

Table of Contents

Batteries and Energy Storage

- Performance Characteristics of Cathode Materials for Lithium-Ion Batteries: A Monte Carlo Strategy**
S. Harinipriya, V. D. Divakar, V. R. Subramanian A875
- Raman and FTIR Spectroscopy Investigations of Carbon-Coated Li_xFePO_4 Materials**
M. Maccario, L. Croguennec, B. Desbat, M. Couzi, F. Le Cras, L. Servant A879
- Effects of Various Conductive Additive and Polymeric Binder Contents on the Performance of a Lithium-Ion Composite Cathode**
G. Liu, H. Zbeng, S. Kim, Y. Deng, A. M. Minor, X. Song, V. S. Battaglia A887
- Analytical Expression for the Impedance Response for a Lithium-Ion Cell**
G. Sikba, R. E. White A893
- Multilayered Cobalt Oxide Platelets for Negative Electrode Material of a Lithium-Ion Battery**
W. Yao, J. Yang, J. Wang, Y. Nuli A903
- Hydrothermal Synthesis of Carbon-Coated LiFePO_4 and Its Application to Lithium Polymer Battery**
H. Nakano, K. Dokko, S. Koizumi, H. Tannai, K. Kanamura A909
- Superionic Conductivity in a Lithium Aluminum Germanium Phosphate Glass-Ceramic**
J. S. Thokchom, N. Gupta, B. Kumar A915
- Comparison of Thermal Stability Between Lithiated $\text{Sn}_{30}\text{Co}_{30}\text{C}_{40}$, LiSi , or $\text{Li}_{0.81}\text{C}_6$ and 1 M LiPF_6 EC:DEC Electrolyte at High Temperature**
F. Zhou, X. Zhao, P. P. Ferguson, J. S. Thorne, R. A. Dunlap, J. R. Dahn A921
- Electrochemical Deposition of Porous $\text{Co}(\text{OH})_2$ Nanoflake Films on Stainless Steel Mesh for Flexible Supercapacitors**
S.-L. Chou, J.-Z. Wang, H.-K. Liu, S.-X. Dou A926
- Performance of Electric Double-Layer Capacitor with Vertically Aligned MWCNT Sheet Electrodes Prepared by Transfer Methodology**
Y. Honda, T. Haramoto, M. Takeshige, H. Shiozaki, T. Kitamura, K. Yoshikawa, M. Ishikawa A930
- Structural Analysis by Synchrotron XRD and XAFS for Manganese-Substituted α - and β -Type Nickel Hydroxide Electrode**
M. Morisbita, S. Ochiai, T. Kakeya, T. Ozaki, Y. Kawabe, M. Watada, S. Tanase, T. Sakai A936
- Influence of the Electrolyte Alkaline Ions on the Efficiency of the $\text{Na}_{0.6}\text{CoO}_2$ Conductive Additive in Ni-MH Cells**
M. Douin, L. Guerlou-Demourgues, L. Goubault, P. Bernard, C. Delmas A945
- Effects of Metal Ions on the Structural and Thermal Stabilities of $\text{Li}[\text{Ni}_{1-x-y}\text{Co}_x\text{Mn}_y]\text{O}_2$ ($x + y \leq 0.5$) Studied by In Situ High Temperature XRD**
H. Bang, D.-H. Kim, Y. C. Bae, J. Prakash, Y.-K. Sun A952
- Evaluating LiBOB/Lactone Electrolytes in Large-Format Lithium-Ion Cells Based on Nickelate and Iron Phosphate**
K. Xu, B. Deveney, K. Nechev, Y. Lam, T. R. Jow A959
- Li/Polymer Electrolyte/Water Stable Lithium-Conducting Glass Ceramics Composite for Lithium-Air Secondary Batteries with an Aqueous Electrolyte**
T. Zhang, N. Imanishi, S. Hasegawa, A. Hirano, J. Xie, Y. Takeda, O. Yamamoto, N. Sammes A965
- High-Voltage Asymmetric Electrochemical Capacitor Based on Polyfluorene Nanocomposite and Activated Carbon**
K. Machida, S. Suematsu, S. Ishimoto, K. Tamamitsu A970



Editor

Daniel Scherson
Case Western Reserve University
Cleveland, Ohio 44106

Associate Editors

- Cor L. Claeys**
IMEC
B-3001 Leuven, Belgium
- Takayuki Homma**
Waseda University
Tokyo, Japan
- Charles L. Hussey**
University of Mississippi
University, Mississippi 38677, USA
- Yue Kuo**
Texas A&M University
College Station, Texas 77843, USA
- Dolf Landheer**
National Research Council – Canada
Ottawa, Ontario, Canada
- Mark E. Orazem**
University of Florida
Gainesville, Florida 32611, USA
- Ashok K. Shukla**
Indian Institute of Science
Bangalore, Karnataka 560 012 India
- Martin Winter**
University of Münster
Münster, Germany

Editorial Board

- | | |
|-----------------|-------------------|
| Doron Aurbach | Jennifer Bardwell |
| Cor Claeys | Andrew Gewirth |
| Dennis Hess | Takayuki Homma |
| Charles Hussey | Yue Kuo |
| Dolf Landheer | Mark E. Orazem |
| Daniel Scherson | Ashok K. Shukla |
| Martin Winter | |

Publications Staff

- Annie Goedkoop, *Director of Publications*
- | | |
|----------------|--------------------|
| Dinia Agrawala | Anne L. Clementson |
| Paul Cooper | Andrea L. Guenzel |
| John Lewis | Beth Anne Stuebe |

Publication Committee

- Subhash Singhal, *Chairman*
- | | |
|----------------------|------------------------|
| Timothy R. Armstrong | Scott Calabrese Barton |
| Dennis Hess | Andrew Hoff |
| Michael J. Kelly | Johna Leddy |
| Randy Leising | Stephen Lipka |
| Yunny Meas | Daniel Scherson |
| Krishnan Rajeshwar | Steven Visco |
| Jennifer Wang | John Weidner |
| Mark Williams | |

The Electrochemical Society (ECS) is an educational, nonprofit 501(c)(3) organization with more than 8000 scientists and engineers in over 75 countries world-wide who hold individual membership. Founded in 1902, ECS has a long tradition in advancing the theory and practice of electrochemical and solid-state science by dissemination of information through its publications and international meetings.

The *Journal of The Electrochemical Society* (*J. Electrochem. Soc.*) (USPS 284-140) (ISSN 0013-4651) is published monthly by The Electrochemical Society, 65 South Main Street, Pennington, NJ 08534-2839, USA, at Cummings Printing Co., 4 Peters Brook Drive, PO Box 16495, Hooksett, NH 03106-6495, USA. Periodicals postage paid at Pennington, New Jersey, USA and at additional mailing offices. POSTMASTER: Send address changes to: The Electrochemical Society, 65 South Main Street, Pennington, NJ 08534-2839, USA. Canada Post: Publications Mail Agreement #40612608 Canada Returns to be sent to Bleuchip International, P.O. Box 25542, London, ON N6C 6B2.

© Copyright 2008 by The Electrochemical Society, Inc.

Publication Information

ECS Members: Access to the online edition of the current volume plus the entire online archive of the Journal is available to ECS members as part of their ECS Member Article Pack. The paper edition of the current volume is available to the members at an additional charge. Annual dues: \$98 for Active Members and \$18 for Student Members.

Subscriptions: Rates and packages vary. Send inquiries to Corey Eberhart, Global Sales Manager, ECS, 65 South Main Street, Pennington, New Jersey, 08534-2839, USA. Tel.: 609.647.3616; Fax: 609.737.2743; E-mail: corey.eberhart@electrochem.org. Visit the ECS website for more information.

Address: The address for the Executive Offices and Editorial Department of the Journal is: The Electrochemical Society, 65 South Main Street, Pennington, New Jersey, 08534-2839, USA. Tel.: 609.737.1902; Fax: 609.737.2743; E-mail: ecs@electrochem.org; Web: www.electrochem.org.

The address of the Circulation Department for ECS members is: 65 South Main Street, Pennington, New Jersey, 08534-2839, USA.

The address for the nonmembers' Circulation Department is: American Institute of Physics, P.O. Box 503284, St. Louis, MO 63150-2839, USA.

Manuscripts: Manuscripts are accepted for publication by the *Journal* with the understanding that they are unpublished, original works that have not been submitted elsewhere while under consideration by the *Journal* Editorial Board. See the "Instructions to Authors," which can be found in this issue. To help offset publication costs, a payment of \$80 per printed page is required. A discount is given if at least one author is a Society member at the time of a paper's submission.

Permission to Re-publish: The *Journal* is a copyrighted publication, and manuscripts submitted to the *Journal* become the property of ECS. Permission to re-publish parts of papers in the *Journal* is granted to current periodicals, provided due credit is given and that not more than one-sixth of any one paper is used in derivative works. Reproduction or replication of more than one-sixth of a paper is forbidden and illegal unless prior written authorization is obtained from ECS, along with permission from the author. Please use the Permission Request Form on the ECS Website (www.electrochem.org).

Permission to Reproduce: Reprographic copying beyond that permitted by the fair use provisions of the Copyright Act of 1976 is granted to libraries and other users registered with the Copyright Clearance Center provided that the fee (CCC Code 0013-465 1/97) is paid directly to: Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA; Tel: 978.750.8400; Fax: 978.750.4744; E-mail: info@copyright.com. Copying for other than internal or personal use without the express written permission of ECS is prohibited; please use the Permission Request Form on the ECS website (www.electrochem.org).

Article Copies: Single copies of articles are available from ECS to members at \$18.40 (US) per article, and to nonmembers at \$23 (US) per article. Orders may be placed via the ECS website.

Single Issues: ECS has available for sale a limited inventory of single issues of the *Journal*. Contact the ECS Circulation Department for more information. Positive microfilm copies of issues may also be obtained from ProQuest Information and Learning, 300 North Zeeb Road, Ann Arbor, MI 48106, USA; Tel.: USA and Canada: 800.248.0360; all other countries 415.433.5500; Fax: 415.433.0100; E-mail: orders@infostore.com.

Claims: All claims for missing issues should be reported within 60 days of normal delivery date, and should be directed to the Circulation Department at the address given above.

Address Changes: Notice of a change in address should be sent to the Circulation Department at the address given above.

Notice: Statements and opinions given in articles and papers in the *Journal of The Electrochemical Society* are those of the contributors, and The Electrochemical Society, assumes no responsibility for them.

Online Edition: Full-text articles are available either through ECS membership, an institutional subscription, or by purchase, for all issues from 1948 (Vol. 93) and forward. The online edition is available at:

<http://www.ecsd.org/JES/>

Impact of Rare Earth Additions on Transition Metal Oxides as Negative Electrodes for Lithium-Ion Batteries

J. Li, H. M. Dahn, R. J. Sanderson, A. D. W. Todd, J. R. Dahn A975

Electrochemical Performances of the Ballmilled Pr₅Mg₄₁ Alloy with Ni Powders as Anode Materials of Ni-MH Batteries

Y. Wang, X. Wang A982

An Electrical Circuit for Modeling the Dynamic Response of Li-Ion Polymer Batteries

P. L. Moss, G. Au, E. J. Plichta, J. P. Zheng A986

Fuel Cells and Energy Conversion

Chlorine Poisoning of SOFC Ni-Cermet Anodes

K. Haga, Y. Shiratori, K. Ito, K. Sasaki B1233

Enhancement of Solid Oxide Fuel Cell Performance by La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-δ} Double-Layer Cathode

C.-S. Hsu, B.-H. Huang, Y. Xie, X. Zhang B1240

Determination of the Reaction Zone in Gadolinia-Doped Ceria Anode for Solid Oxide Fuel Cell

T. Nakamura, K. Yasbiro, A. Kaimai, T. Otake, K. Sato, T. Kawada, J. Mizusaki B1244

Apparatus for Measurement of Protonic Conductivity of Powdered Materials as a Function of Temperature and Humidity

E. M. Garanin, Y. V. Tolmachev B1251

Molecular Analysis on Methanol Diffusion in a Model Nafion Membrane

P. Y. Chen, C. P. Chiu, C. W. Hong B1255

An Oxide Ion and Proton Co-Ion Conducting Sn_{0.9}In_{0.1}P₂O₇ Electrolyte for Intermediate-Temperature Fuel Cells

X. Chen, C. Wang, E. A. Payzant, C. Xia, D. Chu B1264

Performance Improvement of (NH₄)₂S_x-Treated III-V Compounds Multijunction Solar Cell Using Surface Treatment

L.-W. Lai, J.-T. Chen, L.-R. Lou, C.-H. Wu, C.-T. Lee B1270

Oxygen Reduction Kinetics in Nafion-Impregnated Gas Diffusion Electrode under Mixed Control Using EIS and PCT

S.-J. Lee, S.-I. Pyun B1274

Effects of Composition and Annealing Conditions on Catalytic Activities of Dealloyed Pt-Cu Nanoparticle Electrocatalysts for PEMFC

S. Kob, N. Hahn, C. Yu, P. Strasser B1281

Analysis of Reaction Rates in the Cathode Electrode of Polymer Electrolyte Fuel Cell I. Single-Layer Electrodes

Y. Wang, X. Feng B1289

Effect of the Fuel Flow Rate on the Performance of the Chip-Type SOFC Module

T. Suzuki, Y. Funabashi, T. Yamaguchi, Y. Fujishiro, M. Awano B1296

Electronic Conductivity of 10-40 mol % YO_{1.5}-Doped CeO₂

Y. Xiong, K. Yamaji, H. Kishimoto, M. E. Brito, T. Horita, H. Yokokawa B1300

Composite Nafion Membranes Containing Nanosize TiO₂/SnO₂ for Proton Exchange Membrane Fuel Cells

R. R. Abbaraju, N. Dasgupta, A. V. Virkar B1307

Oxygen Reduction Reaction on Platinum/Tantalum Oxide Electrocatalysts for PEM Fuel Cells

O. A. Baturina, Y. Garsany, T. J. Zega, R. M. Stroud, T. Schull, K. E. Swider-Lyons B1314

High Fuel Concentration Direct-Liquid Fuel Cell with a Redox Couple Cathode

A. B. Ilicic, D. P. Wilkinson, K. Fatih, F. Girard B1322

Corrosion, Passivation, and Anodic Films

- Anodic Film Formation on Aluminum in Nitric Acid**
E. V. Koroleva, T. Hasbimoto, G. E. Thompson, P. Skeldon C557
- Aqueous Corrosion Behavior of Plutonium Metal and Plutonium-Gallium Alloys Exposed to Aqueous Nitrate and Chloride Solutions**
D. G. Kolman, L. P. Colletti C565
- Aqueous Corrosion Behavior of Ce Alloys and an Assessment of Their Adequacy as Surrogates for Pu Alloys**
G. Vasquez, Jr., D. G. Kolman C571
- Kinetic Study of Formate Compounds Developed on Copper in the Presence of Formic Acid Vapor**
D. M. Bastidas, V. M. La Iglesia, E. Cano, S. Fajardo, J. M. Bastidas C578
- Influence of the Alloying Elements on Pitting Corrosion of Stainless Steels: A Modeling Approach**
B. Malki, T. Souier, B. Baroux C583

Electrochemical/Chemical Deposition and Etching

- Anomalous Scaling in Amorphous PdNiP Films Electrodeposition**
Y. Xu, X. M. Ge, B. Y. Du, C. Xu, Y. W. Wang, J. Z. Jiang D731
- Relationship Between Pack Chemistry and Growth of Silicide Coatings on Mo-TZM Alloy**
S. Majumdar, I. Sharma, I. Samajdar, P. Bhargava D734
- Electrodeposition of Co-P Films from Alkaline Electrolytes**
X. Xu, G. Zangari D742
- Through-Hole Filling by Copper Electroplating**
W.-P. Dow, H.-H. Chen, M.-Y. Yen, W.-H. Chen, K.-H. Hsu, P.-Y. Chuang, H. Isbizuka, N. Sakagawa, R. Kimizuka D750
- Au-ZnO and Pt-ZnO Films Prepared by Electrodeposition as Photocatalysts**
M.-K. Lee, H.-F. Tu D758
- Nucleation and Growth of Pulsed CVD Ru Films from Tricarbonyl[η^5 -cyclohexa-1,3-diene]ruthenium**
V. Yu. Vasilyev, K. P. Mogilnikov, Y. W. Song D763
- Influences of Metal-Precoated Layers on Pulsed Current Electrodeposition of ZnO Nanorods on Indium Tin Oxide Substrates**
J.-J. Wu, R.-C. Chang, C.-C. Lin D771
- Model-Based Analysis of Plasma Parameters and Active Species Kinetics in Cl₂/X (X = Ar, He, N₂) Inductively Coupled Plasmas**
A. Efremov, N.-K. Min, B.-G. Choi, K.-H. Baek, K.-H. Kuon D777
- Texture and Surface Morphology Development in Zinc and Zinc-Cobalt Electrodeposits**
K. Raeissi, A. Tufani, A. Saatchi, M. A. Golozar, J. A. Szpunar D783
- Defect-Free Copper Filling Using Nonisothermal Electroless Deposition with Fluorocarbon Surfactant**
Y.-H. Cbou, Y. Sung, Y.-M. Liu, N.-W. Pu, M.-D. Ger D791
- Model of Electrocodeposition Using an Unsubmerged Impinging Jet Electrode**
D. Thiemig, A. Bund, J. B. Talbot D798

Electrochemical Synthesis and Engineering

- Production of NiTi via the FFC Cambridge Process**
B. Jackson, M. Jackson, D. Dye, D. Inman, R. Daswood E171
- Electrochemical Synthesis of FePO₄ for Anodes in Rechargeable Lithium Batteries**
H.-C. Liu, W.-H. Ho, C.-F. Li, S.-K. Yen E178

Society Officers

- President*
D. Noel Buckley
University of Limerick
Limerick, Ireland
- Vice-President*
Paul Natishan
U.S. Naval Research Laboratories
Washington, DC 20375, USA
- Vice-President*
William D. Brown
University of Arkansas
Fayetteville, Arkansas 72701, USA
- Vice-President*
Esther Takeuchi
University at Buffalo
Buffalo, New York 14260, USA
- Secretary*
Johna Leddy
University of Iowa
Iowa City, Iowa 52242, USA
- Treasurer*
John R. Susko
JRS Technology
Owego, New York 13827, USA
- Executive Director*
Roque J. Calvo
The Electrochemical Society
65 South Main Street
Pennington, New Jersey 08534-2839, USA
Phone: 609 737 1902
Fax: 609 737 2743
E-mail: ecs@electrochem.org
Web: www.electrochem.org

Benefits of Membership

- **The Journal of The Electrochemical Society.** Society membership includes this top-quality, peer-reviewed monthly publication. Each issue includes some 70 or more original papers selected by a prestigious editorial board, on topics covering both electrochemical and solid-state science and technology. The electronic edition is available to members at:
<http://ecsd.org/JES/>
- **Electrochemical and Solid-State Letters.** This peer-reviewed, rapid publication electronic journal is available to members at:
<http://ecsd.org/ESL/>
- **Interface.** This quarterly publication features articles and news of general interest to those in the field.
- **Professional Development and Education.** Exchange technical ideas and advances at the Society's semi-annual international meetings or through the programs of the 19 local sections in the USA, Canada, Europe, Israel, Korea, and Japan.
- **Publications.** Stay aware of pertinent scientific advances through the Society's publications, including ECS Transactions, proceedings volumes, meeting abstracts, and monograph volumes.
- **Opportunity for Recognition.** Recognize the accomplishments of your peers through the Awards Program, which provides over two dozen ECS Awards annually.
- **Networking and Contacts.** Take advantage of the numerous opportunities to meet with your peers and expand your circle of valuable contacts.
- **Membership Directory.** Available only to members, the Directory provides easy reference to your colleagues throughout the world.
- **Money Savings.** Get exceptional discounts on all ECS publications, page charges, meetings, and short courses.

Divisions

Battery

Kuzhikalail Abraham, *Chair*
Charles R. Walk, *Vice-Chair*
Zempachi Ogumi, *Secretary*
Nancy J. Dudney, *Treasurer*
Curtis F. Holmes, *Advisor*

Corrosion

Patrik Schmuki, *Chair*
Alison Davenport, *Vice-Chair*
Douglas C. Hansen, *Secretary-Treasurer*
Gerald Frankel, *Advisor*

Dielectric Science and Technology

Durga Misra, *Chair*
Kalpathy Sundaram, *Vice-Chair*
Oana Leonte, *Secretary*
Dolf Landheer, *Treasurer*
John Flake, *Advisor*

Electrodeposition

Gery Stafford, *Chair*
Christian Bonhote, *Vice-Chair*
Hariklia Deligianni, *Secretary*
Giovanni Zangari, *Treasurer*
Cynthia Bruckner-Lea, *Advisor*

Electronics and Photonics

Albert Baca, *Chair*
Ping-Chih Chang, *First Vice-Chair*
Yue Kuo, *Second Vice-Chair*
Andrew M. Hoff, *Secretary*
Ren Fan, *Treasurer*
M. Jamal Deen, *Advisor*

Energy Technology

Karim Zaghib, *Chair*
Sundar Narayanan, *Vice-Chair*
Jean St-Pierre, *Secretary*
Jeremy P. Meyers, *Treasurer*
Ping-Chih Chang, *Advisor*

Fullerenes, Nanotubes, and Carbon Nanostructures

Dirk Guldi, *Chair*
R. Bruce Weisman, *Vice-Chair*
Jean-Francois Nierengarten, *Secretary*
Francis D'Souza, *Treasurer*
Carl F. Holmes, *Advisor*

High Temperature Materials

Eric Wuchina, *Chair*
Enrico Traversa, *Senior Vice-Chair*
Jeffrey Fergus, *Junior Vice-Chair*
Timothy Armstrong, *Secretary-Treasurer*
David Shifler, *Advisor*

Industrial Electrochemistry and Electrochemical Engineering

John Weidner, *Chair*
Vijay K. Ramani, *Vice-Chair*
Gerardine Botte, *Secretary-Treasurer*
Gerald Frankel, *Advisor*

Luminescence and Display Materials

Uwe Happek, *Chair*
Kailash Mishra, *Vice-Chair*
Holly Comanzo, *Secretary*
John Collins, *Treasurer*
Alok Srivastava, *Advisor*

Organic and Biological Electrochemistry

Isao Taniguchi, *Chair*
Albert Fry, *Vice-Chair*
James D. Burgess, *Secretary-Treasurer*
M. Jamal Deen, *Advisor*

Physical and Analytical Electrochemistry

Hugh De Long, *Chair*
Paul Trulove, *Vice-Chair*
Shelley D. Minteer, *Secretary-Treasurer*
Cynthia Bruckner-Lea, *Advisor*

Sensor

Rangachary Mukundan, *Chair*
Jing Li, *Vice-Chair*
Zoraida P. Aguilar, *Secretary*
Michael T. Carter, *Treasurer*
David Shifler, *Advisor*

Mn⁴⁺-Activated Red Photoluminescence in K₂SiF₆ Phosphor

T. Takahashi, S. Adachi E183

Optical Characteristics of Polymorphic Y_{2-x}Si₂O₇:Eu³⁺ Crystal for Lamp Application

J. M. Kim, H. J. Lee, K. P. Kim, J. S. Yoo E189

Thin-Gap Single-Pass High-Conversion Reactor for Organic Electrosynthesis

I. Model Development

S. Rode, A. Attour, F. Lapique, M. Matlosz E193

Thin-Gap Single-Pass High-Conversion Reactor for Organic Electrosynthesis

II. Application to the Anodic Methoxylation of 4-Methoxytoluene

A. Attour, S. Rode, F. Lapique, A. Ziogas, M. Matlosz E201

Physical and Analytical Electrochemistry

Transport Properties of BiVO₄-V₂O₅ Liquid-Channel Grain-Boundary Structures

S. V. Fedorov, V. V. Belousov, A. V. Vorobiev F241

Electrochemical Properties of Cation-Exchange Membranes Based on Polysulfones

E. Parcerro, F. J. Fernández-Carretero, V. Compañ, R. Herrera, L. F. del Castillo, E. Riande F245

Relation Between Morphology, Etch Rate, Surface Wetting, and Electrochemical Characteristics for Micromachined Silicon Subject to Galvanic Corrosion

D. C. Miller, C. R. Becker, C. R. Stoldt F253

Dielectric Science and Materials

Temperature Dependence of the Current Conduction Mechanisms in Sm₂O₃ Thin Films

I. Y.-K. Chang, Y.-R. Hwang, P.-C. Juan, J. Y.-M. Lee G265

HfO₂ Atomic Layer Deposition Using HfCl₄/H₂O: The First Reaction Cycle

L. Nyns, A. Delabie, M. Caymax, M. M. Heyns, S. Van Elsbocht, C. Vinckier, S. De Gendt G269

Models of Ionic Transport for Silicon-Glass Anodic Bonding

M. Fabbri, J. R. Senna G274

Conduction Mechanisms of Ta/Porous SiCOH Films under Electrical Bias

Y. Ou, Pei-I. Wang, M. He, T.-M. Lu, P. Leung, T. A. Spooner G283

Deposition of TiN and TaN by Remote Plasma ALD for Cu and Li Diffusion Barrier Applications

H. C. M. Knoops, L. Baggetto, E. Langereis, M. C. M. van de Sanden, J. H. Klootwijk, F. Roozeboom, R. A. H. Niessen, P. H. L. Notten, W. M. M. Kessels G287

High-Performance MIM Capacitors Using a High-κ TiZrO Dielectric

C. H. Cheng, H. C. Pan, S. H. Lin, H. H. Hsu, C. N. Hsiao, C. P. Chou, F. S. Yeh, A. Chin G295

Characteristics of Thin Hf-Silicate Gate Dielectrics after Remote N₂ and N₂O Plasma Post-Treatments

H. Kim, S. Kim, S. Woo, H. Y. Chung, H. Kim, J. Park, H. Jeon G299

Chemical Bonding, Interfaces, and Defects in Hafnium Oxide/Germanium Oxynitride Gate Stacks on Ge(100)

Y. Osbima, Y. Sun, D. Kuzum, T. Sugawara, K. C. Saraswat, P. Pianetta, P. C. McIntyre G304

Semiconductor Devices, Materials, and Processing

Atomic Layer Deposition of Hafnium Oxide on Ge and GaAs

Substrates: Precursors and Surface Preparation

A. Delabie, D. P. Brunco, T. Conard, P. Favia, H. Bender,
A. Franquet, S. Sioncke, W. Vandervorst, S. Van Elsbocht,
M. Heyns, M. Meuris, E. Kim, P. C. McIntyre, K. C. Saraswat,
J. M. LeBeau, J. Cagnon, S. Stemmer, W. Tsai H937

Capacitance-Voltage Characterization of GaAs-Oxide Interfaces

G. Brammertz, H. C. Lin, K. Martens, D. Mercier, C. Merckling, J. Penaud,
C. Adelman, S. Sioncke, W. E. Wang, M. Caymax, M. Meuris, M. Heyns H945

Effect of Si Content on the Barrier Property of Zr-Si as a Diffusion Barrier for Cu Metallization

Y. Wang, F. Cao, Y.-I. Liu, L. Shao H951

Comprehensive Study of GaAs MOSFETs Using Gadolinium Oxide and Praseodymium Oxide Layers

H.-C. Chiu, C.-W. Lin, C.-K. Lin, L.-B. Chang H955

Nitride-Based MSM Photodetectors with a HEMT Structure and a Low-Temperature AlGaIn Intermediate Layer

K. H. Lee, R. W. Chuang, P. C. Chang, S. J. Chang, Y. C. Wang,
C. L. Yu, J. C. Lin, S. L. Wu H959

Defect Analysis of Silicon-Silicide-on-Insulator Substrates

C. Chen, W. Liu, X. Ma, Z. Song, C. Lin H964

Self-Heating Effect Induced NBTI Degradation in Poly-Si TFTs under Dynamic Stress

C.-F. Weng, T.-C. Chang, H.-P. Hsieh, S.-C. Chen, W.-C. Hsu,
W.-C. Kuo, T.-F. Young H967

Dissolution Inhibition in Cu-CMP Using Dodecyl-Benzene-Sulfonic Acid Surfactant with Oxalic Acid and Glycine as Complexing Agents

C. V. V. S. Surisetty, P. C. Goonetilleke, D. Roy, S. V. Babu H971

Numerical and Experimental Investigation of Thermomechanical Deformation in High-Aspect-Ratio Electroplated Through-Silicon Vias

P. Dixit, S. Yaofeng, J. Miao, J. H. L. Pang, R. Chatterjee, R. R. Tummala H981

Dual Gate-Recess Structure of Metamorphic High-Electron-Mobility Transistors for Enhancing f_{max}

J.-H. Oh, M. Han, S.-W. Moon, S. Lee, I.-S. Hwang, S.-D. Kim H987

Improvement on Reliability Properties of Metal-Ferroelectric (BiFeO₃)-Insulator (HfO₂)-Semiconductor Structures

Fabricated by Oxygen-Incorporated Magnetron Sputtering

T. P.-c. Juan, J.-b. Lu, M.-w. Lu H991

Temperature-Dependent Characteristics of a Pseudomorphic High Electron Mobility Transistor with Graded Triple Delta-Doped Sheets

L.-Y. Chen, S.-Y. Cheng, T.-P. Chen, T.-H. Tsai, Y.-C. Liu, X.-D. Liao,
W.-C. Liu H995

High-Quality Thick GaN Overgrown on an Array of SiO₂ Nanomasks by HVPE

X. Wang, G. Yu, C. Lin, M. Cao, H. Lu, H. Gong, X. Li, M. Qi, A. Li H1000

Effectiveness of Ta Addition on the Performance of Ru Diffusion Barrier in Cu Metallization

C.-W. Chen, J. S. Chen, J.-S. Jeng H1003

Improving the Gate Stability of ZnO Thin-Film Transistors with Aluminum Oxide Dielectric Layers

M. S. Oh, K. Lee, J. H. Song, B. H. Lee, M. M. Sung, D. K. Huang, S. Im H1009

Sensors and Displays: Principles, Materials, and Processing

High-efficiency Red Organic Light Emitting Diodes Incorporating 1,3,5-Tris(1-pyrenyl)benzene as the Host Material

M.-Y. Chang, Y.-K. Han, C.-C. Wu, S.-C. Lin, W.-Y. Huang J345

Sections

Council of Section Officers

Venkat Srinivasan, *Chair*
Lawrence Bottomley, *Vice-Chair*
James Noel, *Secretary*
Don Gervasio, *Past-Chair*

Brazilian

Luis Frederico P. Dick, *Chair*
lfldick@ufrgs.br

Canadian

Sasha Omanovic, *Chair*
sasha.omanovic@mcgill.ca

Chicago

Giselle Sandi, *Chair*
gsandi@anl.gov

China

Ming Yang, *Chair*
myang@icspectrum.com

Cleveland

Irina Serebrennikova, *Chair*
Irina.Serebrennikova@energizer.com

Detroit

Alvaro Masias, *Chair*

European

Carmel Breslin, *Chair*

Georgia

Peter Hesketh, *Chair*
peter.hesketh@me.gatech.edu

Israel

Doron Aurbach, *Chair*
aurbach@mail.biu.ac.il

Japan

Shunri Oda, *Chair*
soda@pe.titech.ac.jp

Korea

Kwang Bum Kim, *Chair*
kbbkim@yonsei.ac.kr

Mexican

Ignacio Gonzalez, *Chair*
igm@xanum.uam.mx

Pittsburgh

Konstantin Pimenov, *Chair*
konstantinpimenov@consolenenergy.com

San Francisco

Kenneth Lux, *Chair*
ken@alttextech.com

Taiwan

Jing-Yih Cherng, *Chair*
amitajim@yahoo.com

Texas

Harovel G. Wheat, *Chair*
hwheat@mail.utexas.edu

Twin Cities

Michael Root, *Chair*
michael.root@bsci.com

Committees

Executive Committee of the Board of Directors

D. Noel Buckley, *Chair*
noel.buckley@ul.ie

Corporate Membership

E. Jennings Taylor, *Chair*
jenningsstaylor@faradaytechnology.com

Development

John R. Susko, *Chair*
jsusko@attglobal.net

Education

Hariklia Deligianni, *Chair*
lili@us.ibm.com

Finance

John R. Susko, *Chair*
jsusko@attglobal.net

Financial Policy Advisory

Ralph E. White, *Chair*
white@engr.sc.edu

Honors and Awards

Paul A. Kohl, *Chair*
paul.kohl@chbe.gatech.edu

Individual Membership

Joseph R. Stetter, *Chair*
joseph.stetter@sri.com

Nominating

Barry R. MacDougall, *Chair*
barry.macdougall@nrc.ca

Publication

Subhash C. Singhal, *Chair*
singhal@pnl.gov

Society Meeting

Johna Leedy, *Chair*
johna-leddy@uiowa.edu

Technical Affairs

William D. Brown, *Chair*
wdb@uark.edu

Tellers of Election

James A. Amick, *Chair*
jamesamick@aol.com

Ways and Means

Paul M. Natishan, *Chair*
natishan@nrl.navy.mil

Degenerate Si as an Electrode Material for Electrochemical Biosensors

Y. Huang, I. I. Suni J350

Design, Fabrication, and Impedance Characterization of a Capacitance-Based Salinity Sensor for Marine Applications

A. R. Abdur Rahman, S. Bhat, S. Bbansali J355

Effects of Hydrogen Plasma Treatment on Field-Emission Characteristics of Palladium Nanogap Emitters

C.-H. Tsai, K.-J. Chen, F.-M. Pan, H.-Y. Lo, Y. Li, M.-C. Chiang, C.-N. Mo J361

High-Color-Purity Organic Light-Emitting Diodes Incorporating a Cyanocoumarin-Derived Red Dopant Material

M.-Y. Chang, Y.-K. Han, C.-C. Wang, S.-C. Lin, Y.-J. Tsai, W.-Y. Huang J365

Flexible Liquid-Crystal Display Stabilized by Pixel Walls Directly Bonded via Ion-Beam Irradiation

Y.-H. Kim, H.-G. Park, B.-Y. Oh, B.-Y. Kim, K.-K. Paek, D.-S. Seo J371

High-Color-Purity Red Phosphor for Near-UV Light-Emitting Diodes

Z. Wang, H. Liang, Q. Zeng, M. Gong, Q. Su J375

Synthesis and Photoluminescence Properties of Sr₂Si₅N₈:Eu²⁺ Red Phosphor by a Gas-Reduction and Nitridation Method

H.-L. Li, R.-J. Xie, N. Hirotsaki, Y. Yajima J378

Nanostructured Materials, Carbon Nanotubes, and Fullerenes

Electrocodeposition of Nanocrystalline Single-Phase γ -Zn₃Ni Alloy on Composite Graphite

R. M. A. Tebrani, S. Ab Ghani K199

Growth and Characterization of Ordered PbO₂ Nanowire Arrays

R. Inguanta, S. Piazza, C. Sunseri K205

Investigation of the Characteristics of Undoped and Sn-Doped ZnO Films Prepared by an Acidic Sol

C.-J. Huang, M.-C. Chiu, H.-C. Yao, D.-C. Tsai, F.-S. Shieu K211

Interdisciplinary Topics

Oxidation of 4-(3-Indolyl)- and 4-(5-Indolyl)-1,4-dihydropyridines in Aprotic and Protic Media: Reactivity toward Alkylperoxyl Radicals

R. Salazar, P. A. Navarrete-Encina, C. Camargo, J. A. Squella, L. J. Núñez-Vergara P103

Miscellaneous

Publisher's Note: Triazine Herbicides Transfer at the Water/1,2-Dichloroethane Interface

[*J. Electrochem. Soc.*, 155, F218 (2008)]

M. Velázquez-Manzanares, J. Amador-Hernández, C. Cisneros-Cisneros, K. A. Heredia-Lezama S11