xray Induced Patterned Metal Deposition
E. Timofeeva, J. Katsoudas, and C. Segre

2240 Oscillations in the Electrodeposition of Cobalt Oxide Compounds
N. Ivanova, O. Stadnik, and E. Boldyrev

I5 - Professor V. S. Bagotsky: 65 Years in Theoretical Electrochemistry, Electrocatalysis, and Applied Electrochemistry

Physical and Analytical Electrochemistry/Energy Technology

2241 Capacitance Measurements in Room Temperature Ionic Liquids Containing an Imidazolium Cation
D. Misicak, A. Gaal, and W. Fawcett

2242 AC Admittance Study of Electron-Transfer Kinetics to the Metallocenes in Imidazolium Ionic Liquids
A. Gaal, D. Misicak, and W. Fawcett

2243 In Situ Soft Xray Characterization of Hydrogen Oxidation in a Solid-Oxide Electrochemical Cell
F. El Gabaly, A. McDaniel, M. Grass, Z. Liu, and K. McCarty

2244 Pt Monolayer Electrocatalysts: Improvements with Pd Nanorod and Nanowire Supports Obtained by Electrochemical Deposition
S. Bliznakov, M. Vukmirovic, E. Sutter, and R. Adzic

2245 Tuning the Redox Potential of Surface-Confined Macrocyclic Complexes for the Highest Catalytic Activity in Electron Transfer Processes
J. Zagal, F. Silva, M. Sancy, J. Pavez, M. Paez, C. Linares, and R. Arratia-Perez

2246 Electrochemical Behavior of Ammonia at Carbon Supported Pt-Based Nanoparticles
E. Baranova, A. Kapalka, and T. Lomocso

2247 Accelerated Electrochemical Oxidation of Small Organic Molecules in Hot Aqueous Base Solution
J. Jiang and T. Aulich

2248 The Oxidation of Hydroxylamine on Au in Aqueous Acidic Electrolytes: Electrochemical and In Situ Spectroscopic Studies
D. Scherson, D. Martins de Godoi, Y. Chen, and H. Zhu

2249 New Electrode Materials for Lithium-Ion Batteries
T. Kulova and A. Skundin

2250 Fundamental Thermodynamic Modifications in Wagner's Equation in Solid State Electrochemistry
T. Miyashita

2251 Nanostructured Electrocatalysts Based on Organo-Metallic Clusters for Ethanol-Air and Borohydride-Air Fuel Cells
V. Grinberg, N. Mayorova, and A. Pasynskii

2252 Macroporous Ruthenium and Ruthenium Oxide Electrodes for Electrochemical Applications
J. Lenz, V. Trieu, A. Kuhn, and R. Hempelmann

2253 Electrochemical Determination of Hydroquinone Using Hydrophobic Ionic Liquid-Type Carbon Paste Electrode
H. Liu and Y. She

2254 Comparative Study of the Selectivity of Co and Fe Phthalocyanines for the Catalytic Reduction of Molecular Oxygen when Attached to Self-assembled Monolayers of Thiols on Gold (111)
I. Ponce, J. Pavez, M. Paez, F. Silva, and J. Zagal

J1 - Chemical Sensors 9: Chemical and Biological Sensors and Analytical Systems

Sensor

2255 (Sensor Division Outstanding Achievement Award) Nanomechanical Chemical Sensors
T. Thundat

2256 Electrochemical DNA Nano-Biosensors Based on MWCNT-AuNP Nanocomposites
T. Gnanaprakasa and A. Simonian

2257 Biosensors for the Detection of DNA Damage by Toxicants
A. Prance, K. Coopersmith, M. Stobiecka, and M. Hepel

2258 Hepatisis C Virus Sensor Based on Its RNA Hybridization with the Complementary PNA Immobilized on the Thiophene-Diaza-18-Crown-6 SAM and Subsequent EIS Detection
J. Park, Y. Lee, B. Chang, and S. Park

2259 Nanoporous Sensors
S. Smirnov and X. Wang

2260 Localized Electrochemistry for Electrochemical Readout of Microarray on a Monolith Electrode
S. Lee, D. Moore, and R. Saraf

2261 Molecular Substrate Imprinted Sensors: The Molecular Recognizers
Y. Zhou

2262 Electroenzymatic Oxidation and Reduction of Directed Immobilized Dehydrogenases for Electrochemical Cofactor Regeneration
J. Gajdzik, J. Lenz, H. Natter, A. Walcarius, G. Kohring, F. Giffhorn, A. Demir, and R. Hempelmann

2263 Advantage of Ultra Thin Overoxidized Polypyrrole Membrane in the Design of Amperometric Biosensor
C. Debiemme-Chouvy, G. Navarro, S. Chebil, H. Sauriat-Dorizon, H. Korri-Youssoufi, and H. Le

2264 Effect of Cetyltrimethylammonium Bromide on the Voltammetric Determination of Dexamethasone
R. Goyal

2300 Self-Contained Microelectrochemical Assay with Enhanced Capture Surface for Sensitive Detection of Proteins
C. Wansapura

2301 Chemiluminescence Analysis of Amino Acids: Examination of Enzyme Reaction Conditions
A. Kugimiya, F. Babe, and R. Fukada

2302 A Strategy for Constructing a Hybrid Hydrogel/Nanoparticle to Develop Biosensors with Improved Performance
V. Pedrosa, A. Revzin, and A. Simonian

2303 Polypyrrole-Immobilized Urease Biosensor for Amine Detection
H. Wu, W. Yuan, Y. Weng, Y. Lai, C. Chang, and C. Hsu

J2 - Luminescence and Energy Efficiency

Luminescence and Display Materials / Energy Technology

2304 Nitride and Oxynitride Compounds Used as Host Lattices Whose Phosphors for White LED
K. Uheda

2305 Theoretical Maximum Efficacy and Color Rendering Assessment of Energy-Efficient Light Sources
J. Carreras, J. Quintero, and C. Hunt

2306 Luminescent Property and Thermal Stability of α-SiAlON Phosphors Synthesized by Spark Plasma Sintering
S. Choi and S. Hong

2307 Luminescent Ceramics for Phosphor Converted LEDs
A. Tuecks, B. Schreinemacher, H. Bechtel, P. Schmidt, and O. Shchekin

2308 Eu^{2+} Doped Calcium Chlorosilicate Phosphors: Polymorphism and Luminescence Properties
N. Karkada, D. Porob, P. Kumar, and A. Setlur

2309 Site Occupancy, Charge Compensation, and Quenching in $Sr_3AlO_4F:Ce^{3+}$-Based Phosphors
A. Setlur and U. Happek

2310 Y_2O_3 Red Phosphors for General Lighting Coated by Atomic Layer Deposition (ALD) of ZnO for Enhanced Efficacy, Lifetime, and Thermal Stability
K. Tapily, D. Gu, H. Baumgart, and C. Hunt

2311 Photoluminescence Characteristics of $Sr_3SiO_5:Eu^{2+}$ Yellow Phosphors Synthesized by Solid-State Method and Pechini Process
E. Kang, S. Choi, and S. Hong

2312 Visible Emission Properties of Nd^{3+}-Doped$(Y,Gd)BO_3$ Phosphors
R. Balakrishnaiah, D. Kim, S. Yi, S. Kim, K. Jang, H. Lee, B. Moon, and J. Jeong

2313 Enhanced Light Output of AlGaInP LEDs Using Indium-Zinc Oxide Film as TCL and Electroplated Nickel Substrate
D. Kuo, K. Uang, T. Chen, W. Lee, P. Wang, and S. Wang

2314 Luminescent Properties of Ce^{3+}-Doped$(Y_{(1-X)},Gd_{(X)})VO_4$ Phosphors
R. Balakrishnaiah, S. Yi, S. Kim, K. Jang, H. Lee, and J. Jeong

2315 Effect of Ba Thickness in Ba/Al Cathode on Built-In Potential and Electroluminescence Characteristics of Organic Light-Emitting Diodes
J. Kwon, J. Lim, and G. Yeom

2316 Citric Sol-Gel Synthesis and Photoluminescence Properties of Un-Doped and Sm^{3+} Doped $Ca_3Y_2Si_3O_{12}$ Phosphors
V. Bandi, M. Jayasimhadri, K. Jang, H. Lee, S. Yi, and J. Jeong

2317 Improved Current Spreading and Blocking Designs for High-Power Vertical-Structure GaN-Based LEDs
P. Wang, S. Wang, K. Uang, T. Chen, W. Lee, and D. Kuo

J3 - Microfabricated and Nanofabricated Systems for MEMS/NEMS 9

Sensor / Dielectric Science and Technology / Physical and Analytical Electrochemistry / Electronics and Photonics

2318 Novel Photolithography Yield-Enhancement Technique: Megasonic-Enhanced Development
E. Cakmak, J. Bartel, V. Dragoi, and D. Dussault

2319 Rigidity Percolation in Plasma Enhanced Chemical Vapor Deposited SiC_x:H Thin Films
S. King

2320 Fabrication of Silicon Needle-Like Structures Suitable for Controlled Gas Permeability
Z. Sanaee and S. Mohajerzadeh

2321 Integrated Perfusion Culture Microchamber Array Chip for High-Throughput Drug Dose Response Assay
S. Sugiura, K. Hattori, and T. Kanamori

2322 Microcantilevers with Nanowells
M. Lee, D. Lee, and S. Jeon

2323 Microcantilever Arrays with In-Plane Photonic Readout for Biosensing
G. Nordin, S. Kim, W. Hu, R. Anderson, J. Noh, S. Ness, W. Dahlquist, and D. Richards

2324 Microelectrode Array Supported by Microfluidic Channel for High-Throughput Sensing: Fabrication Optimization and Characterization
A. Delcourt Lancon, R. Kataky, D. Wood, and A. Gallant

2325 Characterization of HKUST-1 Crystals and Their Application to MEMS Microcantilever Sensors
A. Venkatasubramanian, J. Lee, R. Houk, M. Allendorf, S. Nair, and P. Hesketh

2326 Novel Concept for the Formation of Sensitive, Selective, Rapidly Responding Conductometric Sensors
J. Gole and S. Ozdemir

2327 Ultra-Low Power Microbridge Gas Sensor
R. Aguilar, Z. Peng, P. Hesketh, and J. Stetter

2328 Nanoparticle Formation and Characterization in Continuous Flow Microfluidic Systems
J. Hong and M. Gaitan

2329 High Toughness and Moisture Insensitive Hydrogenated Amorphous Silicon Carbide Films for MEMS/NEMS
Y. Matsuda, S. King, J. Bielefeld, and R. Dauskardt

2330 Characterization of Thermo-Mechanical Properties of Carbon-Based Low-Dimensional Material/Metallic Thin-Film Composites from NEMS Structures
M. Cho, Y. Kim, B. Lee, S. Hong, and Y. Park

2331 Development of High Temperature Wireless Sensor Technology Based on Silicon Carbide Electronics
G. Hunter, G. Beheim, G. Ponchak, M. Scardelleti, R. Meredith, F. Dynys, P. Neudeck, J. Jordan, and L. Chen

2332 The Development and Fabrication of MEMS in the Semiconductor World
G. Winterton

2333 Wafer Level Characterization of the Sacrificial HDP Oxide Lateral Etching by Anhydrous Vapor HF with Ethanol Vapor for SiGe MEMS Structures
H. Cui, R. Van Hoof, S. Severi, A. Witvrouw, A. Knoops, T. Delande, J. Pancken, and M. Claes

2334 Self Patterned Gold Electroplating for High-Aspect Ratio MEMS Structures
H. Zareie and M. Agah

2335 Photopatternable Electrical Conductive Ag- SU-8 Nanocomposite for MEMS/MST
A. Khosla and B. Gray

2336 Electrodeposition Assisted Xray Lithography: Single Step Approach
J. Katsoudas, E. Timofeeva, and C. Segre

2337 Design Approach and Realization of Integrated Silicon Piezoresistive Pressure Sensors for Wide Application Ranges
W. Schreiber-Prillwitz, M. Saukoski, G. Chmiel, and R. Job

2338 Magnetic Elastomeric Polymers for Soft MEMS: Fabrication and Process Technology
A. Khosla and B. Gray

J4 - Physics and Chemistry of Luminescence and Display Materials

Luminescence and Display Materials / Sensor

2339 Prediction of $4f^n$ - $4f^{n-1}5d^1$ Transition Spectra of Rare-Earth Ions in Crystals Based on First-Principles Calculation
K. Ogasawara

2340 Experimental Evidence and Interpretation of Rare Earth Dopant Segregation in Oxide Optical Ceramics
G. Boulon, W. Zhao, S. Anghel, D. Amans, T. Epicier, V. Chani, and A. Yoshikawa

2341 Optical Spectroscopy of YI_3-Nd^{3+}: Charge Transfer Transition and Efficient Visible Emission
A. Srivastava, S. Camardello, H. Comanzo, and A. Meijerink

2342 Metal-free Polymer Light-Emitting Electrochemical Cells Incorporating a Transparent Graphene Electrode
P. Matyba, H. Yamaguchi, G. Eda, M. Chhowalla, L. Edman, and N. Robinson

2343 Inorganic Scintillator Development: Applications and Fundamental Understanding
G. Bizarri

2344 Rapid Processing and Characterization of Luminescent Materials
E. Bourret-Courchesne, G. Bizarri, and S. Derenzo

2345 Effects of Binary Fluxes on Structure and Luminescence of $BaMgAl_{10}O_{17}$:Eu^{2+} Phosphor
C. Lin and N. Wu

2346 Energy Transfer in $SrAl_{12}O_{19}$:Pr^{3+}:Mn^{2+}
U. Happek and A. Setlur

2347 The Decay of the $^1D_2$ Level of Pr^{3+} in YPO_4
J. Collins, M. Bettinelli, and B. Di Bartolo

2348 Color Tuning of Electrochromic Materials for Color e-Paper
S. Jeon, R. Das, C. Noh, and Y. Jin

2349 Preparation of Luminescent Nanosheets by Exfoliation of Layered Perovskite Oxide
S. Ida, Y. Matsumoto, and T. Ishihara

2350 Luminescent Evolution of Sr-Si-O-N Systems Prepared by a Solid-State Reaction Method
S. Lee, J. Lee, W. Jung, K. Lee, and Y. Kim

2351 Vacuum Ultraviolet Photoluminescence Properties of (Y,Gd)VO_4:Eu,Al Phosphors Synthesized by Ultrasonic Spray Pyrolysis
K. Park, M. Heo, and K. Kim

2352 Emission Peak Shift in Non-Stoichiometric $CaAl_xSi_{(7-3x)/4}N_3:Eu^{2+}$ Phosphors
B. Lee, W. Park, J. Park, and K. Sohn

2353 (La,Gd)PO_4:Tb Phosphors Synthesized by Ultrasonic Spray Pyrolysis for Plasma Display Panel Applications
K. Park, M. Heo, and K. Kim

2354 A Tunable Emission Prepared by Novel Photo-Induced Color-Change Materials of Blue Polymer Light-Emitting Diodes
W. Liu and W. Huang

2355 PL and EL Characteristics in Bi- and Rare Earth-Co-Doped $(La_{1-X}Ga_X)_2O_3$ Phosphor Thin Films Prepared by Magnetron Sputtering
T. Minami, J. Nomoto, Y. Nishi, and T. Miyata

2356 Combustion Synthesis and Photoluminescence Characteristics of $SrY_{1.7}B_{0.3}O_4$:Eu Nanoparticles
S. Khatkar and M. Kumar

2357 High Efficiency of Organic Color Thin Films
W. Liu and W. Huang

2358 Pulsed Laser Ablation in Liquid: An Efficient Screening Tool for Luminescent Nanoparticles
M. Diouf, C. Mancini, D. Amans, F. Chaput, G. Ledoux, and C. Dujardin

2359 Synthesis of $SrCaSi_5N_8:Eu^{2+}$ by Carbothermal Reaction Method
H. Chae and C. Kim

2360 From 20 Hz to Hundreds of Electron Volts: Band Structure, New Materials, and Applications of Rare Earth Ions to Optical Signal Processing, Quantum Information Science, and Lasers
R. Cone, C. Thiel, R. Macfarlane, Y. Sun, and T. Böttger

2361 Two-Photon Pumped Solid State Random Laser
J. Fernandez, S. Garcia-Revilla, I. Sola, R. Balda, L. Roso, D. Levy, and M. Zayat

2362 NASA Lasers Monitor the Health of Planet Earth
N. Barnes

2363 Transparent Ceramics for Future Laser Induced Fusion Energy
T. Soules

2364 (2010 LDM Centennial Award) Band Gap Luminescence from Nanometer Thick Si/SiO_2 Quantum Wells
D. Lockwood

2365 Nitride-Based Phosphor Materials: Science and Applications
H. Hintzen

2366 Temperature Dependence of Band Edge Emission of AlGaN Epilayers for UVC-Emitting Light Emitting Diodes
M. Hannah, K. Mishra, J. Laski, Q. Fareed, and A. Khan

2367 Novel Solution Synthesis of White LED Phosphors by Microreaction Method
H. Okura, T. Murakawa, Y. Miyamoto, and K. Ohmi

2368 Synthesis and Luminescence Properties of Green Oxynitride Phosphor
D. Porob, S. Manepalli, P. Nammalwar, and A. Setlur