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Meeting Abstracts — MA 2013-01
223rd ECS Meeting
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- 407 The Significance of Tortuosity for the Performance of Lithium-Ion Batteries
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- 408 Thermodynamic Profiles of Li-Ion Batteries – Quantitative Relation to Anodes, Cathodes, and their Compositions
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- 409 Tortuosity Anisotropy in Lithium-Ion Battery Electrodes Studied by Synchrotron X-ray Tomography
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- 410 New Multi-Scale Approach Based On *Ac*-Electrogravimetry, for Characterizing Insertion Materials
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- 424 Improvement of Crystalline Vanadium Oxide Anode for Lithium-Ion Battery by Amorphous Vanadium Oxide
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- 425 ⁷Li MAS NMR Study of the Lithium Iron Phosphate System for Li-Ion Batteries
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- 426 Surface Modification of Cathode Active Materials with Bi-Conductive Polymer
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- 431 Study on High Energy Lithium-Ion Battery with Lithium-Rich Transition Metal Oxides
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- 434 Ab Initio Study of the Capacity Loss in Over-Lithiated Oxides Cathode Material for Li-ion Batteries
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- 438 Novel Sulfur-Tolerant Anode Catalyst for SOFC
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- 439 Surface Modification of SYT Anode for Direct Utilization of Hydrocarbon Fuel in Solid Oxide Fuel Cells
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- 440 Electrochemical Investigation of Pt Model Electrodes for Application in Polymer Electrolyte Fuel Cells (PEFCs)
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- 441 Dynamic Studies of Sulfonated Ionic Salt Composites for High Temperature Fuel Cells
N. E. De Almeida and G. R. Goward
- 442 Core/Shell Co/Fe₃O₄ Nanoparticles as an Active and Durable Catalyst for the Oxygen Reduction Reaction in Alkaline Media
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- 443 Platinum Monolayer on Au-Ni Nanoparticles Electrocatalysts for the Oxygen Reduction Reaction: The Effect of Au-Ni Nanostructures
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- 444 Synthesis and Stabilization of Intermetallic FePt Nanocatalysts with High Activity towards Oxygen Reduction
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- 445 Investigation of Highly Active PtCo Nanocatalysts by X-ray Absorption Spectroscopy and its Application towards Oxygen Reduction Reaction
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- 451 Comparison of Novel Anode Materials for the Production of Hydrogen Using CuCl/HCl Electrolyzers
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- 452 Hydrogen Generation by Electrocatalytic Reforming of Biomass-Related Compounds: Ethylene Glycol
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- 455 Hydrogen Generation from the Catalytic Hydrolysis of Sodium Borohydride Using Nanostructured Pt-Ni, Pt-Cu and Pt-Co Catalysts Supported on the Titanium Surface
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- 456 Hydrogen Generation Via Sodium Borohydride Hydrolysis Using Nanostructured Ruthenium-Nickel Catalyst Supported on the Titanium Surface
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- 457 Study of Bilayer Porous Structure for Efficient Light Absorption
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- 459 Determine the Operating Conditions to Minimize Carbon Deposition on Anode Catalyst
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- 462 Effects of Ni-Fe Additional Layer for Methane Fuel in Solid Oxide Fuel Cells
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- 468 Ni-BaZr_{0.1}Ce_{0.7}Y_{0.1}Yb_{0.1}O_{3-δ} High Flux CO₂-Tolerant Hydrogen Permeation Membrane
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- 477 Hydrogen/Iron Regenerative Fuel Cell for Grid Storage Applications
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- 478 Dynamic Modeling of Community Energy Storage for Lifetime Estimation During Islanding
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- 479 Redox Flow Battery Development For Stationary Energy Storage Applications
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- 480 Half-Cell, Steady-State Flow-Battery Experiments
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- 481 Study of the Electrochemical Behavior of High Voltage Vanadium-Metal Hydride Hybrid Semi-Flow Battery
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- 482 Numerical and Analytic Modeling of a Membraneless Hydrogen Bromine Laminar Flow Battery
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- P IC "" Kinetic Study of a Carbon Fiber Microelectrode in a Vanadium Redox Flow Battery System
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- P IC "" Diagnostics of All-Vanadium Flow Batteries Through an *In-Situ* Local Potential Distribution Measurement Technique
Q. Liu, A. Turhan, A. B. Papandrew, T. A. Zawodzinski, and M. M. Mench
- P IC "" In-Situ Electrode Kinetics Studies of an All-Vanadium Redox Flow Battery
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- 486 Nanofiltration Membranes for Vanadium Flow Battery Application
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- 487 Effects of Membrane Thickness on the Performance of Vanadium Redox Flow Batteries
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- 488 Asymmetric Performance Testing of Carbon Felt Electrodes to Identify the Limiting Electrode in Vanadium Redox Flow Batteries
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- 489 HER/HOR Catalysts for the H₂-Br₂ Fuel Cell System
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- 490 Anion Exchange Membranes for Vanadium Redox Flow Batteries
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- 491 Vanadium Redox-Flow-Battery Electrolyte Preparation with Reducing Agents
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- 492 A Symmetric Aqueous Electrolyte Prussian Blue Analogue Battery for Stationary Storage Applications
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- 494 New Bromine Complexing Agents for Bromide based Batteries
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- 500 Reduction of Irreversible Capacity Loss Via V_2O_5 Surface Coating Lithium Rich Cathode Materials
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- 505 Colloidal Synthesis of Ultrathin and High Performance Lithium Iron Phosphate Nanoplatelets
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- 527 Growth of Li₂O₂ On Carbon Cathode in a Li-Air Cell: A Self-Assembly Process
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- 528 Facile Synthesis of Cubic Spinel Cobalt Oxide/Multi-Walled Carbon Nanotube Hybrid Material as a Bifunctional Electrocatalyst for Metal-Air Batteries
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- 531 Activity of Electrosprayed Solid-Acid Nanostructures Measured by In-Situ Electrochemical Atomic Force Microscopy
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- 533 Investigation of the Electron Transfer Kinetics of the $\text{VO}^{2+}/\text{VO}_2^+$ -Reaction on Multi-Walled Carbon Nanotubes
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- 535 Ion Transport Properties in Modified P_2O_5 - SiO_2 Glassy Protonic Electrolytes
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- 536 Electrocatalyst Activity in Various Li- O_2 Battery Electrolytes
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- 537 High-Performance Sn@Carbon Nanocomposite Anode for Lithium Batteries
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- 538 Carbon Nanotube Based Sulfur Composite 3D Cathodes for Li-Sulfur Batteries
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- 540 Development of a Nanostructured Lithium-Ion 3D Battery
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- 544 Nanocarbon/Polyoxometalate Composite Electrodes for Electrochemical Capacitors
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- 545 Template-Free Electrodeposition of Freestanding MnO₂ Nanowires and Their Pseudo-Capacitive Properties
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- 546 Intense Pulsed Light (IPL)-Assisted Synthesis of Metal Oxide Nanoparticles for Supercapacitor Applications
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- 547 Performance of Metal Oxide Supercapacitor Electrodes Enhanced by Graphene
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- 548 Vertically Aligned Graphene/MnO₂ Nanosheets for Ultracapacitor Applications
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- 549 Intertwined Carbon-MnO₂ Nanowire Hybrid Nanostructure Foam for High Energy Supercapacitors
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- 551 Fabrication of MnO₂-CNT Nanocomposites Using Universal Dispersing Agents
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- 553 Influence of Nitrogen Surface Chemistry in Electric Double Layer Capacitance of Nitrogen Doped Ordered Mesoporous Carbon
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- 554 Pyrrolic-Structure Enriched Nitrogen Doped Graphene for Highly Efficient Next Generation Supercapacitors
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- 555 Carbonized Chicken Eggshell Membranes with 3D Architectures as Flexible High-Performance Electrode Materials for Supercapacitors
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- 556 Activated Carbons from Orange Peel Waste as Supercapacitor Electrodes
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- 557 Fabrication and Characterization of Electrochemical Double Layer Capacitor Using Biomass Based Activated Carbon Electrode
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- 558 Enhanced Capacitive Behavior of Activated Carbon Through Activation and/or Introduction of Redox Activity by Ammonia Treatment
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- 559 Investigation on Electrochemical Double Layer Supercapacitors using Chemically Treated Activated Charcoal Powder with Blend Polymer Gel Electrolytes
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- 564 Hybrid Supercapacitors Including a $\text{Li}_4\text{Ti}_5\text{O}_{12}$ /Activated Carbon Composite Negative Electrode
A. Dabonot, S. Mailley, P. Azaïs, P. Mailley, and E. Dagorne-Gutel
- 565 Modeling of a Laboratory Scale Electrolytic Double Layer Capacitor
G. Madabattula and S. Kumar
- 566 Aqueous Asymmetric Electrochemical Capacitors: Fundamental Design and Practical Considerations En Route to Safe, High-Performance Pulse Power
M. B. Sassin, J. W. Long, C. P. Hoag, A. N. Mansour, J. M. Wallace, and D. R. Rolison
- 567 Flexible Supercapacitor Device Based on Free-Standing Transition Metal Oxides / Reduced Graphene Oxide Hybrid Paper Electrode
A. Sumboja, C. Y. Foo, and P. S. Lee
- 568 Nanofiber-Based Electrodes for High Power Supercapacitors
C. Tran and V. Kalra
- 569 Graphene-Nickel Cobaltite Nanocomposite Asymmetrical Supercapacitor with Commercial Level Mass Loading
D. Mitlin and H. Wang
- 570 Performance Comparison of Lead-Carbon Hybrid Ultracapacitors with Substrate-Integrated and Pasted-Positive Plates
A. Banerjee, P. Suresh Kumar, M. K. Ravikumar, and A. K. Shukla

- 571 Glass Wool Material as Alternative Separator for Higher Rating Electric Double Layer Capacitor
Z. B. Ahmad Noorden, S. Sugawara, and S. Matsumoto
- 572 Metal Tetraaminophthalocyanine Polymers as Organic Supercapacitor Materials
K. Klunder and T. F. Guarr
- 573 Quantifying the Effects of Carbon Sub-Nanoporous Structures on Electrochemical Capacitance
J. N. Caguiat, C. Q. Jia, and D. W. Kirk
- 574 Effects of Temperature on Electrochemical Double Layer Capacitor Performance Using Activated Carbon Electrodes
J. E. Zuliani, M. Zereen, C. Q. Jia, and D. W. Kirk
- 575 Nickel Oxide Nanoflower Supported on Carbon for Supercapacitor Applications
B. K. H. Kim, V. Chabot, and A. Yu
- 576 Inkjet-Printed Flexible Graphene Based Supercapacitors
M. H. Ervin, L. T. Le, and W. Y. Lee
- 577 Supercapacitive Performance of Nanostructural Nitrogen Substituted TiO₂
G. Zhang Sr., Y. Jiang Sr., and Z. Xu Sr.
- 578 Development of Electrode Materials with Controlled Composition for High Energy Li-Ion Supercapacitor
J. Y. Hwang, L. D. Tsai, C. L. Li, C. H. Chao, and J. Fang
- 579 Colloidal Processing of MnO₂-Carbon Nanotube Electrodes for Electrochemical Supercapacitors
M. S. Ata and I. Zhitomirsky
- 580 Electrodeposition of Polypyrrole and Composite Electrodes for Electrochemical Supercapacitors
S. Chen and I. Zhitomirsky
- 581 Polypyrrole-Based Electrochemical Supercapacitors with High Capacitance, Rate Capability and Cycle Stability
K. Shi, Y. Zhu, and I. Zhitomirsky
- 582 The Prevention of Leakage Current In Graphene-Polyaniline-BST based Electrodes
S. Ketkar, M. Ram, A. Kumar, and A. M. Hoff

B9 - Solar Fuels 2

Energy Technology, Industrial Electrochemistry and Electrochemical Engineering, Physical and Analytical Electrochemistry

- 583 Nano-Photocatalytic Materials for Solar Fuel Production
J. Ye, S. Ouyang, H. Tong, N. Umezawa, and Z. Zou
- 584 New Catalyst for HER and CO₂ Hydrogenation for Solar Fuel Production
I. Chorkendorff
- 585 Perspectives of Solar-Driven Hydrogen Production
S. S. Mao
- 586 Improving Hematite-Based Photoelectrochemical Water Splitting by Forming Homo- and Hetero-Junctions
M. T. Mayer, C. Du, Y. Lin, and D. Wang
- 587 Controlled Nanostructures for Highly Efficient Solar Water Oxidation
J. H. Park
- 588 New Semiconductor Alloys, GaSb_xN_{1-x} for Photoelectrochemical Water Splitting: Computations and Experiments
S. Sunkara, M. Menon, J. B. Jasinski, T. G. Deutsch, K. Rajan, and M. K. Sunkara
- 589 Heterojunction-Enhanced Photocatalytic Water Oxidation Activity of Hematite
F. Meng, J. Li, and N. Wu
- 590 A Combinatorial and Distributed Search for Semiconducting Oxides that Photoelectrolyze Water
B. A. Parkinson
- 591 PV-Hybrid Electrolysers for the Photoelectrochemical Conversion of Sunlight into Hydrogen: Materials, Structures and Architectures
S. Fiechter, P. Bogdanoff, D. Stellmach, S. Brunken, and A. Ramirez
- 592 Improving Durability of III-V Based PEC Electrode: Atomistic Insight from Theory and Experiments
T. Ogitsu, W. I. Choi, B. C. Wood, D. Prendergast, T. G. Deutsch, H. Wang, J. Turner, M. G. Weir, K. E. George, D. C. Hanks, M. Blum, W. Yang, M. Baer, L. Weinhardt, and C. Heske
- 593 Maintaining pH Gradients in Solar Fuel Technologies Using Bipolar Membranes: Defining Parameters and Evaluating Materials
M. B. McDonald, S. Ardo, M. Freund, and N. S. Lewis
- 594 Photocatalytic Water-Splitting and Simultaneous Gas Segregation from Dual-Sided Photocatalytic Membrane
S. L. Rhoden, H. D. Mettee, and C. A. Linkous

- 595 Water Oxidation by Mononuclear Ru(II) Catalysts Functionalized onto Metal Oxide Surfaces
D. K. Zhong, S. Zhao, D. E. Polyansky, and E. Fujita
- 596 Biodegradation of Lignin by Laccase for Conversion of Biomass to Fuel: Analysis of Substrate Binding
G. Hong and R. Pachter
- 597 Generation of Integrated Solid-State Microelectrochemical Optoelectronic Devices by Coupling Dye-Sensitized Solar Cell and Redox Supercapacitor
P. J. Kulesza, M. Skunik, K. Grzejszczyk, N. Vlachopoulos, and A. Hagfeldt
- 598 Novel Energy Relay Dyes for High Efficiency Dye Sensitized Solar Cell via Förster Resonance Energy Transfer
M. M. Rahman and J. J. Lee
- 599 Platinized Counter Electrodes for Dye Sensitized Solar Cells Through the Redox Replacement of a Low Power Electrodeposited Lead Sacrificial Template
D. A. Wragg, K. Yliniemi, T. M. Watson, and D. A. Worsley
- 600 Monitoring the Effect of N-Heterocyclic Compound Additives in Dye Sensitized Solar Cell Electrolytes for Corrosion Inhibition
D. A. Wragg, T. M. Watson, and D. A. Worsley
- 601 An Inorganic/Organic Hybrid Coating for Low Cost Metal Mounted Dye Sensitized Solar Cells
N. Vyas, M. Carnie, C. Charbonneau, D. A. Worsley, and T. M. Watson
- 602 Low-Cost TCO Less Counter Electrodes for Dye-Sensitized Solar Cell Application
N. Vyas, D. A. Wragg, C. Charbonneau, M. Carnie, D. A. Worsley, and T. M. Watson
- 603 Photooxidation Reactions at Nanostructured Oxide Photoelectrodes
R. Solarska and J. Augustynski
- 604 Solar Conversion of CO₂ into Methanol
J. K. Kang
- 605 Photoelectrochemical Water Splitting and CO₂ Conversion for Solar Fuels
S. K. Choi, U. S. Kang, H. W. Jeong, J. J. Lee, and H. Park
- 606 Solar Fuel Production From CO₂ and H₂O by Brookite-Containing Mixed-Phase TiO₂ Photocatalysts
H. Zhao, L. Liu, and Y. Li
- 607 First Principles Investigation of the Structural-Phase and Impurity-Doping Effects On the Photocatalytic Performance of Bismuth Vanadate
K. E. Kweon and G. S. Hwang

- 608 Stress Controlled CO₂ Electrochemical Reduction on Copper
M. F. Francis
- 609 Reduction of CO₂ to Methanol in Photoelectrochemical Cell: CM-n-TiO₂/Cu
V. Palanichamy, M. Frites, M. L. Gray, and S. U. M. Khan
- 610 Measurement of Oxygen Gas Transport Resistance in Cathode Catalyst Layers of PEFC
H. Yasuda, K. Kobayashi, A. Daimaru, and M. Hori
- 611 Hydrogen Peroxide as Solar Fuel
S. Fukuzumi
- 612 Electric Characteristic Study and Characteristic Analysis for Flexible Photoelectric Thin Films and Devices
G. W. Chang, T. C. Chang, K. C. Chang, T. M. Tsai, Y. E. Syu, Y. H. Tai, M. C. Wang, T. Y. Liao, Y. C. Li, F. Y. Jian, and J. C. Jhu
- 613 Effect of Electrospun Hierarchical Mesoporous Anatase TiO₂ Nanofibers on Dye-Sensitized Solar Cells
Y. W. Chen-Yang, Y. P. Lin, S. Y. Lin, and Y. C. Lee
- 614 Fabrication and Modification of Hierarchical TiO₂ Nano-Architectures for Photocatalytic Applications
G. Lui, J. Y. Liao, M. Fowler, and A. Yu

C1 - Innovations and New Directions in Organic Electrochemistry

Organic and Biological Electrochemistry, Physical and Analytical Electrochemistry

- 615 Use of Heterotriangulene Derivative as an Electro-Reductive Mediator
S. Inagi, N. Kaihatsu, and T. Fuchigami
- 616 Design, Synthesis, and Electrochemical Properties of Cyclic 1,2-Diketones As Organic Cathode Materials for Lithium-Ion Batteries
A. Shimizu, T. Matsuo, H. Kuramoto, T. Nokami, Y. Inatomi, N. Hojo, T. Tsukagoshi, H. Yoshizawa, and J. I. Yoshida
- 617 Electrochemical Degradation of Lignin At Different Electrode Materials
D. S. Schmitt, C. Regenbrecht, and S. R. Waldvogel
- 618 Anodic C,C-Cross-Coupling Reactions: New Advances in Direct Non-Symmetric Synthesis
B. Elsler and S. R. Waldvogel
- 619 Electrochemical Generation of Aryl and Vinyl Radicals and Their Radical Cyclization Followed by Fixation of Carbon Dioxide
H. Senboku, J. Y. Michinishi, A. Katayama, and S. Hara
- 620 Electrochemical Oxidation of Amides of Type Ph₂CHCONHAr
T. Golub and J. Y. Becker

- 621 Development of Triarylamine Mediator Having Ionic-Tag and Its Application to Electrocatalytic Reaction in Ionic Liquid
T. Fuchigami and S. Inagi
- 622 [2+2] Cycloaddition Reaction for Probing the Electron Transfer Pathways
Y. Yamaguchi, Y. Okada, and K. Chiba
- 623 Catalytic Reduction of 4,4'-(2,2,2-Trichloroethane-1,1-diyl)Bis(chlorobenzene) (DDT) with Nickel(I) Salen Electrogenerated At Carbon Cathodes in Dimethylformamide
E. R. Wagoner and D. G. Peters
- 624 Cyclic Voltammetric Studies of Nitroimidazoles in DMSO in the Presence of Cysteine and Other Weak Acids. Implications for the Biological Reactivity of Nitroimidazoles
D. K. Smith, T. Andres, M. Horton, S. Avagyen, K. Javery, K. A. Ronquillo, E. Roshnaye, and H. Said
- 625 Ion Pair Formation between Organic Cations and Nitrobenzene and Nitrosobenzene Redox Species and Its Effects Upon Voltammetric Behavior
A. J. Fry
- 626 An Initial Study of Coating Nickel Salen On Gold Electrode Via Self-Assembly
D. K. Brown and C. Ji
- 627 Effect of Bases On Electrochemical Oxidation of Indoline
L. Krishnan, S. Laramie, M. Rainka, A. Peters, and G. Soloveichik
- 628 Investigations of Adiponitrile as a Solvent for Electrochemical Studies
G. T. Cheek
- 629 Electrochemical Synthesis of 3,3',5,5'-Tetramethyl-2,2'- Biphenol On a Multi-Molar Scale
S. R. Waldvogel
- 630 Electrochemical C–H/C–H Cross-Coupling of Aromatic Compounds Using Radical Cation Pools
T. Morofuji, A. Shimizu, and J. I. Yoshida
- 631 Soluble-Support-Assisted Electrochemical Reactions: Application to Anodic Disulfide Bond Formation
K. Chiba, S. Kitada, M. Takahashi, Y. Yamaguchi, and Y. Okada
- 632 Photochromic and Electrochemical characteristics of Bi-Diarylethene Molecules with Tetrathiafulvalene as Bridge Unit
Z. Shiman, Y. Lin, and Z. Fu-shi
- 633 The Electrolytic Dissociation of 1,2-Cyclopentanedicarboxylic Acids
E. Kvaratskhelia, R. Kvaratskhelia, and R. Kurtanidze
- 634 Electrochemistry of Novel Phenylene-Bridged Bispyridiniums
A. Petty II and T. F. Guarr

- 635 Evaluation of a Fungal Strain On a Microbial Fuel Cell for Wastewater Treatment with the Presence of Azo-Dye Colorants
J. E. Velez, C. Sanchez, M. C. Avendano, P. Zapata, J. Soler, M. Yepes, E. Arias, C. Correa, and S. Gonzalez
- 636 Redox Behavior of β -Amyloid-Cu²⁺ Complexes Involved in Alzheimer's Disease
L. G. Trujano-Ortiz, F. González, and L. Quintanar
- 637 Electromechanical Tissue Reconstruction: An Electrochemical Method to Reshape Cartilage
M. G. Hill, J. Kallick, J. Kissel, and B. M. Hunter
- 638 Recent Advances On Fixed Groups of Phthalocyanine Organic Sensitizer in Dye-Sensitized Solar Cells
Y. Lin, Z. Shiman, and Z. Fushi
- 639 Luminol Electrochemiluminescence for the Analysis of Active Cholesterol at Plasma Membrane in Single Mammalian Cells
D. Jiang
- 640 An Electrochemical Approach for the Detection of Modified Hemoglobins As Novel Oxygen Carriers
D. Dhar, A. J. Veloso, and K. Kerman
- 641 Calcium Phosphate Coating On Activated Carbon Fiber Cloth for Biocompatible Applications
S. Delpeux-Ouldriane, Q. Picard, J. Chancolon, S. Mikhalovski, and S. Bonnamy
- 642 Flat-Plate Microbial Fuel Cell Operation Using Different Ion-Exchange and Size-Selective Separators
S. Kazemi, M. Mohseni, K. Fatih, and H. Wang
- 643 Electro-Reduction of Dialkyl-2,4,5,7-Tetranitrofluorene-9,9-Dipropionates: Simulation
I. U. Haque and R. Azam
- 644 Electropolishing of 316L Stainless Steel for Biomedical Applications: The Influence of Potential
S. Habibzadeh and S. Omanovic

D1 - Corrosion General Session

Corrosion

- 645 Reversible Change in Surface Roughness and the Inductive Loop At Electrodes Under Corrosion Conditions
J. N. Chazalviel
- 646 EIS Response of a Contaminated Disk Electrode
K. N. Allahar, M. E. Orazem, and D. Butt

- 647 A Route to Fabricate Commercially Viable Anodic Aluminum Oxide Membranes: The Detailed Process
D. Y. Jeong, J. Kaewsuk, M. W. Kim, J. W. Ahn, J. H. Kwon, R. Soysa, and B. Subramanain
- 648 A Study for Pattern Optimization of Anodic Aluminum Oxide Composite Membranes Prepared Using Lithography Technique
J. Kaewsuk, M. W. Kim, J. W. Ahn, J. H. Kwon, R. Soysa, B. Subramanain, and D. Y. Jeong
- 649 Effect of Solvation Dynamics and Local Ordering On Chloride Ion Transport near a Passive Oxide Interface
S. K. R. S. Sankaranarayanan
- 650 The Structure of Water in Mixed Solvents
E. Gileadi
- 651 On the Nature of the Instability of the Nascent Magnesium Oxide Film: A First Principles Study
M. F. Francis and C. D. Taylor
- 652 Investigation of the Corrosion Mechanism of WE43 Mg-Alloy in a Simulated Body Fluid: The Effect of Electrolyte Renewal
M. Ascencio and S. Omanovic
- 653 Light Weight Magnesium Alloy Corrosion Studied by Scanning Electrochemical Microscopy
J. Mauzeroll, U. M. Tefashe, P. Dauphin Ducharme, D. Trinh, and J. Kish
- 654 Effect of Stannate Post-sealing Treatment on the Corrosion Characteristics of As-anodized AZ31 Mg alloy
Y. I. Choi, S. Salman, K. Kuroda, and M. Okido
- 655 Citrate Gel Conversion Coating On AZ31 Magnesium Alloys
Y. R. Chu and C. S. Lin
- 656 The Preparation of ZrO₂-Containing Oxide Layers On Mg Alloy Prepared by Two Step Plasma Electrolytic Oxidation
F. Einkhah, K. M. Lee, B. Yoo, D. H. Shin, and M. A. Faghihi-Sani
- 657 The Formation, Structure and Electrochemical Properties of Non-Chrome Pretreatment Coatings On AA2024
G. M. Swain, L. Li, B. Whitman, and K. Doran
- 658 Corrosion Protection by Trivalent Chromium Process (TCP) Coatings On Aluminum Alloys During Atmospheric Testing
L. Li and G. M. Swain

- 659 Antibacterial Properties of Three Sol-Gel Type Polymers Aluminum Alloys: Biocorrosion Protection against *Pseudomonas Aeruginosa*
M. A. Paez, N. Vejar, M. Azocar, L. Tamayo, M. Gulppi, X. Zhou, G. E. Thompson, and F. Santibañez
- 660 Screening of Novel Anti-Corrosion Coatings by Scanning Electrochemical Microscopy (SECM)
R. L. Calhoun, W. Dorriety, R. Hanrahan, and F. Lancaster
- 661 Assessing Damage Evolution in Organic Coatings Using Different Theoretical and Experimental Local or Global Electrochemical Techniques
V. Upadhyay and H. C. Lopez
- 662 Mathematical Modeling of Galvanic Cells Beneath Organic Coatings
K. N. Allahar, M. Hurley, E. Sapper, and D. Butt
- 663 Investigating the Effect of Electrolytes On the Performance of Coating Using the AC-DC-AC Method
V. Upadhyay and H. C. Lopez
- 664 The Adsorption and Corrosion Inhibition of Imidazole On Aluminum Surface in 0.5M H₂SO₄ Acid
F. Baghaei Ravari and A. Dadgarinezhad
- 665 Study On the Effect of 1-(3-nitrobenzilidene) Thiosemicarbazide On the Inhibition of Carbon Steel in Acidic Solution with Electrochemical Methods
A. Dadgarinezhad and F. Baghaei
- 666 Fe-Doped TiO₂ Nanotube Array Films for Photocathodic Protection of Stainless Steel
R. G. Du, Y. F. Zhu, J. Zhang, H. Q. Qi, L. Xu, and C. J. Lin
- 667 Investigation of Cyclohexylidenecyclohexanon Steel Corrosion Inhibitor as Surfactant
G. I. Ostapenko, P. A. Gloukhov, and A. S. Bunev
- 668 EIS Investigation of the Corrosion Resistance of Uncoated and Coated Nd-Fe-B Magnets in Pbs Solution
E. Alves Martins
- 669 Alloys Oxidation From Bi-Velocity Phase-Field Method; Drift and Kirkendall Effect in Two-Phase Zone of Ternary System
B. Wierzba, P. Wierzba, and K. Tkacz-Smiech
- 670 Corrosion Inhibition of Mild Steel by Polyaromatic Diimine Derivatives: A Theoretical and Experimental Study
M. M. Ahmida, S. Mahoney, R. Hussein, D. Northwood, and S. H. Eichhorn
- 671 Effect of Sour Environments On Corrosion Fatigue Crack Propagation in Advanced Drilling Steel
M. E. Ziomek-Moroz, J. A. Hawk, W. Collins, R. Thodla, and F. Gui

- 672 Influence of Vanadate Additive On the Properties of Cerium Conversion Coatings On AZ91 Magnesium Alloys
W. H. Lo and C. S. Lin
- 673 Aluminum Anodic Behavior Under Halogenide and Oxygen-Containing Anions Action
T. A. Minakova
- 674 Type of Local Damage of Iron Surface At Different Potential Scan Rate in Borate-Chloride Systems
N. G. Nafikova
- 675 A Study On the Field Corrosion Test of the Anti-Corrosion Steels for Flue Gas Desulfurization System
Y. R. Yoo, H. K. Sohn, J. W. Lee, J. B. Yoon, and B. H. Lee
- 676 A New Looks At Top of the Line Corrosion: A Special Case of Flow Induced Corrosion Which Is Due to Electrochemical Reactions in the Hydrodynamic Diffusion Layer
M. R. Reda
- 677 Anodic Dissolution Mechanism for Iron in Presence of Pyridine-2-Thiol in 0.1 M HCl
A. Kosari, R. Parvizi, M. Momeni, and M. H. Moayed
- 678 Investigation of Sodium Molybdate as Corrosion Inhibitor for Protection Against Chloride Ingress and Carbonation in Simulated Concrete Pore Water
Y. T. Tan, S. L. Wijesinghe, and D. J. Blackwood
- 679 The Effect of Selective Oxidation On Galvanizing and Galvannealing Reactions of Dual-Phase Steels
H. Y. Kang, K. C. Lin, and C. S. Lin
- 680 Corrosion Improvement of Oxidized Co by Using Silane Thin Films
K. Mabuchi
- 681 A Mixed Copper Corrosion Inhibition Effect of Potassium Sorbate and Benzotriazole
D. Gelman, D. Starosvetsky, and Y. Ein-Eli
- 682 Towards the Mechanism of the Accelerated Nickel Corrosion of Decorative Coatings in the Presence of Metals and Their Salts
R. Schmidt, K. O. Thiel, F. von Horsten, C. Spickermann, G. Vazhenin, N. Bäumke, P. Wachter, P. Hartmann, and H. J. Schreier
- 683 Effect Of Cold Deformation On Pitting Initiation Of 17-4PH Stainless Steel
D. Nakhaie and M. H. Moayed
- 684 Pencil Electrode Study On the Effect of Microstructure On CPT of DSS 2205
M. Naghizadeh and M. H. Moayed
- 685 Investigation On the Effect of Nitrate Ion On the Critical Pitting Temperature (CPT) of Duplex Stainless Steel Using Pencil Electrode
M. Zakeri and M. H. Moayed

- 686 Models for Environmentally Assisted Crack Growth in Ultra-High Strength Steel in Sour Environments
M. E. Ziomek-Moroz, J. A. Hawk, R. Thodla, and F. Gui
- 687 Temperature and Relative Humidity Dependence On Corrosion of 304L Stainless Steel Teardrops Exposed to CaCl₂
J. G. Duque, J. E. Narlesky, J. M. Berg, M. Hill, E. Kelly, L. Worl, and D. Veirs
- 688 Influence of Different Halide Ions On the Temperature Dependence of the Resistance of Stainless Steels to Pitting Corrosion
D. J. Blackwood
- 689 Influence of Preheat Treatment On Intergranular Corrosion of Duplex Stainless Steel 2205 in Short Time Ageing
M. Dehghanpoor, M. Naghizadeh, and M. H. Moayed
- 690 The Effect of Thermomechanical Treatment On Pitting Corrosion of 17-4PH Stainless Steel
M. Abooei Mehrizi and M. H. Moayed
- 691 A Justification On Critical Pitting Temperature (CPT) Mechanism Proposed by Salinas-Bravo and Newman Using Pencil Electrode/ Effect of Nitrate Ion Addition
M. Zakeri and M. H. Moayed
- 692 A Justification On Critical Pitting Temperature (CPT) Proposed by Salinas-Bravo and Newman / Microstructural Changes of 2205 Duplex Stainless Steel (DSS 2205) Study
M. Naghizadeh and M. H. Moayed

D2 - Corrosion in Nuclear Energy Systems: From Cradle to Grave

Corrosion

- 693 Potential Corrosion Issues and Anti-Corrosion Measures Concerning Spent Fuel Pools of Fukushima Daiichi Nuclear Power Plant
Y. Watanabe
- 694 Modelling the Redox Conditions Inside a Failed Nuclear Waste Container
L. Wu, Z. Qin, and D. Shoesmith
- 695 Corrosion in Nuclear Waste Containers
J. W. Fergus
- 696 The Corrosion of Copper Nuclear Waste Containers in Anaerobic Aqueous Sulphide Solutions
J. Chen, Z. Qin, and D. Shoesmith
- 697 Copper Corrosion in Bentonite /Saline Groundwater Solution- the Effect of the Environment and Electrode Geometry
T. Kosec, Z. Qin, A. Legat, B. Rosborg, and D. Shoesmith

- 698 Corrosion of Cold-Spray Deposited Copper Coatings On Steel Substrates
R. P. Partovi-Nia, J. Chen, D. Zagidulin, S. Ramamurthy, and D. Shoesmith
- 699 Investigation of Water Adsorption On Metal Oxide Surfaces Under Conditions Representative of PuO₂ Storage Containers
P. M. Murphy, C. Boxall, and R. J. Taylor
- 700 Corrosion Behavior of AGR Simulated Fuels – Evolution of the Fuel Surface
N. Rauff-Nisthar, C. Boxall, I. Farnan, Z. Hiezl, W. Lee, C. Perkins, and R. Wilbraham
- 701 Gamma-Radiation Induced Corrosion of Carbon Steel and Stainless Steel
K. Daub, Q. Knapp, and J. C. Wren
- 702 Pitting Potential of Zircaloy-2 in Artificial Seawater Under Gamma-Ray Irradiation
T. Motooka, A. Komatsu, T. Tsukada, and M. Yamamoto
- 703 Effect of Gamma-Irradiation On Stellite-6 Corrosion: Dependence On pH and Temperature
M. Behazin, J. J. Noel, and J. C. Wren
- 704 Nitric Acid Reduction On 316L Stainless Steel in Conditions Representative of Reprocessing
R. Woodhouse, C. Boxall, and R. Wilbraham
- 705 Effects of Oxidation States of Np On Polarization Curve of Stainless Steel in Boiling 3M-HNO₃
C. Kato, F. Ueno, M. Yamamoto, Y. Ban, G. Uchiyama, Y. Nojima, and S. Fujine
- 706 Model Passivated Carbon Electrodes for Fluorine Generation in Molten KF-2HF Electrolyte
K. S. H. Seto and B. Ikeda
- 707 Behavior of Nickel in KF-2HF Molten Salt: An Electrochemical Study
A. Fajner and B. Ikeda
- 708 Diffusion of Hydrogen Through the Walls of Carbon Steel Pipes Experiencing Flow-Accelerated Corrosion Under Hydrothermal Conditions
D. S. Mancey, J. Keyes, J. M. Smith, D. G. Webb, and M. S. L. Godin
- 709 Electrochemical Passivity of N18 Zircaloy Before and After Kinetic Transition
Y. Ling
- 710 Passivation in Non-Random Solid-Solution Alloys
D. M. Artymowicz, K. Sieradzki, and R. C. Newman
- 711 Oxide Film Formation On Alloy 600 As a Function of Potential
D. Mizzi, A. Y. Musa, S. Ramamurthy, and J. C. Wren

- 712 Challenges in Achieving Extended Lifetimes of Structural Materials in Commercial Nuclear Power Plants
P. L. Andresen
- 713 Crystallographical Characterization of IGSCC of Alloy600 in Simulated Primary Water Environment of Pressurized Water Reactor
S. Fujimoto, T. Ogawa, Y. Morita, H. Tsuchiya, Y. Mikami, and M. Mochizuki
- 714 Effect of Surface Mechanical Attrition Treatment (SMAT) On the Electrochemical Behavior and Oxide Film Composition of Alloy 600
M. Faichuk, S. Ramamurthy, J. J. Noel, and D. Shoesmith
- 715 Electrochemical Aspects of Stress Corrosion Cracking of Ni-Cr-Fe Alloys in Acid Sulfate Solutions Relevant to Nuclear Steam Generators
S. Persaud, A. G. Carcea, and R. C. Newman

E1 - Bioelectronics, Biointerfaces, and Biomedical Applications 5

Physical and Analytical Electrochemistry, Electronics and Photonics, Organic and Biological Electrochemistry, Sensor

- 716 New Approaches and Applications of Nanostructured Microfluidic Immunoarrays for Cancer Biomarker Proteins
J. F. Rusling, C. Krause, B. Otieno, and G. Bishop
- 717 Fabrication of a DNA Sensor Based on Simultaneous Electrochemical Impedance Spectroscopy and Localized Surface Plasmon Resonance
X. R. Cheng, B. Y. H. Hau, N. Li, T. Endo, and K. Kerman
- 718 Conformationally Constrained Functional Peptide Monolayers for the Controlled Display of Bioactive Carbohydrate Ligands
J. M. Kaplan, J. Shang, P. Gobbo, S. Antonello, V. Chatare, D. M. Ratner, R. B. Andrade, and F. Maran
- 719 Semi-Automated Ultrasensitive Electrochemical Microfluidic Device for Multiplexed Detection of Cancer Protein Biomarkers
B. Otieno, C. Krause, A. Latus, and J. F. Rusling
- 720 Rapid Electrochemical Detection of Cancer Biomarkers On Disposable Inkjet-Printed Au-Immunoarrays
C. Krause, B. Otieno, A. Latus, and J. F. Rusling
- 721 Material Characterization and Electrochemical Performance for All-Inkjet Organic Isfet-Based Biosensor
C. Martinez-Domingo, M. Medina-Sánchez, E. Ramon, A. Alcalde-Aragonés, S. Miserere, J. Carrabina, A. Merkoçi, and H. L. Gomes
- 722 Iridium-Ruthenium Oxide Coatings as High-Charge-Injection Neural Stimulating Electrodes
N. Ullah and S. Omanovic

- 723 Preparation and Characterization of Si-Containing Titanium Oxide Film by Micro-Arc Oxidation
S. F. Ou, F. Y. Fan, and K. L. Ou
- 724 Electron-Transfer Rates and Dioxygen Reduction Products for Electrode-Wired P450 Mutants
A. K. Udit
- 725 Implantable Biofuel Cells Operating In Vivo – towards Biomedical Devices Powered with Electricity Harvested Inside the Body
E. Katz
- 726 Enzyme Assembly Inside Nanotube Forest Films for Self-Powered Biodevices
M. Nishizawa, S. Yoshino, T. Miyake, T. Yamada, and K. Hata
- 727 Application-Oriented Investigation of Amino Acid Poisoning At Highly Porous Platinum Electrodes for Glucose Oxidation
C. Köhler, L. Bleck, and S. Kerzenmacher
- 728 Biostimulation of Grape Juice for Enhanced Bioelectricity Generation in Microbial Fuel Cells (MFCs)
N. K. R and S. Berchmans
- 729 Electrochemical Analysis of Photosystem I Films Deposited on Various Electrode Materials
G. LeBlanc, G. Chen, G. K. Jennings, and D. E. Cliffl
- 730 Electrochemical Removal of Bacteria and Biofilms Formed on Metal Substrates
M. Dargahi, Z. Hosseinidoust, N. Tufenkji, and S. Omanovic

E2 - Graphene, Ge/III-V, and Emerging Materials for Post CMOS Applications 5

Dielectric Science and Technology, Electronics and Photonics

- 731 Graphene Nanoribbon Growth and Dual-Gated Graphene Transistors
S. Sato, K. Hayashi, S. Nakaharai, and N. Yokoyama
- 732 Toward ambient-stable molecular gated graphene-FET: A donor/acceptor hybrid architecture to achieve bandgap in bilayer graphene
A. Nourbakhsh, M. Cantoro, M. M. Heyns, B. F. Sels, and S. De Gendt
- 733 Transfer-Free Bilayer Graphene FETs: Application as Memory Devices
P. J. Wessely and U. Schwalke
- 734 Rethinking High-Performance CVD Graphene Nanoelectronics on Oxidized Silicon
D. Akinwande and L. Tao
- 735 Challenges of Graphene Growth on Silicon Carbide
R. Yakimova, G. R. Yazdi, T. Iakimov, J. Eriksson, and V. Darakchieva

- 736 Growth Kinetics and Uniform Scaling-up of Graphene Synthesis
K. Celebi, M. Cole, N. Rupesinghe, P. Greenwood, L. Tao, D. Akinwande, J. Robertson, H. G. Park, and K. Teo
- 737 Carbon 1D/2D Nanoelectronics: Advances in Synthesis and Integration
J. Parker, X. Chen, L. Liyanage, A. Tang, and H. S. P. Wong
- 738 Graphene Electronics and Optoelectronics
P. Avouris
- 739 Recent Advances in Graphene RF Electronics: Opportunities
J. S. Moon, D. K. Gaskill, and P. Asbeck
- 740 Graphene Transistors for Ambipolar Mixing at Microwave Frequencies
H. Madan, M. J. Hollander, J. Robinson, and S. Datta
- 741 Graphene Based Tunable Schottky diode for High Performance Devices
H. J. Chung, H. J. Song, J. Heo, and S. Park
- 742 Effect of Gate Dielectric On Ballistic Transport of Cylindrical Carbon Nanotube MOSFET
M. S. Hossain, S. U. Z. Khan, A. Aziz, M. W. Rahman, and M. A. Arafat
- 743 Photoluminescence Efficiency of Germanium Dots Self-Assembled on Oxides
D. J. Lockwood, N. L. Rowell, E. G. Barbagiovanni, L. V. Goncharova, P. J. Simpson, I. Berbezier, G. Amiard, L. Favre, A. Ronda, M. Faustini, and D. Grosso
- 744 Tensor Evaluation of Stress Relaxation Profile in Strained SiGe Nanostructures on Si Substrate
M. Tomita, D. Kosemura, K. Usuda, and A. Ogura
- 745 Structural and Optical Properties of Si/Ge Nanowire Heterojunctions
L. Tsybeskov, H. Y. Chang, S. Mala, T. Kamins, D. J. Lockwood, and X. Wu
- 746 Stress Simulations of Si- and Ge-Channel FinFETs for the 14 nm-Node and Beyond
G. Eneman, D. P. Brunco, L. Witters, B. Vincent, P. Favia, A. Hikavy, A. De Keersgieter, J. Mitard, R. Loo, A. Veloso, O. Richard, H. Bender, W. Vandervorst, M. Caymax, N. Horiguchi, N. Collaert, and A. Thean
- 747 Ge Nanostructures in High-K Materials
P. Seidel, M. Geyer, D. Lehniger, F. Schneider, V. Klemm, and J. Heitmann
- 748 GeSn Film Deposition Using Metal Organic Chemical Vapor Deposition
K. Suda, T. Uno, T. Miyakawa, H. Machida, M. Ishikawa, H. Sudo, Y. Ohshita, and A. Ogura
- 749 Identification of Deep Levels Associated with Extended and Point Defects in GeSn Epitaxial Layers Using DLTS
S. Gupta, E. Simoen, H. Vrielinck, B. Vincent, F. Gencarelli, C. Merckling, R. Loo, and M. Heyns

- 750 Semi-Metal Nanowire Field Effect Transistors From First Principle Calculation
L. Ansari, G. Fagas, and J. C. Greer
- 751 Graphene Thermal Properties and Applications for Heat Removal in the Phase Change Materials
P. Goli and A. A. Balandin
- 752 Thermal Transport in Graphene and Graphene-based Composites
J. Hu, W. Park, X. Ruan, and Y. P. Chen
- 753 Transport in Graphene-based Nanodevices
C. Stampfer, B. Terres, J. Dauber, C. Volk, and S. Engels
- 754 Nanoelectronic Properties and Applications of Chemically Functionalized Graphene
M. C. Hersam
- 755 Theoretical Study of Silicene and Germanene
M. Houssa, E. Scalise, B. van den Broek, G. Pourtois, V. Afanas'ev, and A. Stesmans
- 756 Moiré Minibands in Graphene Heterojunctions with Hexagonal 2D Crystals
V. Fal'ko
- 757 Colloidal Quantum Dot Photodetectors
S. Hoogland and E. H. Sargent
- 758 Indirect Conversion Digital X-Ray Imager Using an Amorphous Selenium Photoconductor
S. Abbaszadeh, R. Keshavarzi, K. Wang, and K. S. Karim
- 759 ALD HfO₂ and Al₂O₃ as MIM Capacitor Dielectric for GaAs HBT Technology
J. Yota
- 760 Post Silicon Power Semiconductor Devices
K. Shenai
- 761 Scalable Production of Nanowire Arrays and Powders Using Plasmas
M. K. Sunkara and T. Nguyen
- 762 Effect of Different Patterns for Epitaxial Lift-Off Process by Finite Element Method
R. H. Horng, F. L. Wu, F. C. Liu, M. T. Lin, Y. C. Kao, D. S. Wu, and S. L. Ou
- 763 Novel Cross-Linked Ortho-Carborane and Ortho-Carborane:Y (Y=1,4-diaminobenzene, pyridine, benzene) Polymer Films: A New Class of Carborane-Based Materials with Tunable Electronic Structure
F. L. Pasquale, R. James, R. Welch, E. Echeverria, P. A. Dowben, and J. A. Kelber
- 764 Integration and Characterization of Graphene-Insulator-Graphene Junctions
T. Roy, C. Joiner, Z. R. Hesabi, and E. Vogel

- 765 Graphene Underneath Metals
A. Toriumi, K. Nagashio, T. Moriyama, and R. Ifuku
- 766 Two-Dimensional Crystals For Ubiquitous Electronics
T. Palacios
- 767 InGaSb MOSFET Channel on Metamorphic Buffer: Materials, Interfaces and Process Options
S. Oktyabrsky, A. Greene, S. Madisetti, M. Yakimov, and V. Tokranov
- 768 III-V/High-k Defects: Digs vs. Border Traps
C. Hinkle, R. Galatage, H. Dong, S. Anwar, B. Brennan, R. M. Wallace, and E. Vogel
- 769 Capacitance-Voltage Characteristics of Gate-All-Around $\text{In}_x\text{Ga}_{1-x}$ as Nanowire Transistor
Q. D. M. Khosru, S. U. Z. Khan, M. S. Hossain, F. U. Rahman, M. O. Hossen, and R. Zaman
- 770 Application of an Extended Unified Schottky-Poole-Frenkel Model to High-k Capacitor Structures Used in Analog Integrated Circuit Technology
W. S. Lau
- 771 Characteristics of Low Temperature High Quality Silicon Oxide by Plasma Enhanced Atomic Layer Deposition with In-Situ Plasma Densification Process
H. Kim, S. N. Zaretskiy, S. Shin, W. Jung, R. Hwang, C. Jeong, S. Park, H. Hwang, and I. Chung
- 772 Deep Depletion and Interface Trap Redistribution Behavior in Non-Planar Mos with Ultra-Thin Oxide Grown by Anodic Oxidation
P. H. Tseng
- 773 Effect of Composition Rate on Erbium Silicide Work Function on Different Silicon Surface Orientation
H. Tanaka, A. Teramoto, T. Motoya, S. Sugawa, and T. Ohmi
- 774 Effect of Moisture on Electrical and Reliability Characteristics for Dense and Porous Low-k Dielectrics
Y. L. Cheng, J. F. Huang, W. Y. Chang, Y. M. Chang, and J. Leu
- 775 Experimental Observation of Poole-Frenkel Saturation in an Ultrathin Tantalum Oxide Capacitor Structure
W. S. Lau
- 776 Sampling and Analysis of Boron Tribromide for Trace Metal Contaminants
P. L. Clancy, D. Cowles, P. Chitrathorn, and H. E. Gotts
- 777 Self-Rectification Resistance Switching Memory Device with Bipolar Operation Mode
G. W. Chang, T. C. Chang, Y. E. Syu, K. C. Chang, T. M. Tsai, and Y. H. Tai

- 778 Improved Characteristics of GaSb MOS Capacitors by Ozone Post Deposition Treatment
L. Zhao, Z. Tan, J. Wang, and J. Xu

E3 - Nanocrystal Embedded Dielectrics for Electronic and Photonic Devices

Dielectric Science and Technology, Electronics and Photonics, Sensor

- 779 (Invited) Fast and Slow Light-Emitting Silicon-Germanium Nanostructures
D. J. Lockwood, X. Wu, J. M. Baribeau, S. A. Mala, N. Modi, and L. Tsybeskov
- 780 (Invited) Exploring the Potential of Si and Ge Amorphous Nanostructures for Photonic Applications
R. Serna, J. Martín-Sánchez, and J. Toudert
- 781 (DS&T Thomas D. Callinan Award Presentation) Role of Hydrogen in Dielectrics for Electronics and Optoelectronics Devices
D. Misra
- 782 (Invited) Nanocrystalline Approaches to Electronic Materials Using Subsecond Thermal Processing
W. Skorupa
- 783 (Invited) High Sensitivity Optical Characterization of Thin Films with Embedded Si Nanocrystals
P. Petrik and E. Agocs
- 784 (Invited) Multifunctional Materials for Electronics and Photonics
F. Rosei
- 785 New mechanism for incline crystal growth and carrier path transition in extremely highly doped polymorphous silicon thin film formed by neutral beam assisted CVD process near room temperature
J. N. Jang, D. H. Lee, H. W. So, C. S. Park, H. H. Park, and M. Hong
- 786 Colloidal Quantum Dot Solids for Photovoltaics: Doping Control and New Device Architectures
D. Zhitomirsky, H. Liu, J. Tang, S. Hoogland, O. Voznyy, X. Wang, M. Furukawa, L. Levina, P. Stadler, Z. Ning, I. Kramer, and E. H. Sargent
- 787 (Invited) Quantum Dot Nanocrystals for Renewable Energy and Optical Applications
M. Z. Hu
- 788 Thermally Activated Emission From Direct Bandgap-like Silicon Quantum Dots
K. Dohnalova, S. Saeed, A. N. Poddubny, A. A. Prokofiev, and T. Gregorkiewicz
- 789 (Invited) On the Origin of the Step-Like Quantum Yield of Si-Nanocrystals: MEG or Efficient Exciton Generation Via Critical Points in C-si
M. P. Halsall, I. F. Crowe, T. Peaker, M. Shah, A. Kenyon, O. Hulko, A. P. Knights, P. Yang, and R. Gwilliam

- 790 (Invited) Er Doped-Si Nanostructures Coupled with Photonic Crystals for High Enhancement of Light Extraction
M. Miritello, R. Lo Savio, M. Galli, A. Irrera, F. Iacona, G. Franzò, L. C. Andreani, L. O. Faolain, T. Krauss, and F. Priolo
- 791 (Invited) Optimizing Er-Doped Layer Stacks for Integrated Light Emitting Devices
B. Garrido, J. M. Ramirez, F. Peiro, S. Estrade, J. M. Rebled, Y. Berencen, L. Lopez-Conesa, and A. Eljarrat
- 792 (Invited) Rare Earth Sensitization in Si-Based Structures for Photonic Applications
F. Gourbilleau, C. H. Liang, Y. T. An, A. Fafin, J. Cardin, L. Khomenkova, C. Labbé, M. Morales, and C. Dufour
- 793 (Invited) Doping Silicon Dielectrics with Silicon, Cerium and Oxygen Via Ion Implantation
A. P. Knights, R. M. Savidge, M. P. Halsall, and I. F. Crowe
- 794 (Invited) N- and p-type Impurity Co-Doped and Compensated Silicon Nanocrystals in Silicate and in Solution
M. Fujii
- 795 (Invited) Optical and Magnetic Properties of Defective MgO Microcrystals
T. Uchino
- 796 (Invited) Ballistic Electron Effects in Nanosilicon and Their Applications
N. Koshida, N. I. Ikegami, A. Kojima, R. Mentek, and B. Gelloz
- 797 (Invited) Plasmonic Nanoantennas for Nanoscale Interactions with Quantum Dot Emitters
T. Roschuk and S. A. Maier
- 798 (Invited) Ultraviolet and Long-Lived Blue Luminescence of Oxidized Porous Silicon
B. Gelloz, R. Mentek, and N. Koshida
- 799 Spectral Engineering Through Down Shifting by Silicon Nanocrystals to Improve Conventional Silicon Solar Cell Efficiency
F. Ghods, J. Sacks, J. Wojcik, R. N. Kleiman, and P. Mascher
- 800 Controlling Actively Q-Switched Laser Output by Nonlinear State Feedback
M. Thitsa and W. S. Gray
- 801 Characteristics of Fluorine-Doped Tin Oxide as a Transparent Heater on PET Prepared by ECR-MOCVD
C. Hudaya, J. H. Park, W. Choi, and J. K. Lee
- 802 (Invited) Resistive Switching in Silicon Oxide Containing Silicon Nanoinclusions
A. Kenyon and A. Mehonic
- 803 (Invited) Understanding the Role of Dopants in Transition Metal Oxide Dielectrics for Digital and Analog Resistive Switching
R. Jha, B. Long, S. Mandal, Y. Li, W. Chen, and A. El-Amin

- 804 (Invited) Nanocrystals Embedded High-k Nonvolatile Memories – Bulk Film and Nanocrystal Material Effects
Y. Kuo
- 805 Improved Performance of Silicon Nanocrystal Memories for Application Working Over a Wide Range of Temperature
V. Della Marca, J. Amouroux, G. Molas, J. Postel-Pellerin, F. Lalande, P. Boivin, and J. L. Ogier
- 806 (Invited) Electrical Conductivity Bistability in Nano-Composite
S. Paul, Z. Al Halafi, I. Salaoru, D. Prime, and M. A. Green
- 807 Field-Effect Transistors, Memory, and Logic Circuit Using DNA-Bases Embedded Dielectrics
J. Lee, J. S. Kim, J. H. Park, Y. T. Lee, H. S. Lee, P. J. Jeon, and S. Im

E4 - Organic Semiconductor Materials, Devices, and Processing 4

Electronics and Photonics, Dielectric Science and Technology

- 808 Ring Fusion and Heteroatom Effects in Low Band Gap Conjugated Polymers for OFET Applications
M. Heeney
- 809 Modification of Pentacene Thin Films with Benzene-1,4-Diboronic Acid in Supercritical Carbon Dioxide
T. T. Ngo, C. A. Lambert, B. Dorren, and R. D. George
- 810 Scanning Droplet Cell Microscopy for Electrochemical Characterization of Semiconducting Polymers
J. Gasiorowski, A. I. Mardare, J. Kollender, N. S. Sariciftci, and A. Hassel
- 811 Push-Pull Based Novel π -Functional Polymeric Semiconductors for Printed Flexible Electronics
P. M. Sonar and A. Dodabalapur
- 812 High Performance Organic Field-Effect Transistors – From Single Crystal Devices to Large-Area Electronics
O. D. Jurchescu, P. J. Diemer, K. P. Goetz, Y. Mei, J. W. Ward, and J. E. Anthony
- 813 Tuning the Packing Motifs of Contorted Hexabenzocoronene Thin Films by Post-Deposition Processing
A. M. Hiszpanski, M. Bruzek, A. R. Woll, J. E. Anthony, and Y. L. Loo
- 814 Charge Carrier Transport in Advanced DPP Based Polymer Thin-Film Transistors
A. Dodabalapur, T. Ha, and P. M. Sonar

- 815 Characterization of Stable Aqueous Dispersions of Polypyrrole Nanospheres Synthesized Using Ozone Oxidation
V. J. Gelling and A. Suryawanshi
- 816 Design and Development of Flexible Organic Devices for Integration in High Efficient Circuitry
M. Raja
- 817 Influence of Au Nanoparticles On NOMFET for Application of Cancer Stem Cell Bio-Sensor
K. C. Kwon, H. M. Seung, J. D. Lee, J. S. Lee, D. H. Yang, D. H. Park, J. P. Hong, and J. G. Park
- 818 Toward Fully Plastic Batteries: Electroactive Polymer-Carbon Composite Electrodes for Rechargeable Batteries
B. Esat, S. Bahceci, and M. Aydin
- 819 High Performance Organic Electronic Devices Using Carbon Nanotube Electrodes
S. I. Khondaker, B. Sarker, and N. Kang
- 820 Novel Photo-Stable Small-Molecule Based Organic Thin-Film Transistors Coupled with Pentacene Devices
S. Im
- 821 Polymeric Thin-Film Transistors and Microfluidics for Sensing Applications
M. J. Deen
- 822 Shaping Template-Assisted Organic Nanowires
S. Melinte
- 823 Electron Spin Transport Facilitated by a Low Work Function Metal in Alq₃
H. J. Jang, K. P. Pernstich, J. Ahn, L. Richter, D. J. Gundlach, J. J. Kopanski, O. D. Jurchescu, and C. A. Richter
- 824 Precise Parameter Extraction for Organic Thin-Film Transistors Operating in the Linear Regime
O. Marinov, C. Feng, and M. J. Deen
- 825 Modeling of Charge Injection in Organic/Polymeric Diodes
J. A. Jiménez Tejada, P. López Varo, K. M. Awawdeh, and M. J. Deen
- 826 Compact Capacitance Model for OTFTs from Low to Medium Frequencies
A. Castro-Carranza, M. Estrada, B. Iñiguez, A. Cerdeira, F. Ulloa, J. C. Nolasco, J. Sánchez, L. F. Marsal, and J. Pallares
- 827 Charge Transport and Molecular Order in Semiconducting Polymers
M. Chabiny, J. Cochran, A. Glauddell, and R. Schlitz
- 828 Analysis of Bias-Stress-Induced Charge Trap in Organic Transistors
K. Cho

- 829 Using Mechanical Deformation to Elucidate Structure-Property Relationships in Polymer Semiconductors
B. T. O'Connor
- 830 A Study on Gamma Radiation Effects on OTFT
R. Picos, E. Garcia-Moreno, and M. Estrada
- 831 Inkjet-Printed Organic Electronics: Operational Stability and Reliability Issues
C. Martinez-Domingo, M. C. R. Medeiros, E. Sowade, E. Ramon, K. Y. Mitra, H. L. Gomes, and R. R. Baumann
- 832 Development of Novel Low-Bandgap Conjugated Materials for Organic Solar Cells
J. Lu, T. Y. Chu, S. Alem, R. Movileanu, M. Leclerc, and Y. Tao
- 833 Counting the Winding Interface in Bulk Hetero-Junctions of Organic Solar Cells
C. X. Zhao, L. L. Deng, and G. Xu
- 834 In-Situ Studies Of Organic Photovoltaic Active Layer Formation and Stability
L. Richter
- 835 Polymer Nanostructures for Nanostructured Organic Solar Cell Applications
V. S. Balderrama, J. Pallarès, J. Ferré-Borrull, and L. F. Marsal
- 836 High-Performance Normal and Inverted Polymer Solar Cells with Zwitterions As the Electron-Collection Interlayer
J. Ouyang and K. Sun
- 837 Enhanced Performance of Inverted Organic Solar Cell with Patterned Aluminum Foils Via Anodization
S. H. Tai, C. R. Ho, K. T. Tsai, P. K. Yang, D. H. Lien, Y. L. Wang, and J. H. He
- 838 High Efficiency Low Color Temperature White Organic Light-Emitting Diodes by Exciton Management
Y. L. Chang, Z. Wang, M. G. Helander, J. Qiu, and Z. Lu
- 839 Nanostructured Interfaces for High Efficiency Organic Solar Cells: Lessons and Opportunities
A. Turak
- 840 Physics of Organic Diode Operation :Application to Solar Cell and Photodiodes
R. Clerc
- 841 Loss Mechanisms in Polymer-Fullerene Solar Cells
C. Deibel, A. Foertig, and V. Dyakonov
- 842 Nanostructured Electrodes and Photoactive Layers for Efficient, Stable and Flexible Organic Photovoltaic Devices
P. Servati, B. Gholamkhass, S. Soltanian, R. Rahmadian, N. Mohseni Kiasari, Z. Jiang, F. K. Ko, J. Shen, and A. I. Aljaafari

- 843 A Cu-Based Alloyed Ohmic Contact System on Multi-Junction Solar Cell
C. H. Hsu and E. Y. Chang
- 844 Plasmonic Photoinjection Spectroscopy: Unraveling Charge Carrier Injection Directly in Organic Electronic Devices
N. Giebink and R. Dhanker
- 845 Organic Semiconductor Valence Band Alignment Determined by Internal Photoemission Spectroscopy
W. Li, X. Liang, J. Basham, T. N. Jackson, K. Xu, Q. Zhang, O. Kirillov, R. Yan, C. A. Richter, N. V. Nguyen, and D. J. Gundlach
- 846 Melanin Films as Sensing Part of Miniaturized pH Sensors: Towards the Development of Biochemical Nanosensors
M. P. Silva, N. B. Figueiredo, C. F. D. O. Graeff, and M. Mulato
- 847 Optical Capturing Kinetics of Deep Level Defects in Alq3-Based Organic Light Emitting Diodes
H. Y. Choi, D. H. Suh, D. W. Lee, D. W. Kwak, and H. Y. Cho

E5 - Silicon Compatible Materials, Processes, and Technologies for Advanced Integrated Circuits and Emerging Applications 3

Electronics and Photonics, Dielectric Science and Technology

- 848 III-V Compound Semiconductors for Scaling of Logic Transistors
S. Datta
- 849 The Past, Present and Future of High-k/Metal Gates
K. Choi, T. Ando, M. M. Frank, E. A. Cartier, V. Paruchuri, J. Iacoponi, and V. Narayanan
- 850 Investigation of Embedded Sige Source/Drain for 28nm HKMG PFET Performance Enhancement
E. M. Bazizi, A. Zaka, G. Dilliway, B. Bai, M. Wiatr, F. Benistant, and M. Horstmann
- 851 Si-Passivation of Epitaxial SiGe: Kinetics and Impact on Morphology
B. Seiss and D. Dutartre
- 852 Very Low Electron Density in Undoped Enhancement-Mode Si/SiGe Two-Dimensional Electron Gases with Thin SiGe Cap Layers
C. T. Huang, J. Y. Li, and J. C. Sturm
- 853 Evaluation of Stress Induced by Plasma Assisted ALD SiN Film
K. Nagata, M. Nagasaka, T. Yamaguchi, A. Ogura, H. Oji, J. Y. Son, I. Hirosawa, Y. Watanabe, and Y. Hirota

- 854 The Materials Integration Of Ge and $\text{In}_x\text{Ga}_{1-x}\text{As}$ on Si Template for Next Generation CMOS Applications
E. Y. Chang, S. H. Tang, and Y. C. Lin
- 855 (E&P Award Presentation) Si-SiO₂ Interface to High-K-Ge/III-V Interface: Passivation and Reliability
D. Misra
- 856 III-V/Ge CMOS Device Technologies for High Performance Logic Applications
S. Takagi, M. Yokoyama, S. H. Kim, R. Zhang, R. Suzuki, N. Taoka, and M. Takenaka
- 857 A Brief Review of Doping Issues in III-V Semiconductors
K. S. Jones, A. G. Lind, C. Hatem, S. Moffatt, and M. Ridgeway
- 858 Limiting Factors of Channel Mobility in III-V/Ge MOSFETs
S. Takagi, S. H. Kim, R. Zhang, N. Taoka, M. Yokoyama, and M. Takenaka
- 859 Strain-Enhanced Performance of Si-Nanowire FETs
M. Cassé, S. Barraud, R. Coquand, M. Koyama, D. Cooper, G. Ghibaudo, H. Iwai, and G. Reimbold
- 860 Deposited ALD SiO₂ High-k/Metal gate Interface for High Voltage Analog and I/O Devices on Next Generation Alternative Channels and FINFET Device Structures
S. Siddiqui, M. M. Chowdhury, M. Brodsky, N. Rahim, M. Dai, S. Krishnan, S. Fugardi, E. Wu, A. Chou, S. Narasimha, J. Li, K. Mcstay, B. Linder, E. Maciejewski, R. Rettmann, S. Mittl, U. Kwon, V. Narayanan, W. Henson, D. Schepis, and M. Chudzik
- 861 Three-Dimensional Dopant/Carrier Profiling
W. Vandervost, A. Schulze, A. K. Kambham, J. Mody, M. Gilbert, and P. Eyben
- 862 Defect Characterization of ALD Grown SiO₂ Films: A Systematic Approach
F. L. Pasquale, S. Swaminathan, and A. Lavoie
- 863 FinFET Patterning Process Challenges
E. Altamirano-Sánchez and N. Collaert
- 864 A Study of Polysilicon Gate Etch Uniformity in 300 Mm Silicon Wafers
W. S. Lau, P. Yang, and S. Y. Siah
- 865 Visualization of Plasma Etching Damage of Si Using Room Temperature Spectroscopic Photoluminescence
S. K. Jang Jian, C. C. Jeng, T. C. Wang, C. M. Huang, Y. L. Wang, and W. S. Yoo
- 866 On the Optimization of Ebeam Lithography Using Hydrogen Silsesquioxane (HSQ) for Innovative Self-Aligned CMOS Process
R. Coquand, S. Monfray, J. Pradelles, L. Martin, M. P. Samson, J. Bustos, S. Barraud, F. Boeuf, T. Skotnicki, G. Ghibaudo, T. Poiroux, and O. Faynot

- 867 Striation-Formation during Oxide Plasma-Etch for a 0.35um Technology
J. Meersman
- 868 Metal Gate/High- κ Dielectric Gate Stack Reliability; or How I Learned to Live with Trappy Oxides
B. P. Linder, E. A. Cartier, and S. Krishnan
- 869 Impact of Lanthanum on Positive-Bias Temperature Instability – Insight from First-Principles Simulation
C. Gu and D. S. Ang
- 870 On the Evolution of Switching Oxide Traps in the HfO₂/TiN Gate Stack Subjected to Positive- and Negative-Bias Temperature Stressing
Y. Gao, D. S. Ang, and C. J. Gu
- 871 Adjustable Switching Voltage Via Sol-Gel Derived and Ag In-Situ Doped SiO₂ Thin Films for ReRAM
Y. P. Hsiao, W. L. Yang, Y. H. Lin, Y. C. Yang, C. C. Hsu, C. L. Peng, C. H. Liao, F. T. Chin, S. H. Liu, Y. M. Chang, and L. M. Lin
- 872 On the Resistive Switching and Current Conduction Mechanisms of Amorphous LaGdO₃ Films Grown by Pulsed Laser Deposition
P. Misra, S. P. Pavunny, and R. S. Katiyar
- 873 Challenges In 3D Integration
M. Koyanagi, K. W. Lee, T. Fukushima, and T. Tanaka
- 874 InP-Si BiCMOS Heterointegration Using a Substrate Transfer Process
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- 875 Commercial CMOS-Integrated RF-MEMS
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- 877 Sharp Switching SOI Devices
S. Cristoloveanu, J. Wan, C. Le Royer, and A. Zaslavsky
- 878 Turning an SOI Into MEMS Devices for Optics and RF
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- 879 Elimination of Curvature in Microelectromechanical-System Membrane
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- 880 Atomic Scale Thickness Control of SOI Wafers for Fully Depleted Applications
W. Schwarzenbach, N. Daval, V. Barec, O. Bonnin, P. E. Acosta-Alba, C. Maddalon, A. Chibko, T. Robson, B. Y. Nguyen, and C. Maleville
- 881 Lessons Learned from Low-Frequency Noise Studies on Fully Depleted UTBOX Silicon-On-Insulator nMOSFETs
E. R. Simoen, M. Aoulaiche, S. D. dos Santos, J. A. Martino, V. Strobel, B. Cretu, J. M. Routoure, R. Carin, A. Rodriguez Luque, J. A. Jimenez Tajada, and C. Claeys
- 882 Sharp-Switching High-Current Tunneling Devices
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- 883 Impact of Dynamic Body Floating effect on Low-Energy Operation of Xct-SOI CMOS Devices with Aim of Sub-20-Nm Regime
D. Ino, Y. Omura, and D. Sato
- 884 Influence of High Temperature on UTBB SOI nMOSFETs With and Without Ground Plane
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- 885 Impact of Disturb on Retention Time in Single FBRAM Cells
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- 886 Semiconductor Film Bandgap Influence on Retention Time of UTBOX SOI 1T-FBRAM
K. R. A. Sasaki, A. Nissimoff, L. M. Almeida, M. Aoulaiche, E. Simoen, C. Claeys, and J. A. Martino
- 887 Analog Behavior of Submicron Graded-Channel SOI MOSFETs Varying Channel Length, Doping Concentration and Temperature
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- 888 Experimental Comparison between pTFET and pFinFET under Analog Operation
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- 889 Influence of 45° Substrate Rotation on the Analog Performance of Biaxially Strained Silicon SOI MuGFETs
M. A. S. de Souza, R. T. Doria, J. A. Martino, E. Simoen, C. Claeys, and M. A. Pavanello
- 890 Temperature Influence on Strained nMuGFETs after Proton Radiation
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- 891 Comparative Experimental Study between Tensile and Compressive Uniaxially Stressed nMuGFETs under X-ray Radiation Focusing on Analog Behavior
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- 892 Fin Dimension Influence on Mechanical Stressors in Triple-Gate SOI nMOSFETs
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- 893 The Generation Rate Analysis of Different S/D Junction Engineering in Scaled UTBOX 1T-DRAM
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- 894 Spin Lifetime Enhancement by Shear Strain in Thin Silicon-On-Insulator Films
D. Osintsev, V. Sverdlov, and S. Selberherr
- 895 Determination of Effective Capacitance Area for Pseudo-Transistor Based Characterization of Bare SOI Wafers by Split-C(V) Measurements
C. Fernandez, N. Rodriguez, A. Ohata, A. Diab, F. Gamiz, and S. Cristoloveanu
- 896 Tunnel FETs for Mixed-Signal System-On-Chip Applications
A. Mallik
- 897 Dopant-Free CMOS On SOI: Multi-Gate Si-Nanowire Transistors for Logic and Memory Applications
U. Schwalke, F. Wessely, and T. Krauss
- 898 Performance of Junctionless Nanowire MOSFET as a Quasi-Linear Resistor
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- 899 Operation of Lateral SOI Pin Photodiodes with Back-Gate Bias and Intrinsic Length Variation
C. Novo, R. Giacomini, A. Afzalian, and D. Flandre
- 900 Enhancement of SOI Photodiode Sensitivity by Aluminum Grating
H. Inokawa, H. Satoh, K. Kawakubo, and A. Ono

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- 901 Facts and Challenges in the Electrochemistry and Wet Surface Chemistry of Silicon
J. N. Chazalviel
- 902 From Silicon Nanowires to Innovative Silicon Nanotrees for Micro-Supercapacitors
F. Thissandier, P. Gentile, N. Pauc, T. Brousse, G. Bidan, E. Hadji, and S. Sadki
- 903 NO₂ Sensor Based on III-V Nanowire FET Devices
W. Wang, S. Guo, M. Penchev, M. Ozkan, and C. Ozkan

- 904 Characteristics Of SnSbSe (SSS) Thin Films Grown by Atomic Layer Deposition for High Performance Phase Change Random Access Memory (PCRAM)
K. Lee, S. Kang, J. Ku, K. Hong, and S. Park
- 905 Semiconductor Nanostructures for Antireflection Coatings, Transparent Contacts, Junctionless Thermoelectrics and Li-Ion Batteries
C. Glynn, M. Osiak, W. McSweeney, O. Lotty, K. Jones, H. Geaney, E. Quiroga-González, J. D. Holmes, and C. O'Dwyer
- 906 Rechargeable Li-ion battery anode of indium oxide with visible to infra-red transparency
M. Osiak, W. Khunsin, E. Armstrong, T. Kennedy, C. Sotomayor Torres, K. M. Ryan, and C. O'Dwyer
- 907 Cessation of Porous Layer Growth in n-InP Anodised in KOH
R. P. Lynch, N. Quill, C. O'Dwyer, M. Dornhege, H. H. Rotermund, and D. N. Buckley
- 908 TiO₂ Nanotubes Formed in Aqueous Media: Relationship between Morphology, Electrochemical Properties and the Photoelectrochemical Performance in Water Oxidation
P. Acevedo-Peña and I. González
- 909 Mechanism of Polyphosphazene Like Film Formation on InP in Liquid Ammonia (218 K)
C. Njel, A. M. Goncalves, D. Aureau, D. Mercier, and A. Etcheberry
- 910 Sensitization of Single Crystal Semiconductors with Dyes and Quantum Dots
B. A. Parkinson
- 911 Growth Characteristics and Dielectric Properties of ALD-Ta₂O₅ Thin Film Using TaCl₅ Precursor
C. M. Cho, S. Y. Kang, J. H. Choi, J. S. Lim, S. H. Kim, Y. Kim, C. Y. Yoo, and H. K. Kang
- 912 Changes in the Electrochemical Behavior of Silicon after Platinum Deposition and Ionic Bombardment
A. Hervier, D. Aureau, and A. Etcheberry
- 913 Preliminary Investigations of Ta Surface Chemistry in Aqueous Solutions of TeO₂, and the possible formation of TaTe₂
C. F. Tsang, Y. G. Kim, D. Gebregziabiher, and J. L. Stickney
- 914 Electroless Nickel Nucleation on Textured Silicon Substrate
H. EL Belghiti, M. Ndjeri, D. Aureau, M. Bouttemy, E. Delbos, and A. Etcheberry
- 915 The Nanoporous Metallisation of Polymer Membranes through Photocatalytically Initiated Electroless Deposition
M. A. Bromley and C. Boxall

- 916 Electroless Metallization of Silicon Using Metal Nanoparticles as Catalysts and Binding-Points
S. Yae, M. Enomoto, H. Atsushiba, A. Hasegawa, C. Okayama, N. Fukumuro, S. Sakamoto, and H. Matsuda
- 917 A Study of SiC:P Selective Epitaxial Growth by Uniform Experimental Design
Y. He, Y. Chen, G. Cai, Y. He, S. Yu, J. Wu, D. W. Zhang, C. Wang, J. Tang, G. Zhao, and S. Yang
- 918 Study of Phosphazene Like Film Formation On InP in Liquid Ammonia (218 K) by Electrochemistry and XPS Analyses
C. Njel, A. M. Goncalves, D. Mercier, D. Aureau, and A. Etcheberry

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Electronics and Photonics, Dielectric Science and Technology, Sensor

- 919 Cathodoluminescence Studies of InGaN/GaN Multiple Quantum Well Structure Grown by Metal Organic Chemical Vapor Deposition
Y. Li, F. Lu, F. Ramos, and E. B. Stokes
- 920 Manipulation of Threading Dislocation Densities Within Novel Nitride Based UV Multiple Quantum Wells
M. A. Conroy, N. Petkov, H. N. Li, T. C. Sadler, V. Zubialeovich, J. D. Holmes, and P. J. Parbrook
- 921 Confocal Microscopy and TRPL Spectroscopy Study on Spatial Variation of PL in Blue-Emitting InGaN/GaN MQWs
C. Li, E. B. Stokes, R. Hefti, P. J. Moyer, R. A. Arif, D. Byrnes, S. M. Lee, and E. Armour
- 922 A Novel Detection of Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) for HIV-1 with AlGaN/GaN High Electron Mobility Transistors
Y. W. Kang, G. Y. Lee, J. I. Chyi, C. P. Hsu, Y. R. Hsu, C. C. Huang, F. Ren, and Y. L. Wang
- 923 High Resolution Patterning of Oxide Semiconductor Transistor by Electrohydrodynamic Jet Printing
J. Choi, T. Song, S. Lee, J. H. Kim, S. Hong, H. Han, J. Kim, H. Park, Y. Jeon, and U. Paik
- 924 Low Leakage Current GaN MIS-HEMT with SiN_x Gate Insulator using N₂ Plasma Treatment
S. C. Liu, H. C. Wang, and E. Y. Chang
- 925 Thickness Dependent Electrical Characteristics of InAlN/GaN-On-Si MOSHEMTs with Y₂O₃ Gate Dielectric and Au-Free Ohmic Contact
M. K. Bera, Y. Liu, L. M. Kyaw, Y. J. Ngoo, and E. F. Chor

- 926 Gold-Free InAlN/GaN Schottky Gate HEMT On Si (111) Substrate with ZrO₂ Passivation
L. M. Kyaw, Y. Liu, M. K. Bera, Y. J. Ngoo, S. Tripathy, and E. F. Chor
- 927 Amorphous HfInZnO Thin Film Transistors for Use in Harsh Environment
S. G. Yang, J. R. Duran Retamal, P. K. Yang, D. H. Lien, and J. H. He
- 928 Temperature Dependent Instability of Drain Bias Stress in Amorphous Indium-Gallium-Zinc-Oxide Thin Film Transistors
G. W. Chang, T. C. Chang, Y. E. Syu, J. C. Jhu, K. C. Chang, T. M. Tsai, and Y. H. Tai
- 929 Strong Visible Light Emission from Zinc-Blende InGaN/GaN Pn Junction on Silicon Substrate
S. Nishimura, M. Hirai, H. Nagayoshi, and K. Terashima
- 930 Nonradiative Recombination Mechanism in Phosphor-Free GaN-Based Nanowire White Light Emitting Diodes and the effect of Ammonium Sulfide Surface Passivation
H. P. T. Nguyen, M. Dajvid, and Z. Mi
- 931 InGaN LEDs Grown on Patterned Sapphire Substrates with Modified Top-Tip Cone Shapes
H. H. Hsueh, S. L. Ou, C. Y. Cheng, D. S. Wu, and R. H. Horng
- 932 Enhanced Light Extraction of InGaN-Based Light-Emitting Diodes by ZnO Nanorod Arrays
Y. H. Hsiao and J. H. He
- 933 Electrodeposited Wide-Bandgap Semiconducting ZnO and CuSCN Thin Films and Nanowires for Interface Engineering of Polymer Solar Cells
V. Ivanova, C. Chappaz-Gillot, S. Berson, S. Sanchez, R. Salazar, B. Lechêne, D. Aldakov, V. Delaye, and S. Guillerez
- 934 Growth and Characterization of Al_{0.21}In_{0.1}Ga_{0.7}N on AlN/Sapphire Substrates by Rf-Magnetron Sputtering for Ultraviolet Light-Emitting Diodes
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- 935 Growth and Characterization of Single Crystalline Ga-doped ZnO Films by Metalorganic Chemical Vapor Deposition
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- 936 Preparation of Uniform TiO₂ Thin Films by Supercritical Carbon Dioxide
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- 937 Effect of Hot Zone Design on Heat and Fluid Flows in Kyropoulos 6-Inch Single Crystal Sapphire Growth
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- 938 Poly Crystalline CdTe PN Diode Formed by Au and Al Thermal Doping
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- 939 Metal Catalyzed Porous n-type GaN Layers: Low Resistivity Ohmic Contacting and Single-Step MgO/GaN Diode Formation
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- 940 Bifunctional Properties of ZnS:0.05Mn Nanoparticles
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- 941 Formation of an Antibacterial Oxide Film On Ti-Nb Alloy by Anodizing Oxidation
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- 942 Laccase Immobilization with Ruthenium Complex as Catalyst for Biocathode Application
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- 943 Biochemical Sensors: Comparison of the Performance of TiO₂, SnO₂:F and ITO Used as the Main Sensing Element
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- 944 Improving the Current Density and the Coulombic Efficiency by a Cascade Reaction of Glucose Oxidizing Enzymes
M. N. Zafar, M. Shao, R. Ludwig, D. Leech, W. Schuhmann, and L. Gorton
- 945 Mitochondrial Biosensor for Studies of Hypoxia and Reperfusion Damage
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- 946 Study of Mg Doping Profile in the p-Cladding Layer for High-Brightness AlGaInP-Based Light Emitting Diodes
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- 947 Simulation of Thermal Effects on Hydrogen-Terminated Diamond MOSFETs
X. Zhou, F. Williams, S. Albin, and K. B. Sundaram
- 948 Electrochemical Surface-Hydrogenation and Characterization of Nitrogen-Doped N-Type Nanocrystalline Diamond Film
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- 949 Structure-Photoluminescence Relation of Green-Red Emissive Zn₂SiO₄:Mn²⁺ Phosphor for White-Light-Emitting Diode
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- 950 Nano-Porous TiO₂ Photoanode for Higher Electrolyte Accessibility Using Microfibrillated Cellulose as a Sacrificial Template
Y. Li and L. T. Drzal
- 951 Yellow-Emissive Ca₂SiO₄:Mn²⁺ Phosphor for White-Light-Emitting Diode
S. Park, J. Kim, G. Deressa, S. Wi, J. Kim, and T. Kim

- 952 Various Schottky Contacts of AlGaIn/GaN Schottky Barrier Diodes (SBDs)
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- 953 P-Side up Thin Film AlGaInP-Based Light Emitting Diodes with Mesh Patterned Ohmic Contact
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- 954 Effect of Pressure on InAlN Films Grown by MOCVD for HEMT Application
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- 955 Surface Degradation of GaN after Thermal Processes
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- 956 RF-Sputtered HfO₂ Gate Insulator in High-Performance AlGaIn/GaN MOS-HEMTs
O. Seok, W. Ahn, M. W. Ha, and M. K. Han
- 957 Effects of Composition Ratio on Solution-Processed InGaZnO Thin-Film Transistors
J. S. Lee, S. M. Song, S. Y. Lee, Y. H. Kim, J. Y. Kwon, and M. K. Han
- 958 Development of Reclaiming Pattern Sapphire Substrates Technologies for GaN-Based LEDs
S. Y. Huang
- 959 Nanoscale Light-Harvesting Scheme on Flexible CIGS Solar Cells Using Antireflective ZnO Nanorod Arrays
Y. H. Hsiao and J. H. He
- 960 Influence of Hydroxylamine Concentration on Structural and Electrical Properties of Titanium Oxide Films
H. Ishizaki and S. Ito

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- 962 Electrodeposition of Continuous Ultrathin Layers of Nanoporous Metals on Glassy Carbon Electrodes
L. A. Bromberg, M. Kamundi, J. Xia, M. Fayette, and N. Dimitrov
- 963 Electrodeposition of Ni/SiC Nano-Composites for Environmentally-Friendly Coatings
D. Eroglu, A. Vilinska, P. Somasundaran, and A. C. West
- 964 Electrode Performance of Newly Developed Ni-W-S Deposited Alloy for Alkaline Water Electrolysis
S. Yoshihara, D. Suzuki, K. Someya, T. Kikuchi, and Y. Ishikawa

- 965 Re-Crystallization of CZTS Solar Cell Materials Prepared by Galvanostat Electro-Deposition
M. Y. Yeh, Y. J. Liao, and D. S. Wu
- 966 PEDOT Inverse Nanotube Arrays: Synthesis in TiO₂ Nanotubes
D. Kowalski and P. Schmuki
- 967 Electrodeposition of Cu₂O On TiO₂ Nanotubes: Enhanced Penetration After Plasma Cleaning
L. K. Tsui and G. Zangari
- 968 Characterization of Black Chrome Films in the Presence and Absence of Graphite Encapsulated FeCo Nanoparticles Prepared by Electrodeposition Technique for Solar Thermal Applications
B. Usmani and H. Seshadri
- 969 Banded Structure of the Electrodeposited Nanocrystalline Al-Mg Alloy Dendrites
S. S. V. Tatiparti and F. Ebrahimi
- 970 Voltammetric Study of Anodic and Cathodic Phenomena on Graphite in Cryolite-Silica Melt
S. Sokhanvaran and M. Barati
- 971 Green Process for Functional Trivalent Chromium Electroplating
M. Inman, T. Hall, E. J. Taylor, B. Griffin, R. Taylor, G. Cushnie, M. Jaworowski, and J. Bonivel
- 972 Electrodeposition of Tin From Choline Chloride Based Solvents: Influence of the Hydrogen Bond Donors
N. M. Pereira, S. Salomé, E. S. Ferreira, C. M. Pereira, and A. F. Silva
- 973 Low Temperature Electrodeposition of Crystalline Semiconductors Through an Electrochemical Liquid-Liquid-Solid Process
S. Maldonado
- 974 Electrochemical Recovery of Metals in Deep Eutectic Solvents
T. Mendes, G. Nano, and L. Magagnin
- 975 Electrodeposition of Reactive Metals and Metal Chalcogenides for Energy Generation
K. J. Stevenson, S. Murugesan, D. W. Redman, and A. Akkineni
- 976 Environmental Effects on Peel Strength between Copper and Polyimide Films
H. N. Lee, Y. S. Han, J. H. Lee, J. Y. Hur, and H. K. Lee
- 977 Noble Metal Recovering by Electroless Displacement Deposition on Silicon Powder
K. Fukuda, S. Yae, N. Fukumuro, and H. Matsuda
- 978 Fe-36Ni Alloy Sheets by Electroforming Method for Shadow Mask Application
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- 979 CU, ZN and CU-ZN Alloys Electrodeposition From Ionic Liquids
P. Fricoteaux, C. Rousse, and S. Beaufils
- 980 Mechanism and Kinetics of Hydroxyapatite Nucleation on Biodegradable Mg Alloy
Z. Grubac, K. Kolenc, M. Metikos-Hukovic, and R. Babic
- 981 Nitinol Modified by Calcium Phosphate Coatings Prepared by Sol-Gel Method and Electrodeposition
J. Katic, M. Metikos-Hukovic, and R. Babic
- 982 Electrodeposition of Niobium on Magnesium Using Green Ionic Liquids
A. Mahapatro and J. Hakim

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Electrodeposition

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M. E. Orazem, V. Vivier, and B. Tribollet
- 984 An Electrochemical Cell with Improved Flow for Uniform Current Distribution and Plating Thickness
H. Garich and E. J. Taylor
- 985 Pulsed Electrodeposition of Iron Oxide Nanoparticles for Catalytic and Advanced Electrode Materials Applications
S. Pérez-Villar, J. Carretero-Gonzalez, and C. M. Lopez
- 986 Pulse Electrodeposition of Multi-Segmented Super Invar/Au Nanowires
H. Kim, S. A. Soper, and E. J. Podlaha-Murphy
- 987 Electrodeposition of Ni-Based Alloys with an Incorporation of P, Mo and W: An Overview
S. Djokic
- 988 Pulse Electrodeposition of NiMoW Alloys
S. Sun and E. J. Podlaha-Murphy
- 989 Electrodeposited Nickel- and Nickel-Tungsten-CNT Composite Coatings
S. Hartwig and C. P. Klages
- 990 Electrodeposition of Zinc Nanoparticles in Anodic Aluminium Oxide from Ionic Liquids
M. Starykevich, Y. Nazarkina, A. Lisenkov, M. Zheludkevich, and M. Ferreira
- 991 Electrodeposition in Ionic Liquids of Metal Oxides for Electrochemical Systems
M. Tulodziecki, J. M. Tarascon, P. L. Taberna, and C. Guery
- 992 Electrochemical Formation of RE-Cu (RE=Dy, Nd) Alloys in a Molten LiCl-KCl System
H. Konishi, H. Ono, E. Takeuchi, T. Nohira, and T. Oishi

- 993 (Invited) Arresting Dendritic Growth Using Additives
A. Strickler and U. Landau
- 994 Tailoring Gold Plating for Thermal-Compression Bonding
L. Magagnin, P. L. Cavallotti, and S. Ieffa
- 995 Impact of the Applied Potential on the Copper Nucleation
*E. Delbos, H. El Belghiti, D. Mercier, J. Vigneron, M. Bouttemy,
and A. Etcheberry*
- 996 Spatially Resolved Studies of Copper Electroplating by Scanning Transmission X-Ray
Microscopy
Z. Qin, V. Lee, and A. P. Hitchcock
- 997 Absorber Thin Films of $\text{Cu}_2\text{ZnSnS}_4$ From Chemically Deposited Binary Compounds
M. R. Aragón-Silva, D. Becerra, M. T. S. Nair, and P. K. Nair
- 998 Pulse Current Electrodeposition of Nanocatalysts Using Different Waveforms for Use in
PEMFCs
S. Karimi
- 999 Electrodeposition of Cobalt-Manganese Alloy Coatings Onto Metallic SOFC Interconnects
*H. McCrabb, S. Lucatero, T. D. Hall, S. Snyder, B. Kagajwala, H. Zhang, X. Liu,
and E. J. Taylor*
- 1000 Fabrication of SERS-Active Substrates by Electrochemical and Electroless Deposition of
Metals in Macroporous Silicon
K. Artsemyeva, H. Bandarenka, A. Panarin, S. Terekhov, and V. Bondarenko
- 1001 Tungsten Hydroxide /Porous Silicon Composite Fabricated by the Liquid Phase Infiltration
M. Mizuhata, Y. Mineyama, T. Hasegawa, and H. Maki
- 1002 Pulse Electrodeposition of Natural Uranium in 2-Propanol Acidic Ionic Solution
A. M. Saliba-Silva, M. Durazzo, E. F. Urano de Carvalho, and H. G. Riella
- 1003 Preparation of High Efficiency Platinum Catalyst on Single Layer Gas Diffusion Layer for
PEMFC by Electrodeposition Method
C. C. Wu, H. F. Lee, and Y. W. Chen-Yang
- 1004 Tungsten Electrodes with Rough Surfaces and Their Electrochemical Reactivity
*I. T. Park, W. Kim, E. J. Kim, S. E. Bae, J. Y. Kim, J. W. Yeon, K. Song,
and H. C. Shin*

G1 - Advances in Low Temperature Electrolyzer and Fuel Cell Technology: In Honor of Anthony B. (Tony) LaConti

Industrial Electrochemistry and Electrochemical Engineering, Energy Technology

- 1005 (IEEE Student Achievement Award Presentation) Template Synthesis of Ni nanowire array electrodes for Urea Electrochemical Decomposition
W. Yan, D. Wang, and G. Botte
- 1006 Reactive Coaxial Electrospinning of Zr_{1-x}P_x/ZrO₂ Nanofibres
S. Subianto, A. Donnadio, M. Pica, S. Cavaliere, M. Casciola, D. J. Jones, and J. Rozière
- 1007 Improvement of Zr Oxide Based Cathode for Polymer Electrolyte Fuel Cells
K. I. Ota, S. Yin, K. Matsuzawa, S. Mitsushima, and A. Ishihara
- 1008 Oxygen Reduction Reaction Activity of Nitrogen-Doped Titanium Oxide in Acid Media
M. Chisaka, A. Ishihara, K. Suito, K. I. Ota, and H. Muramoto
- 1009 A Model for DMFC Cathode Impedance: The Effect of Virtual Anode Inside the Cathode
A. Kulikovskiy
- 1010 Electrochemical Investigation of Ceramic Carbon Electrodes for Low Humidity Fuel Cell Applications
J. I. Eastcott and E. B. Easton
- 1011 Comparative Durability Study of Pt-Based PEM Fuel Cell Catalysts Using EIS
F. S. Saleh and E. B. Easton
- 1012 Development of Megawatt Scale PEM Electrolysis: A Culmination of Cell Design and System Advancements
K. E. Ayers, E. B. Anderson, and L. C. Moulthrop
- 1013 Ruthenium Titanium Oxide (RTO) Electrocatalyst Supports Exhibit Exceptional Start-Stop Durability
G. Wang, V. K. Ramani, N. Dale, T. Han, and K. Adjemian
- 1014 Oxygen Depolarized Cathode at M-Nx-C Based Non- Noble Metal Centers for Electrocatalytic Recycling of Chlorine
U. Tylus, R. J. Allen, and S. Mukerjee
- 1015 Water Balance in Polymer-Electrolyte Fuel Cells with Counter Flowing Air and Fuel
R. M. Darling
- 1016 Hydrogen Evolution on Combustion Catalyzed Electrodes with Low Loadings for PEM Electrolyzers
J. M. Roller, K. E. Ayers, W. E. Mustain, and R. Maric
- 1017 Graphene Supported Platinum Nanowire Arrays as High Performance Electrocatalysts
R. Wang, D. C. Higgins, M. A. Hoque, D. U. Lee, and Z. Chen

- 1018 Mo₂C Derived Carbons Catalysts and/or Supports for Pt Metal and Pt-Ru Alloy Catalysts for Low Temperature Fuel Cells
K. Vaarmets, J. Nerut, and E. Lust
- 1019 Anion Exchange Polymer Electrolyte Membranes for Alkaline Fuel Cells and Water Electrolyzers
C. G. Arges, J. Parrondo, and V. K. Ramani
- 1020 Development of Durable Electrocatalysts for PEFC Through Graphitization of Carbon Support Surface
X. Zhao, A. Hayashi, Z. Noda, and K. Sasaki
- 1021 YSZ Thin Films Prepared by Spin Coating Method
E. B. Ramirez, J. C. Alonso, and L. Huerta
- 1022 Preparation of Electrocatalysts by Combining the Pechini and Microwave-Assisted Polyol Methods
F. L. D. S. Purgato, L. A. Soares, and P. Olivi
- 1023 Chemical Modification of Carbon Surfaces to Synthesize Non-Precious Metal Fuel Cell Catalysts
S. G. Mavilla, E. B. Easton, and B. J. MacLean
- 1024 Dopant-Driven Morphological Control of SnO₂ Nanofibres – From Solid to ‘Loose-tube’ Fibres
S. Subianto, S. Cavaliere, I. Savych, D. J. Jones, and J. Rozière
- 1025 ORR Kinetics Investigation of Pt/Carbon Electrocatalysts with Varying Pt Loading and Electrode Thickness by Rotating Disk Electrode
C. Wang, N. Dale, and K. Adjemian
- 1026 Hybrid Proton Conducting Membranes Based on Short Side Chain Perfluorosulfonic Acids and Organically Modified Zirconium Phosphate
A. Donnadio, M. Pica, S. Subianto, D. J. Jones, P. Cojocar, and M. Casciola

G3 - Electrochemical Engineering for the 21st Century: 3

Industrial Electrochemistry and Electrochemical Engineering, Electrodeposition

- 1027 Core-Shell Morphology and Thermal Stability of Fe/Si Composite Clusters Prepared by Double Cluster Sources
K. Sumiyama, Y. Kurokawa, S. Kadowaki, R. Katoh, N. Tanaka, T. Hihara, and Y. Fukunaka
- 1028 Spectroscopic Characterization of Electrodeposited Silicon Based Films Photoactive in Water Solution
A. N. Krywko-Cendrowska, L. Marot, M. B. Strawski, R. Steiner, E. Meyer, and M. Szklarczyk

- 1029 Electrolyte-Electrode Interface and Si Deposition in Ionic Liquid
J. Komadina, T. Akiyoshi, Y. Ishibashi, Y. Fukunaka, P. Pianetta, and T. Homma
- 1030 Comparative Studies of Depth Profiling by XPS, SIMS, GD-OES and SEM Techniques Performed on the Electrodeposited Silicon Based Films
A. N. Krywko-Cendrowska, L. Marot, L. Philippe, R. Steiner, D. Mathys, E. Meyer, and M. Szklarczyk
- 1031 Soft Magnetic Properties of Fe-Ni Clusters Assembled Films Prepared by Energetic Cluster Depositions
K. Sumiyama, K. Kumagai, Y. Kurokawa, T. Hihara, D. L. Peng, and Y. Fukunaka
- 1032 Silver Antibacterial Properties Influenced by Pulsed Electrodeposition Frequency
H. Ortiz-Ibarra, N. Casillas, S. Gómez-Salazar, and R. Torres-Vitela
- 1033 (IEEE - New Electrochemical Technology (NET) Award Presentation) Fuel Cells for Transportation with Commercially-Viable Reliability and Durability
T. Patterson, R. M. Darling, M. L. Perry, M. Wilson, T. Skiba, and S. Motupally
- 1034 Study On Fundamental Aspects of Seedless Copper Electrodeposition On Diffusion Barriers in an Additive-Free Electrolyte for Silicon-Based Integrated Devices
S. Kim, B. Im, and S. H. Kim
- 1035 Atomic Scale Resolution for Stochastic Simulations of Electrodeposition Processes At Micrometer Scales
A. Bezzola, B. B. Bales, R. Alkire, and L. Petzold
- 1036 Modeling of a Lithium-Ion Battery-Photovoltaic Solar Cell Hybrid System
M. T. Lawder, A. Jagwani, B. Suthar, V. Ramadesigan, P. Biswas, and V. R. Subramanian
- 1037 Corrosion Of Copper in De-Aerated Water by Impedance Spectroscopy
C. Cleveland, M. E. Orazem, and S. Moghaddam
- 1038 Degradation of 2,4-Dichlorophenoxyacetic Acid by Electro-Fenton Process at Low Flow Plant
J. M. Peralta-Hernandez
- 1039 Study of Electrochemical Generation of Hydroxyl Radicals on Ti/SnO₂-Sb₂O₅ Anode by Spin-Trapping
Q. Ni, D. W. Kirk, and S. J. Thorpe
- 1040 *In Situ* STM Studies of 4,4'-Bipyridine Adsorption At Bi(111) Electrode: Influence of SO₄²⁻ Concentration in Supporting Electrolyte
V. Grozovski, H. Kasuk, T. Romann, E. Anderson, P. Pikma, S. Kallip, and E. Lust

G4 - Tutorials in Electrochemical Technology: Impedance Spectroscopy

Industrial Electrochemistry and Electrochemical Engineering

- 1041 Local Electrochemical Impedance Spectroscopy: Correlation with Global Impedance Measurements
V. Vivier, M. E. Orazem, N. Pebere, and B. Tribollet
- 1042 Effect of Artifactual Impedance on Impedance Spectrum in High Frequency Range
Y. Hoshi, K. Kasahara, I. Shitanda, and M. Itagaki
- 1043 Analysis of Constant Phase Element
B. Tribollet
- 1044 Application of Impedance Spectroscopy Models to Measurement of Oxide Thickness of Stainless Steel
D. Riemer
- 1045 Estimation of Dielectric Constant from CPE Parameters for Human Skin
M. E. Orazem, A. Bunge, and E. White
- 1046 Electrochemical Impedance Study for Enzymatic Biosensor and Biofuel Cell
I. Shitanda, N. Ohta, H. Yanai, Y. Yoshihata, Y. Hoshi, and M. Itagaki
- 1047 Electrogravimetric Methods: An Attractive Tool for Investigating Solid Electrolytes for Electrochemical Conversion Devices
O. Sel, C. Gabrielli, C. Laberty-Robert, and H. Perrot
- 1048 Applications of AC Impedance Spectroscopy as Characterization and Diagnostic Tool in Rechargeable Energy Storage Devices
V. Lvovich
- 1049 Electrochemical Impedance Spectroscopy to Investigate Electroplating of Metals
M. Itagaki, Y. Ito, Y. Hoshi, and I. Shitanda
- 1050 How to Choose an Equivalent Circuit
D. A. Harrington

H1 - Tutorials in Nanotechnology

Fullerenes, Nanotubes and Carbon Nanostructures, New Technology Subcommittee

- 1051 Raman Spectroscopy of Nanotubes
M. Dresselhaus
- 1052 Evolution of Carbon Nanostructures: From Early Studies to Present Status
P. Ajayan
- 1053 Synthesis, Characterization and Applications of Functionalized Carbon Nanotubes
M. Prato

- 1054 (Richard E. Smalley Research Award) Supramolecular Chemistry of Carbon Nanostructures: Concave-Convex Interactions
N. Martín

H2 - Fullerenes - Chemical Functionalization, Electron Transfer, and Theory

Fullerenes, Nanotubes and Carbon Nanostructures

- 1055 (Invited) Rational Synthetic Strategy for Nanocarbon-Based Polymer Solar Cells
H. Imahori
- 1056 (Invited) Adjustable Cavity in Cofacial Bisporphyrinic Tweezers for the Recognition of Photoactive Guests
N. Solladie and R. Rein
- 1057 (Invited) Implementation of Nanocarbons in Solar Energy Conversion Schemes
D. M. Guldi
- 1058 (Invited) Photoinduced Electron Transfer From $\text{Sc}_3\text{n}@C_{80}$ to $\text{Li}^+@C_{60}$
Y. Kawashima, K. Ohkubo, and S. Fukuzumi
- 1059 Fullerene-Donor Dyads with Photoswitchable Dithienylethene Molecular Wires
A. A. Vieira, V. Sacchetti, B. M. Illescas, N. Martín, S. Castellanos, and S. Hecht
- 1060 Functionalization of Endohedral Metallofullerene $\text{Lu}_3\text{n}@C_{80}$ with Organic Electron Acceptor
L. Feng
- 1061 (Invited) Electronic Characteristics of One-Dimensional Carbon Rods
R. R. Tykwinski
- 1062 Synthesis of PCBM Analogues [6,6]-Phenyl-C61-Butyric Acid Esters for Efficient Polymer Solar Cells As Electron Acceptors
L. Fan, R. Peng, J. Bo, and S. Chu
- 1063 A One Dimensional Metal-Organic Coordination Polymer Based on Ag^+ and a Fullerene Linker
P. Peng, F. F. Li, F. L. Bowles, V. S. P. K. Neti, A. Metta, M. M. Olmstead, A. L. Balch, and L. Echegoyen
- 1064 (Invited) The Effects of Polarity and Ligands on Electron Transfer in Porphyrin-Fullerene Dyad: A Quantitative Study
N. Tkachenko, A. Al-Subi, M. Niemi, and H. Lemmetyinen
- 1065 Triplet Exciton Generation and Electron Back Transfer in Photovoltaic Bulk-Heterojunctions with Endohedral Fullerenes
A. Sperlich and V. Dyakonov

- 1066 (Invited) Charge Separation in Tetrapyrrole-Graphene and Tetrapyrrole-Slgo-Fullerene Hybrids
F. D'Souza, C. Bikram KC, S. K. Das, K. Ohkubo, and S. Fukuzumi
- 1067 (Invited) Fuelling Fullerene-based Reactions Centers with Novel Multichromophoric Antennas
D. Bonifazi
- 1068 Adamantylidene Carbene as an Effective Probe to the Chemical Properties of Endohedral Metallofullerenes
X. Lu, H. Nikawa, N. Mizorogi, T. Akasaka, and S. Nagase
- 1069 Supramolecular Fullerene Polymers Formed by Host-Guest Complexation Between Calix[5]Arene and C₆₀
T. Haino
- 1070 Chemical Modification of Fullerenes Using "Click-Chemistry"
A. Muñoz, B. M. Illescas, J. Rojo, and N. Martín
- 1071 Functionalization of [60]Fullerene via Palladium-Catalyzed C-H Activation Reactions
G. W. Wang
- 1072 (Invited) Chemically Modified Graphene
N. Tagmatarchis
- 1073 Stable Dispersions of Graphene Layers From Ball-Milling of Graphite with Triazine Derivatives
E. Vazquez
- 1074 (Invited) Photo- and Electro-Active Fullerene Hexakis-Adducts
J. F. Nierengarten
- 1075 (Invited) Organocatalysis in Fullerene Chemistry
N. Martín, S. Filippone, J. Marco-Martínez, V. Marcos, and S. Reboredo
- 1076 (Invited) Endohedral Electrochemistry
L. Dunsch and A. A. Popov
- 1077 Attachment of Pristine C₆₀ to Functionalised Silica Nanoparticle Surfaces: A Thiol-Ene Click Chemistry Approach
D. N. Mangos, T. Nakanishi, and D. A. Lewis
- 1078 (Invited) Ambipolar Behavior of Carbon Nanohorns
M. Vizuete, M. Barrejón, M. J. Gómez-Escalonilla, and F. Langa
- 1079 (Invited) Macrocyclic Systems Based on [60]Fullerene and Perylenediimides
A. Sastre-Santos

- 1080 (Invited) Selective Interactions of Carbohydrate-Functionalized SWNTs and Graphene with Concanavalin A
M. E. Ragoussi, G. de la Torre, J. Rojo, G. Bottari, and T. Torres
- 1081 (Invited) Functionalized Carbon Nanostructures for Materials Science Applications: Opportunities Enabled by Flow Chemistry
M. Maggini, T. Carofiglio, E. Menna, S. Silvestrini, and P. Salice
- 1082 (Invited) Semiconductor-Metal Nanoparticles Anchored On Graphene Oxide: Photocatalysis and SERS Detection
P. V. Kamat, I. Lightcap, S. Murphy, and S. Krishnamurthy
- 1083 Vertical Self-Assembly of Fullerenes Via Solvent Vapor Annealing Process
J. Kim, C. Park, and H. C. Choi
- 1084 The Endohedral Ce^{III}/Ce^{IV} Redox Couple in the Nitride Clusterfullerenes
A. A. Popov

H3 - Endofullerenes and Metallofullerenes *Fullerenes, Nanotubes and Carbon Nanostructures*

- 1085 (Invited) New Endohedral Fullerene Compounds and Their Reactivity Differences
M. Cerón, M. Izquierdo Barroso, and L. Echegoyen
- 1086 (Invited) Fullerenes Encapsulating an Ytterbium Atom: Molecular Structures and Chemical Properties
X. Lu, M. Suzuki, Y. P. Xie, N. Mizorogi, T. Akasaka, and S. Nagase
- 1087 (Invited) Structure and Electronic Properties of Endohedral Metallofullerenes
J. M. Poblet
- 1088 (Invited) Susceptible Electron Spin Adhering to Yttrium Cluster Inside an Azafullerene C₇₉N
C. R. Wang
- 1089 (Invited) Alignment of N@C₆₀ and Its Derivatives in Host Matrices: The Road to Develop Ordered Systems for Quantum Information Processing
K. Porfyrakis
- 1090 (Invited) Synthesis of Bis-Carboxylic Acid Derivatives of M₃n@I_h-C₈₀ (M = Sc, Lu, Y, Gd) Through Prato Reaction
S. Aroua and Y. Yamakoshi
- 1091 (Invited) Hydrogenation of Endohedral Metallofullerenes
J. Zhang, W. Fu, and H. C. Dorn
- 1092 (Invited) New Oxometallic Clusters Inside Fullerene Cages
S. Stevenson

- 1093 (Invited) Crystal Structure Analysis of Cationic Lithium Endohedral Fullerene Under Electric Field
S. Aoyagi, Y. Sado, K. Sugimoto, R. Kitaura, and H. Shinohara
- 1094 (Invited) Structural Studies of Endohedral Fullerenes of the M_2C_{2n} Class
M. M. Olmstead, A. L. Balch, C. M. Beavers, H. C. Dorn, H. Yang, and Z. Liu
- 1095 (Invited) Functionalization of Carbon Nanotubes by Molecular Encapsulations
T. Okazaki
- 1096 (Invited) Novel Monometallic Cyanide Clusterfullerenes Based on Popular Fullerene Cages
S. Yang, C. Chen, F. Liu, Y. P. Xie, F. Li, M. Jiao, M. Suzuki, T. Wei, S. Wang, Z. Chen, X. Lu, and T. Akasaka
- 1097 (Invited) A Cluster Fullerene Containing Only Non Group III Metal Inside the Carbon Cage: $Ti_2S@D_{3h}(5)-C_{78}$ with a Linear Sulfide Cluster Inside the Cage
F. F. Li, M. Mulet-Gas, V. Triana, A. Rodríguez-Fortea, J. M. Poblet, and L. Echegoyen
- 1098 (Invited) Stability Computations in a Series of Extraction-Derivatized Metallofullerenes: $La@C_x / La@C_x-C_6H_3Cl_2$
Z. Slanina, T. Akasaka, and S. Nagase
- 1099 (Invited) Differentiation Between Families of Endohedral Fullerenes
E. A. Sarina, B. Q. Mercado, M. M. Olmstead, and A. L. Balch
- 1100 (Invited) The Endohedral Magnetism: Lanthanide Ions in the Nitride Clusterfullerenes
A. A. Popov
- 1101 (Invited) Theoretical Studies of Photoluminescence Properties of Endohedral Metallofullerenes
J. Wang, T. Kowalczyk, and S. Irle
- 1102 (Invited) Radiolanthanides Encapsulated in Fullerenes: A New Platform for Biomedical Applications
H. C. Dorn, J. Zhang, and C. S. Cutler

H4 - Carbon Nanotubes - From Fundamental Processes to Devices

Fullerenes, Nanotubes and Carbon Nanostructures

- 1103 (Invited) Structure Sorting of Single-Wall Carbon Nanotubes Using Gel Column Chromatography
H. Kataura, H. Liu, Y. Ito, M. Shimizu, Y. Urabe, A. Hirano, S. Fujii, and T. Tanaka
- 1104 (Invited) The Role of Solutal Instabilities in Growth of High Quality Graphene and Carbon Nanotubes
A. R. Harutyunyan

- 1105 (Invited) Analytical Ultracentrifugation Characterization of Surfactant Variant Structures on Single-Wall Carbon Nanotubes
J. A. Fagan, C. Silvera Batista, V. Rastogi, C. Y. Khripin, M. Zheng, and A. R. Hight Walker
- 1106 (Invited) Physical Removal of Metallic Carbon Nanotubes From Nanotube Network Devices
F. Leonard
- 1107 Micro-Honeycomb Network Structure of Single-Walled Carbon Nanotubes for Heterojunction Solar Cell
K. Cui, T. Chiba, H. Kinoshita, P. Zhao, T. Thurakitseree, T. Inoue, E. Einarsson, S. Chiashi, and S. Maruyama
- 1108 (Invited) Soft Materials Approaches to Carbon Nanotubes: From Gels to Composites
M. F. Islam
- 1109 Selective Precipitation of Surfactant-Dispersed Carbon Nanotubes
C. Y. Khripin and M. Zheng
- 1110 (Invited) Characterizing the Adsorption of Molecules onto SWCNTs
K. J. Ziegler, J. Xu, J. Clar, and J. C. Bonzongo
- 1111 Rapid High-Yield Dispersions of Large-Diameter Semiconducting Single-Walled Carbon Nanotubes with Tunable Narrow Chirality Distribution
K. Mistry, B. A. Larsen, and J. L. Blackburn
- 1112 (Invited) The Evolution of Species in Carbon Nanotube Ensembles During Chemical Vapor Deposition and Gas Phase Destruction
P. Finnie, P. Vinten, A. Li-Pook-Than, P. Marshall, and J. Lefebvre
- 1113 Handedness Enantioselection of Carbon Nanotubes Using Helical Assemblies of Flavin Mononucleotide
F. Papadimitrakopoulos, D. C. Abanulo, R. Sharifi, and J. Gascon
- 1114 (Invited) Exploring Epitaxial Relationships between Catalyst Metal Nanoparticles and As-Grown Single-Walled Carbon Nanotubes
D. Dutta, V. Bhethanabotla, and R. M. Sankaran
- 1115 (Invited) Thermodynamics on Soluble Carbon Nanotubes: How Do Molecules Replace Surfactants On Carbon Nanotubes?
N. Nakashima, Y. Kato, A. Inoue, and Y. Niidome
- 1116 (Invited) Chiral-Selective Growth of (9, 8) Single Walled Carbon Nanotube Using Sulfate-Promoted Cobalt Catalysts
H. Wang, L. Wei, and Y. Chen
- 1117 One-Pot Extraction of Right- and Left-Handed Semiconducting Single-Walled Carbon Nanotube Enantiomers Using Fluorene-Binaphthol Chiral Copolymers
N. Nakashima, K. Akazaki, F. Toshimitsu, H. Ozawa, and T. Fujigaya

- 1118 (Invited) Simultaneous Discrimination of Diameter, Handedness, and Metallicity of Single-Walled Carbon Nanotubes by Chiral Diporphyrin Nanocalipers
N. Komatsu and G. Liu
- 1119 Separation of Metallic and Semiconducting Single-Walled Carbon Nanotubes by Density Gradient Ultracentrifugation
M. Lang and Y. Lian
- 1120 Carbon Nanostructured Yarn Based Electrode
B. L. Riehl and B. D. Riehl
- 1121 (Invited) Alignment Control of Carbon Nanotube Forests From Random to Nearly Perfectly Aligned by Utilizing Crowding Effect
M. Xu, D. N. Futaba, M. Yumura, and K. Hata
- 1122 Effect of Covalent Chemistry On the Electronic Structure and Properties of Carbon Nanotubes and Graphene
R. C. Haddon
- 1123 Catalysis of CVD Carbon Nanotube Growth by Cobalt Ion Implantation of Silicon
C. J. Smart, G. F. Walker, S. L. Belli, V. Estridge, and C. M. Fiore
- 1124 Electrochemical Functionalization of CVD-Grown Carbon Nanotubes
S. L. Belli, R. Krawiec, H. Moustakas, C. J. Smart, and S. Oh
- 1125 Solvent-Free Functionalization of Carbon Nanomaterials: Fullerene C60 and Multiwalled Carbon Nanotubes with Aromatic Amines
I. J. Ramírez Calera, V. H. Meza Laguna, V. A. Basiuk, E. Alvarez-Zauco, F. F. Contreras-Torres, T. Y. Gromovoy, and E. V. Basiuk
- 1126 (Invited) Redox Reaction of Carbon Nanotubes in a Biological Matrix
W. Zhao and A. A. K. Kamel
- 1127 Functionalization of Graphene and Carbon Nanotubes Through Polymerization in Micelles: A Bridge Between the Covalent and Non-Covalent Methods
S. Campidelli, G. Clavé, G. Delpont, C. Roquelet, J. S. Lauret, C. Voisin, A. Filoramo, and V. Derycke
- 1128 (Invited) Microscopic Modeling of Contact Resistance in Carbon Nanotubes
V. Perebeinos and J. Tersoff
- 1129 (Invited) Nanoscale Carbon for Photovoltaic and Therapeutic Applications
O. Prezhdo
- 1130 (Invited) Plasmonic Vs. Electronic Mechanism of the QED Kapitza Conductance for Nanotube Materials
A. G. Petrov, A. M. Nemilentsau, and S. V. Rotkin
- 1131 Equilibrium at the Edge: Nanotube Nucleation, Steady-State, and Cooperative Growth
B. I. Yakobson

- 1132 First Principles-Based Estimate of the Critical SWCNT Length for Raman D and G Band Intensity Inversion
Y. Nishimura, H. Witek, and S. Irle
- 1133 Full-Coverage Aligned Semiconducting Enriched Single-Walled Carbon Nanotube Arrays for High-Performance Electronics
Q. Cao, S. J. Han, and G. S. Tulevski
- 1134 DWNT as Active Electrode in Far-IR and THz Optical Modulation Devices
P. Gagnon, M. Biron, P. Desjardins, and R. Martel
- 1135 (Invited) The Origin of Linear and Nonlinear Damping in Graphene Nanomechanical Resonators
M. Bockrath and T. Miao
- 1136 Astonishing Sensing Potential of Carbon Nanotubes and Graphene Illustrated By *In Situ* Sensor Refreshing
G. Chen and A. R. Harutyunyan
- 1137 (Invited) Single Molecule Enzymology Using Carbon Nanotube Circuits
Y. Choi, P. C. Sims, T. Olsen, O. T. Gul, B. L. Corso, M. Iftikhar, G. A. Weiss, and P. G. Collins
- 1138 Activation Mechanism for Charge Injection in Individual Single-Walled Carbon Nanotubes
D. Bouilly, H. Trépanier, and R. Martel
- 1139 Disorder-Induced Electron-Phonon Interactions and Gap States in Carbon Nanotubes
F. Lapointe, D. Bouilly, M. Nguyen, Gaufrès, N. Y. W. Tang, P. Desjardins, and R. Martel
- 1140 (Invited) Monodisperse Carbon Nanomaterials in Electronic and Energy Conversion Devices
M. C. Hersam
- 1141 (Invited) Semiconducting Enriched Carbon Nanotube Thin Film Transistors Using Metallic Carbon Nanotube Contact
S. I. Khondaker, B. Sarker, and N. Kang
- 1142 Monolithic Integration of Micro-Capacitors by Lithographically Patternable, Wafer-Scale Single-Walled Carbon Nanotube Film
K. Kobashi, K. U. Laszczyk, A. Sekiguchi, F. Tanaka, C. Subramaniam, D. N. Futaba, T. Yamada, and K. Hata
- 1143 (Invited) Porous Carbon and Its Nanocomposites for Energy Storage Applications
G. Cao, S. Candelaria, Y. Huang, M. Zhang, and L. Zhang
- 1144 (Invited) Hallmarks of the Mechanical Coupling to the Substrate in the Photoluminescence Spectrum of Carbon Nanotubes
F. Vialla, Y. Chassagneux, C. Roquelet, C. Diederichs, P. Roussignol, J. S. Lauret, and C. Voisin

- 1145 (Invited) Exciton Transport and Manipulation in Colloidal Semiconducting Carbon Nanotubes
J. J. Crochet, J. G. Duque, J. H. Werner, S. K. Doorn, P. Nagpal, L. Cognet, and B. Lounis
- 1146 Optical Behaviors of Single-Wall Carbon Nanotubes in Complex Environments
J. G. Duque, A. N. Parra-Vasquez, J. J. Crochet, L. Cognet, B. Lounis, and S. K. Doorn
- 1147 (Invited) Fundamental Properties of Ultra-Clean, Nearly Defect-Free, Suspended Carbon Nanotubes
S. B. Cronin, R. Dhall, M. Amer, and S. W. Chang
- 1148 Propagation of Terbium Ions Through the SWNT Gel
T. Ignatova, M. Blades, J. G. Duque, S. K. Doorn, and S. V. Rotkin
- 1149 (Invited) Non-Condon and Double Resonance Raman Behaviors in Carbon Nanotubes Enriched in a Single Chirality
S. K. Doorn, H. Telg, J. G. Duque, J. Maultzsch, X. Tu, and M. Zheng
- 1150 (Invited) Terahertz, Infrared, and Optical Response of Macroscopically Aligned Single-Wall Carbon Nanotubes
L. Ren, Q. Zhang, X. He, X. Wang, S. Nanot, R. Hauge, and J. Kono
- 1151 (Invited) Quantum Dot Excitons In Carbon Nanotubes
A. Hoegele, M. S. Hofmann, and J. T. Glueckert
- 1152 (Invited) Optical Emission and Control in the Single-wall Carbon Nanotube Quantum Dots
A. Hida and K. Ishibashi
- 1153 Fluorescence Spectroscopy of Swcnts: Bridging the Gap between Single-Particle and Bulk Studies
S. M. Bachilo, J. K. Streit, S. Ghosh, and R. B. Weisman
- 1154 (Invited) Quantum Light Signatures from Cavity-Embedded Carbon Nanotubes
I. Sarpkaya, W. Walden-Newman, and S. Strauf
- 1155 Anisotropically Luminescent Hydrogels Containing Magnetically-Aligned Mwcnts-Eu(III) Hybrids
D. Bonifazi
- 1156 Combining Separation and Synthesis to Achieve Structure Control of carbon nanotubes
M. Zheng
- 1157 Desorption Kinetics of ssDNA From SWNTs
T. Hertel, F. Schoeppler, and F. Brunecker
- 1158 Delayed Fluorescence from Single-Wall Carbon Nanotube-Polymer Conjugates
F. Spaeth, D. Stich, D. Schilling, H. Kraus, A. Sperlich, V. Dyakonov, and T. Hertel

- 1159 Absolute Absorption Cross-Sections of (n,m)-Selected Swcnts
J. K. Streit, S. Ghosh, S. M. Bachilo, and R. B. Weisman
- 1160 (Invited) Energy Transfer in Molecules/Nanotubes Supramolecular Assemblies
C. Roquelet, F. Violla, G. Clavé, B. Langlois, G. Delport, C. Diederichs, P. Roussignol, A. Filoramo, E. Deleporte, S. Campidelli, C. Voisin, and J. S. Lauret
- 1161 (Invited) Effect of Endohedrally Adsorbed Molecules on S_{11} Electronic Transitions of Single Wall Carbon Nanotubes
E. Borguet and D. Kazachkin
- 1162 α -Sexithiophene in Carbon Nanotubes for Raman-Based Applications
N. Y. W. Tang, Gaufrès, F. Lapointe, and R. Martel
- 1163 (Invited) Optical Spectroscopy of Individual Carbon Nanotubes
F. Wang
- 1164 (Invited) Triplet Exciton Dynamics in Single-Wall Carbon Nanotubes
T. Hertel, D. Stich, D. Schilling, H. Krauss, A. Sperlich, V. Dyakonov, and F. Spaeth
- 1165 (Invited) Optical Response of Single-Walled Carbon Nanotubes in Far-Infrared Region
T. Morimoto and T. Okazaki
- 1166 Templated Chromophore Nanostructures: Experimental Validation of New Solar Thermal Fuels for the Closed-Cycle Storage of Solar Energy
T. J. Kucharski and J. C. Grossman
- 1167 Template-Assisted Synthesis and Catalytic Properties of Copper Nanowires
G. Fan, L. Yu, and L. Dong
- 1168 Electrophoretic Deposition of Carbon Nanotubes Using New Dispersing and Charging Agents
Y. Su, Y. Liu, and I. Zhitomirsky
- 1169 Excitons and Trions in Hole-Doped Single-Walled Carbon Nanotubes
M. Okano, T. Nishihara, Y. Yamada, and Y. Kanemitsu
- 1170 (Invited) Study of Negative and Positive Trions in the Electrochemically Carrier-Doped Single-Walled Carbon Nanotubes
K. Matsuda and Y. Miyauchi
- 1171 (Invited) Spectroscopic Signatures of Exciton Dissociation in Single-Walled Carbon Nanotube Photovoltaic Blends
J. L. Blackburn, D. J. Bindl, M. S. Arnold, K. Mistry, N. Kopidakis, A. Ferguson, and G. Rumbles

- 1172 (Invited) Migration and Dissociation of Excitons in Photoabsorbing Thin Films of Carbon Nanotubes Tailored for Photovoltaics
M. Y. Wu, D. J. Bindl, R. D. Mehlenbacher, M. Grechko, M. T. Zanni, and M. S. Arnold

H5 - Fundamentals of Graphene Related Structures

Fullerenes, Nanotubes and Carbon Nanostructures

- 1173 Layer-Dependent Electrical Properties of Graphene-Related Nanomaterials Revealed by Atomic Force Microscopy
J. J. Yu
- 1174 Molecular Penetration Through the Basal Plane of Graphene, Density Functional Theory Study
S. M. Lee, D. L. Duong, and Y. H. Lee
- 1175 Electrical Properties of Graphene Conductive Thin Films Fabricated with Different Parameters
X. Wang, J. Yu, H. Dong, and L. Dong
- 1176 Electron Transport Properties of Reduced Graphene Oxide Sheets
S. I. Khondaker and D. Joung
- 1177 Nonlinear Effects with Plasmonics at IR Wavelengths
A. Banerjee and H. Grebel
- 1178 An Electrochemical Reaction Pathway for the Generation of Graphen-Like Films and Self-Assembled Nanographenes
G. Valenti, L. T. Scott, C. Fontanesi, F. Paolucci, and M. Marcaccio
- 1179 (Invited) Tunable Optical Properties in Doped Graphene
F. Wang
- 1180 (Invited) Prospects for Hydrogen Storage in Graphene
V. Pellegrini
- 1181 (Invited) New Faces of Graphene Oxide: 2D Soft Material and Nanofluidic Channels
J. Huang
- 1182 Graphene Ring Nanoelectrodes: Application as a Photoelectrochemical Sensor
J. W. Dickinson, F. Andrieux, M. Ferrer, and C. Boxall
- 1183 Montreal, QC H2R 2C7 Implementation Of Graphene In Supercapacitor Electrodes
B. Dyatkin, M. Beidaghi, and Y. Gogotsi
- 1184 (Invited) Few-Layer Graphenes from Ball-Milling of Graphite with Triazine Derivatives
E. Vazquez

- 1185 (Invited) Chemical Modification of Graphene and Carbon Nanotubes: Optical and Electrical Signatures of Charge Transfer Doping and Covalent Functionalization
R. Martel
- 1186 8-Inch Wafer-Scale Synthesis and Tailoring of Graphene by Extension of the Segregation Methods to Metals of Low Carbon Solubility
C. Rabot, A. Zenasni, and A. Delamoreanu
- 1187 An Environmental Approach of Reducing of Graphene Oxide
K. F. Chong and R. Mat Zaid
- 1188 Water-Soluble Graphene Through Polyglycerol Grafting
T. Yasuda, L. Zhao, G. Liu, S. Aonuma, T. Kimura, and N. Komatsu
- 1189 An Electrochemical Method for the Production of Graphite Oxide
A. J. Parker, J. W. Dickinson, M. Ferrer, and C. Boxall
- 1190 Electroreduction of Oxygen on Pt Nanoparticles Supported onto TiO₂/Graphene in Acid Media
N. Alexeyeva, C. Bock, B. R. MacDougall, and K. Tammeveski
- 1191 Development of Multi-Layer Graphene by an Environmentally Friendly Process Using Assisted Physical Sonication
V. Chabot, B. K. H. Kim, and A. Yu

H6 - Focus Session: Carbon Nanostructures in Energy Applications and Energy Storage

Fullerenes, Nanotubes and Carbon Nanostructures, Battery

- 1192 Towards Multifunctional Wet Chemically Functionalized Graphene – Integration of Oligomeric, Molecular, and Particulate Building Blocks
D. M. Guldi
- 1193 (Invited) Photo-Thermoelectric Effects in Carbon Nanostructure Devices
F. Leonard
- 1194 Remarkably Durable Polymer Electrolyte Fuel Cell Fabricated Using Carbon Nanotube Composites
N. Nakashima, M. Berber, and T. Fujigaya
- 1195 Oxygen Electroreduction on Nitrogen-Doped Carbon Nanotube Modified Glassy Carbon Electrodes
K. Tammeveski, I. Kruusenberg, M. Vikkisk, U. Joost, and E. Shulga
- 1196 (Invited) Photosensitized Hydrogen Evolution from Water Using Coaxial Nanohybrid Based on SWCNTs
Y. Takaguchi, Y. Sasada, T. Wada, and T. Tajima

- 1197 Fe-, N-Doped Graphitic Mesoporous Carbon Materials as Oxygen Reduction Electrocatalysts for Alkaline Fuel Cells
D. Kim, H. T. Chung, P. Zelenay, and B. F. Chmelka
- 1198 Controlled Modification of Colloid-Imprinted Carbon Nanostructures for Application As PEM Fuel Cell Catalyst Supports
D. Banham, F. Feng, T. Fürstenhaupt, S. Ye, and V. Birss
- 1199 (Invited) Bilayered Solar Cells with >1% Power Conversion Efficiency Arising from Carbon Nanotube Excitons
M. S. Arnold, D. J. Bindl, and M. J. Shea
- 1200 (Invited) Colloidal Graphene Quantum Dots and Their Potential Applications for Renewable Energy
L. S. Li
- 1201 (Invited) Functional Graphene Structures for Energy-Conversion Devices
L. Qu
- 1202 (Invited) Graphene-Derived Materials for Electrochemical Energy Storage: An Overview
T. Kim and R. S. Ruoff
- 1203 (Invited) Graphene-based Electrodes for Energy Storage and Conversion
X. Sun
- 1204 Controlling Ionic Currents in Batteries Using Graphene Gate Electrode
J. Grebel, A. Banerjee, and H. Grebel
- 1205 Nitrogen-Doped Carbon Nanosturctures As Cathode for Lithium Air Batteries
H. Liu, R. Mi, and X. Liu
- 1206 Enhanced Electrochemical Performance of Tin Nanoparticles On Graphene Nanosheet Thin Film Anode
R. Thomas, K. Yellaeswara Rao, and G. Mohan Rao
- 1207 Power-Limiting Role of Internal Resistance in MnO₂-Graphitic Carbon Pseudocapacitors
B. L. Corso, T. Sheps, O. T. Gul, and P. G. Collins
- 1208 Role of Quantum Capacitance of Graphene-Like Carbon Electrodes in Enhancing Supercapacitor Performance
E. Paek, A. J. Pak, and G. S. Hwang
- 1209 Direct Correlation Between the Measured Electrochemical Capacitance, Wettability and Surface Functional Groups of Carbon Nanosheets (CNS)
S. Deheryan, D. J. Cott, M. Heyns, and P. M. Vereecken
- 1210 Supercapacitive Properties of Nanostructured Polypyrrole Formed by Templateless Electropolymerization
C. Debiemme-Chouvy and A. Fakhry

- 1211 Hybrid Functional Carbon Electrodes for Supercapacitors
R. Quintero Restrepo, D. Y. Kim, K. Hasegawa, Y. Yamada, A. Yamada, and S. Noda
- 1212 A Graphene-Based Anode for Microbial Fuel Cells
S. Lee, T. Schlageter, J. Garlow, N. Bethel, and B. Sitharaman

H7 - Carbon Nanostructures in Medicine and Biology *Fullerenes, Nanotubes and Carbon Nanostructures*

- 1213 (Invited) Toxicity and Fate of Gadonanotubes After Intravenous Administration in Mice
E. Dhemaied, C. Sébrié, M. L. Matson, T. Baati, L. J. Wilson, M. Abderrabba, L. Darrasse, and F. Moussa
- 1214 Cytotoxicity and Biocompatibility of Highly Water-Soluble Graphene Nanoribbons Derivatized with p-Carboxyphenyldiazonium Salt
S. J. Corr, A. Gizzatov, B. T. Cisneros, L. J. Wilson, and S. Curley
- 1215 Biomedical Application of Fullerenes
C. Shu, M. Zhen, Q. Liu, and C. Wang
- 1216 New Carbon Nanostructures as Drug Vectors
T. Da Ros
- 1217 Engineering Single Wall Carbon Nanotubes for Sub-Cellular Delivery
M. F. Islam
- 1218 (Invited) Cytotoxicity of Graphene Nanoribbons
S. Mullick Chowdhury, G. Lalwani, K. Zhang, J. Y. Yang, K. Neville, and B. Sitharaman
- 1219 Insights to Nano-Confinement and Its Effect on Relaxivity of Gadolinium Based Contrast Agents
J. Law, C. Jeu, and L. J. Wilson
- 1220 (Invited) Novel SWCNT-Based Immunoprobes for Spectrally Multiplexed Detection and Imaging in Biomedical Applications
K. M. Beckingham, M. Trejo, S. Ghosh, M. Vu, J. K. Streit, and R. B. Weisman
- 1221 Carbon Nanotube Based Electrodes for the Electrochemical Detection of Interactions Between *Scyllo*-Inositol and Amyloid- β
V. W. S. Hung and K. Kerman
- 1222 Radiofrequency Electric-Field Interactions with Purified Metallic and Semiconducting Single-Walled Carbon Nanotubes for Applications in Non-Invasive Cancer Hyperthermia
S. J. Corr, M. Raoof, B. T. Cisneros, M. A. Cheney, L. J. Wilson, and S. Curley

- 1223 Photodynamic and Photothermal Effects of Semiconducting and Metallic-Enriched Single-Walled Carbon Nanotubes for Cancer Cell Killing
H. Nakatsuji, T. Murakami, M. Inada, Y. Matoba, T. Umeyama, M. Tsujimoto, S. Isoda, M. Hashida, and H. Imahori
- 1224 (Invited) Recent Development on Fullerene-Based Nano-PDT Drugs for Photo-Inactivation of Infectious Bacteria and Cancer Cells
L. Chiang and M. Hamblin
- 1225 (Invited) Measuring Uptake Dynamics Of Multiple, Identifiable Carbon Nanotube Species Via High-Speed Confocal Raman Imaging Of Live Cells
D. A. Heller, J. W. Kang, N. Lue, and R. R. Dasari
- 1226 Development Of Human Mast Cell-Targeting Fullerenes
S. Pamujula, A. Dellinger, Z. Zhou, M. G. Sandros, and C. L. Kepley
- 1227 Supramolecular Forces Guide the Assembly of Carbon Nanotube and Oligonucleotide Vectors: Implications for Gene Delivery
M. McDevitt
- 1228 Macroporous All-Carbon Scaffolds for Biomedical Applications
G. Lalwani, A. T. Kwaczala, S. Kanakia, S. C. Patel, S. Judex, and B. Sitharaman

H8 - Porphyrin and Supramolecular Assemblies

Fullerenes, Nanotubes and Carbon Nanostructures

- 1229 (Invited) Syntheses of Functional Molecules based on Porphyrin for Single Molecular Electronics
T. Ogawa, H. Tanaka, D. Tanaka, T. Inose, M. Handayani, and T. Tamaki
- 1230 (Invited) Synthesis and Reactivities of Meso-Free and Core-Modified [14]Triphyrins(2.1.1)
D. Kuzuhara, Y. Sakakibara, and H. Yamada
- 1231 (Invited) Computational Materials Design: Porphyrins as Building Blocks of Designer Materials
H. Kasai
- 1232 (Invited) Nucleotidic and Peptidic Multi-Porphyrinic Devices: When the Desired Conformation Is Determined by Chiral Flexible Linkers
N. Solladie
- 1233 (Invited) Generating Porphyrin-Assemblies with Porphyrin-Lego®
B. Kräutler
- 1234 (Invited) Photoinduced Charge Separation in Supramolecules Between $\text{Li}^+@C_{60}$ and Chlorins
K. Ohkubo, Y. Kawashima, K. Mase, and S. Fukuzumi

- 1235 (Invited) From Supramolecular Functionality to Functional Materials
V. Borovkov
- 1236 (Invited) Supramolecular Porphyrin Polymerization Through Charge-Transfer Host-Guest Interaction
T. Haino
- 1237 (Invited) Π -Extended Porphyrins
M. O. Senge and A. A. Ryan
- 1238 (Invited) The "Breathing" of Corrole Ring
R. Paolesse, S. Nardis, D. Monti, G. Pomarico, F. Mandoj, M. Stefanelli, and C. Di Natale
- 1239 (Invited) π -Extended Porphyrins - Synthesis and Optical Properties
D. T. Gryko, A. Nowak-Król, D. Koszelewski, J. P. Lewtak, M. Drobizhev, and A. Rebane
- 1240 (Invited) Chirality Transfer for Sensing, Memory and Separation
R. Purrello
- 1241 (Invited) Chiral Diporphyrin Nanocalipers: New Host Molecule Next to Nanotweezers for Separation of Single-Walled Carbon Nanotubes
N. Komatsu and G. Liu
- 1242 (Invited) Preparation and Photophysical Properties of Photofunctional Supramolecular Architectures of Porphyrins
T. Hasobe
- 1243 (Invited) Supramolecular Porphyrin Arrays Mediated by Hemoprotein Matrix
T. Hayashi, K. Oohora, and A. Onoda
- 1244 (Invited) Self-Assembled Monolayers of Porphyrin Derivatives on Semiconductor Surfaces: Photoinduced Reactions at the Interface
N. Tkachenko, H. Saarenpää, E. Sariola-Leikas, A. Efimov, H. Lemmetyinen, H. Imahori, P. Myllyperkiö, A. Pyymaki Perros, and H. Lipsanen
- 1245 (Invited) Supramolecular Metalloporphyrins: From Electrocatalysis to Photodynamic Therapy Agents
S. Swavey
- 1246 (Invited) Supramolecular Aspects of Porphyrins for Switching, Sensing and Sensitizing
J. P. Hill, R. Charvet, J. Labuta, M. Li, S. Ishihara, and K. Ariga
- 1247 (Invited) DNA as a Supramolecular Scaffold for Porphyrin and Metal Complex Assemblies
E. Stulz

- 1248 (Invited) Synthesis and Properties of New Superstructured Chromophores based on Porphyrin Rings
A. G. Coutsolelos, G. Charalambidis, K. Ladomenou, T. Lazarides, C. Stangel, D. Daphnomili, A. Petrou, V. Papastamatakis, A. Apostolopoulou, K. Karikis, V. Nikolaou, G. Zervaki, P. Aggaridis, and P. Nova
- 1249 (Invited) Porphysome Nanotechnology and Beyond
G. Zheng
- 1250 (Invited) Efficient Water Oxidation Catalyzed by Homogeneous Cationic Cobalt Porphyrins
J. T. Groves
- 1251 (Invited) New Insights Into the Electrochemistry of Quinoxalinoporphyrins
K. M. Kadish, Y. Fang, Z. Fu, P. Sintic, T. Khoury, M. J. Crossley, and X. Cai
- 1252 A Ligand-Assisted Oxygen Reduction Reaction Catalyzed by (nitro)Cobalt Porphyrins and Phthalocyanines
J. A. Goodwin
- 1253 (Invited) Synthetic Heme Thiolate Complexes as Precise Model of Cytochrome P450
T. Higuchi
- 1254 (Invited) Regulation Mechanism of Electron Transfer From Cytochrome c to Cytochrome c Oxidase
K. Ishimori
- 1255 (Invited) Signal Sensing and Signal Transduction in Heme Sensor Proteins
S. Aono
- 1256 (Invited) Self-Assembly of Porphyrin Molecules at Electrified Interfaces
T. H. Phan, T. Kosmala, S. Breuer, and K. Wandelt
- 1257 (Invited) The Gas Sensitivity of Porphyrins Coated ZnO Nanorods
Y. Sivalingam, G. Magna, E. Martinelli, R. Paolesse, and C. Di Natale
- 1258 (Invited) Bioelectronic Tongue Based on Voltammetric Sensors and Biosensors the Analysis of Antioxidants and Phenolic Composition of Grapes
M. L. Rodriguez-Mendez, C. Medina-Plaza, C. Apetrei, J. A. Fernandez-Escudero, E. Barajas, and J. A. de Saja
- 1259 (Invited) Single Molecule Level Determination of the Kinetics and Thermodynamics of the Reaction Between Oxygen and Cobalt(II) Octaethylporphyrin in Phenyltoluene at the HOPG-Solution Interface
U. Mazur and K. W. Hipps
- 1260 (Invited) Dendritic Metalloporphyrin-Fullerene Conjugates – Changing the Microenvironment Around Redox-Active Centers and Its Impact on Charge Transfer Reactions
D. M. Guldi

- 1261 (Invited) Chemically Modified Carbon Nanostructures for Advanced Optoelectronics and Catalysis
S. O. Kim
- 1262 (Invited) High-Potential Porphyrin Photosensitizers for Solar Water-Oxidation Catalysis
G. Brudvig
- 1263 (Invited) BF₂ Chelated Azadipyromethene- A near-IR Emitting Electron Acceptor for Building Photosynthetic Model Compounds
F. D'Souza, V. Bandi, M. E. El-Khouly, K. Ohkubo, V. Nesterov, M. E. Zandler, and S. Fukuzumi
- 1264 (Invited) Design of Novel Pyrene-Dendronized Porphyrins Exhibiting Efficient Fluorescence Resonance Energy Transfer (FRET): Optical and Photophysical Properties
G. G. Zaragoza-Galán, M. Fowler, J. Duhamel, R. Rein, N. Solladié, and E. Rivera
- 1265 (Invited) Phthalocyanines and Analogues as Components of Photovoltaic and Artificial Photosynthetic Devices
M. E. Ragoussi, M. Ince, L. Tejerina, O. Trukhina, M. Medel, E. M. Llamas, J. Guilleme, B. Ballesteros, G. de la Torre, M. V. Martinez-Diaz, G. Bottari, M. Urbani, and T. Torres
- 1266 (Invited) Rational Design of Phthalocyanine-Perylenediimide Systems with Long-Lived Charge-Separated State
A. Sastre-Santos
- 1267 (Invited) Quasi-Ohmic Single Molecule Charge Transport Through Highly Conjugated Meso-to-Meso Ethyne-Bridged Porphyrin Wires
E. Borguet
- 1268 (Invited) Non-Covalent Assemblies of Upconverting Nanoparticles with Porphyrin-Dendrimers for Multiphoton Imaging and Sensing
S. A. Vinogradov and T. V. Esipova
- 1269 (Invited) Metal-Assisted Formation of an Extremely Long-Lived Charge-Separated State in a Porphyrin-Flavin Dyad
T. Kojima, R. Kobayashi, T. Ishizuka, S. Yamakawa, H. Kotani, T. Nakanishi, K. Ohkubo, and S. Fukuzumi
- 1270 (Invited) Highly Efficient Porphyrin-Sensitized Solar Cells
H. Imahori
- 1271 Ruthenium Porphyrin Complexes: Powerful Catalysts For Hydrocarbon Atom-Efficient Aminations
E. Gallo
- 1272 Rigid and Flexible Bis-Porphyrinic Tweezers: Efficient Molecular Recognition of Bidentate Bases
R. Rein and N. Solladie

H9 - Nanostructures for Energy Conversion

Fullerenes, Nanotubes and Carbon Nanostructures, Energy Technology

- 1273 Excitation Resonance of Raman Scattering with the Hybridized States of Localized Surface Plasmons and Excitons of Molecules at Electrified Interface
K. Murakoshi, F. Nagasawa, and M. Takase
- 1274 (Invited) Recent Developments Related to Plasmon-Induced Charge Separation
T. Tatsuma
- 1275 (Invited) Fabrication of Ordered Metal Nanostructures for Plasmonic Devices Using Anodic Porous Alumina
H. Masuda, T. Kondo, T. Yanagishita, and K. Nishio
- 1276 (Invited) A Hollow Core-Shell Silica-Titania Photocatalyst for Efficient Stereoselective Synthesis of Pipecolic Acid
B. Ohtani and S. Chandren
- 1277 (Invited) Field Localization Dependence of SERS From Defect-Free Graphenes
K. Ikeda, M. Takase, K. Murakoshi, and K. Uosaki
- 1278 (Invited) Plasmon-Enhanced Photocatalytic Hydrogen Evolution Using ZnS-AgInS₂ Solid Solution Nanoparticles
T. Torimoto, T. Takahashi, A. Kudo, S. Kuwabata, and T. Kameyama
- 1279 (Invited) Exciton Fission and Interfacial Charge Transfer in Rubrene/Fullerene Mixed Film Revealed by Femtosecond and Nanosecond Transient Absorption Spectroscopy
A. Furube, H. Mitsuta, T. Miyadera, Y. Yoshida, and R. Katoh
- 1280 (Invited) In Situ XAFS Spectroscopy at Multi-Copper Complexes Catalyzing Oxygen Reduction Reaction (ORR)
I. Yagi, K. Kimijima, M. Shibata, K. Ogino, H. Notsu, K. Inokuma, N. Ohta, H. Uehara, Y. Uemura, S. Takakusagi, and K. Asakura
- 1281 (Invited) Photoinduced Charge Separation and Charge Transport in Carbon Nanostructure-Based Devices
H. Imahori
- 1282 (Invited) Synthesis and Photochemical Behavior of Platonic Hexahedron Composed of Six Porphyrins and an Au Cluster
T. Teranishi
- 1283 (Invited) "Confined Molecular Catalyst" for Photoelectrochemical Hydrogen Evolution and CO₂ Reduction
K. Uosaki
- 1284 (Invited) Lessons From Nature about Solar Light Harvesting and Implications for Energy Harvesting
G. D. Scholes

- 1285 (Invited) Crumpled Graphene Balls for Scalable Energy Applications
J. Huang
- 1286 Tuning Photoresponse with CdSSe Quantum Dots. Towards the Design of Rainbow Solar Cell
P. Santra and P. V. Kamat
- 1287 (Invited) Colloidal Quantum Dot Photovoltaics
Z. Ning and E. H. Sargent
- 1288 (Invited) Nb-Doped AgTaO₃ as a Water-Splitting Photocatalyst Under Visible Light
H. Irie and L. Ni
- 1289 (Invited) Design Principle of Multi-Electron Water Oxidation Catalysts Composed of Mn Oxides
R. Nakamura
- 1290 (Invited) The Development of Hybrid 1D and 2D Nanostructure Photocatalysts
M. Kuno
- 1291 (Invited) Influence of Atomic Level Surface Local Structure on Photo-Induced Oxidation Reaction of Water At Single Crystal TiO₂ Surface
A. Imanishi, T. Sakao, E. Tsuji, and K. I. Fukui
- 1292 Structural and Chemical Characterization of ALD Pt on N-Doped Graphene Using Atomic Resolution Transmission Electron Microscopy
S. Stambula, N. Gauquelin, M. Bugnet, S. Gorantla, S. Turner, S. Sun, X. Sun, and G. A. Botton
- 1293 Graphene and Carbon Nanotubes as the Catalytic Counter Electrode of High-Performance Dye-Sensitized Solar Cells
J. Ouyang
- 1294 (Invited) TiO₂ Nanotube (T_NT) Surface Treatment Revisited: Implications of ZnO, TiCl₄, and H₂O₂ Treatment On the Photoelectrochemical Properties of T_NT and T_NT/CdSe
V. Subramanian, B. Mukherjee, and W. Wilson
- 1295 A Study on Electrochemical Property of Pt Nanoparticles on Polyethyleneimine-Decorated Graphene
J. Y. Park, J. Y. Park, and S. Kim
- 1296 Synthesis of Highly Efficient Copolymer Based Quasi Solid Electrolyte: Electrochemical and Photovoltaic Properties
M. S. Akhtar, Z. Y. Li, W. Lee, and O. B. Yang
- 1297 Photoluminescence Properties of La³⁺-Doped BaY_{1.94}Eu_{0.06}ZnO₅ Phosphor Prepared Using a Sol-Gel Method
H. L. Chen, Y. Y. Tsai, Y. L. Chai, and Y. S. Chang

- 1298 Electrochemical Characterization of Carbon Blacks Filler-Added Co_3O_4 /Graphene Nanosheets Composite Electrodes
S. K. Park, J. E. Kim, and S. Kim
- 1299 Strong Flexible Free-Standing Fe_3O_4 /Graphene-MWCNT Hybrid Film for Flexible Energy Storage Devices
H. S. Choi, J. H. Kang, Y. S. Kim, J. H. Park, and C. R. Park
- 1300 Exploration of Cr-TiO₂ Nanorods Growth for Solar Applications
K. S. Chang, H. D. Nguyen, Z. A. Lin, and C. Y. Wu
- 1301 Effects of Photo-Luminescence-Efficiency of CdSe/ZnS Core-Shell Quantum Dots for Photo-Voltaic Performance for Silicon Solar-Cells
S. W. Baek, H. M. Seung, J. H. Shim, M. H. Choi, G. S. Lee, and J. G. Park
- 1302 (Invited) Polymeric Porphyrins for Solar Photovoltaics and Solar Photochemistry
C. C. Wamser, M. G. Walter, N. U. Day, and C. Wang
- 1303 (Invited) Surface Modification of Nano-Structured ZnO as Electron-Transporting Layer for Polymer Based Organic Photovoltaic
T. Sagawa
- 1304 Photoelectric Properties of Copper Oxide and Copper Sulfide Quantum Dots -Graphene Hybrid Nanostructures
Q. Zhu, J. Yu, L. Xu, X. Wang, and L. Dong
- 1305 (Invited) Efficient Iodine-Free Dye-Sensitized Solar Cells Using Carbon Nanotubes as Cathodes
H. Lin
- 1306 Structural Evolution and Lattice Strain Measurements of Electrochemically Cycled Pt_3Fe_2 Nanocatalysts Using Scanning Transmission Electron Microscopy
S. Prabhudev, M. Bugnet, C. Bock, and G. A. Botton
- 1307 Electrochemical Study of Titanium Dioxide Based Nanostructured Catalysts
A. Chen, M. Tian, S. Thind, S. Chen, K. Pan, and W. Alammari
- 1308 Electrochemical Supercapacitor Studies of Nanostructured Electrode Based on ϵ/γ - MnO_2 Synthesized by Chemical Reduction and Electrochemical Deposition
L. E. M. L. Phung
- 1309 (Invited) Hybrid Assemblies for the Electrocatalysis of Oxygen and Nitrogen Reduction: Mechanistic Studies and the Design of New Catalysts
A. Gewirth, D. Butcher, Jr., C. Tornow, M. Thorseth, and E. Tse
- 1310 Photoelectrochemical Characterization of $\text{In}_x\text{Ga}_{1-x}\text{N}$ Alloys Grown on GaN Nanowire Substrates
A. M. Garcia, S. Kolli, J. B. Jasinski, B. W. Alphenaar, T. G. Deutsch, and M. K. Sunkara

I2 - Computational Chemistry

Physical and Analytical Electrochemistry

- 1311 Polymeric and Composite Electrolyte Membranes: Insights from Multiscale Computational Modeling
J. Elliott
- 1312 Quantum Modeling and Classical Simulations of Hydrogen-Bonded Oligomers: New Candidates for Proton Conduction
S. M. Auerbach
- 1313 Network Formation and Ion Conduction in Ionomer Membranes
K. Promislow, A. Christlieb, J. Jones, Z. Xu, and N. Gavish
- 1314 Multiscale Simulation of Proton Transport in PFSA Membranes
J. Savage
- 1315 The Effects of Nanoconfinement and Hydrophobic Environment On Structural and Dynamical Properties of Water and Triflic Acid: An *Ab Initio* Study
J. K. Clark II and S. J. Paddison
- 1316 Proton Transport in Aqueous and Non-Aqueous Media Studied by First-Principles Molecular Dynamics
M. E. Tuckerman
- 1317 Alignment of Electronic Energy Levels at Electrochemical Interfaces
M. Sprik and J. Cheng
- 1318 Multiscale Computational Design of Aerospace Coatings Containing Corrosion Inhibitors
I. S. Cole, E. Sapper, J. Osborne, C. Chu, P. Corrigan, M. S. Venkatraman, F. Chen, and M. F. Morks
- 1319 First-Principles Insights Into Oxygen Transport in Solid Oxide Fuel Cell Cathode Materials
A. M. Ritzmann, M. Pavone, A. B. Munoz-Garcia, and E. A. Carter
- 1320 A Computational Study of the Photodimerisation of 2-Ethylhexyl-*P*-Methoxycinnamate
W. Waudo
- 1321 Theoretical Study on Interfacial Charge Transfer Transitions of the Surface Complex between TiO₂ and TCNTQ
Y. Shimoda
- 1322 Electrocatalysis from First Principles: Electrocatalytic Reduction of Oxygen
M. Neurock
- 1323 Density Functional Theory Computation of Electrochemical Activation Barriers
M. J. Janik
- 1324 Continuum Solvation Models for Computational Electrochemistry: Recent Advances
A. V. Marenich, C. J. Cramer, and D. G. Truhlar

- 1325 Carbon Removal from the Anodes of Solid Oxide Fuel Cells: Insights from Ab Initio Calculations
M. Shishkin
- 1326 Development and Applications of Multi-Scale, Multi-Physics Simulators Based on Ultra-Accelerated Quantum Chemical Molecular Dynamics for Battery Technologies
A. Miyamoto, R. Miura, A. Suzuki, N. Hatakeyama, S. Kozawa, and M. C. Williams
- 1327 Cyclic Voltammetric Model and Simulation of Inert, Graded Density Films On Electrodes
K. L. Knoche, P. D. Moberg, C. Hettige, and J. Leddy
- 1328 Coverage Dependent Energetics for Sulfur Poisoning of Ni Based Anodes
D. Monder and K. Karan
- 1329 Redox Reaction Mechanisms with Non-Triiodide Mediators in Dye-Sensitized Solar Cells by Redox Potential Calculations
R. Jono, M. Sumita, Y. Tateyama, and K. Yamashita
- 1330 Effect of Media on the ORR Activity of Nonprecious Metal Model Catalysts: An Ab Initio Study
H. Zhu, S. J. Paddison, and T. A. Zawodzinski

I3 - Ethanol Oxidation

Physical and Analytical Electrochemistry, Energy Technology

- 1331 Multifunctional Nanostructured Materials for Electrocatalytic and Bioelectrocatalytic Oxidation of Ethanol
P. J. Kulesza
- 1332 Value Added Conversion of Carbon Dioxide to Alcohol Fuels
K. Rajeshwar, N. de Tacconi, G. Ghadimkhani, W. Chanmanee, and C. Janaky
- 1333 Fundamental and Applied Aspects of Ethanol Electro-Oxidation
G. Tremiliosi-Filho
- 1334 Oxidation of Ethanol and Its Derivatives On Well Defined Pt Single Crystal Electrodes Vicinal to Pt(111): A Comparative Study
R. Aran-Ais, N. Abe Santos, M. Villulas, and J. M. Feliu
- 1335 Platinum Electrochemistry and Electrocatalysis: Unraveling the Origins of Its Unique Behavior
G. Jerkiewicz
- 1336 Ethanol Oxidation on Platinum Catalysts in Acidic/Basic Electrolytes
A. Wieckowski, R. B. Kutz, and B. Braunschweig

- 1337 Insights on Oxygen Reduction Reaction On Au and Pt Polycrystalline Surface as Seen by *in Situ* Surface Enhanced IR Absorption Spectroscopy
Y. J. Tong
- 1338 Ethanol Oxidation in Direct Ethanol Fuel Cells
B. B. L. Reeb, N. Kluy, O. Schneider, and U. Stimming
- 1339 Synthesis of Ultrapure Nanoparticles and Its Applications to Electroocatalysis. Ethanol and Ethylene Glycol Oxidation On Pt
A. Januszewska, P. Kulboka, A. Lewera, and R. Jurczakowski
- 1340 Electrocatalytic Oxidation of Ethanol At Metallic Nanoporous Catalyst Structures
G. J. Blanchard
- 1341 Surface Segregation of Pt-Ru Nanoparticulate Electrocatalysts in Anodic Processes
P. Krtil, V. Petrykin, H. Hoffmannova, S. Sunde, M. Okube, K. I. Murai, and P. Ochal
- 1342 Development of Hybrid Mixed Zirconium-Tungsten Oxide Supports for Activation of Dispersed Pt and PtRu Nanoparticles towards Oxidation of Alcohols
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- 1343 Traditional and Novel Platinum/Conducting Oxide Electrocatalysts: Trends and Promise
G. A. Tsirlina
- 1344 Catalysts for Electrooxidation of Ethanol and Other Biofuels
P. Atanassov, A. Serov, B. Halevi, K. Artyushkova, and E. A. Baranova
- 1345 Understanding the Elementary Steps in the Ethanol Oxidation Reaction
E. Herrero, V. Del Colle, and C. Buso-Rogero
- 1346 (ET Division Research Award Presentation) Electrocatalysis in Direct Ethanol Fuel Cells
P. Zelenay, Q. Li, M. Li, and R. R. Adzic
- 1347 Quantitative Dens Study of Ethanol and Methanol Oxidation: Effect of Pt Single Crystalline Surface Structure and Bimetallic Surface Modification
H. Baltruschat, E. Mostafa, and A. E. A. Abd El Latif
- 1348 Ways to Improve Alcohol Oxidation in Fuel Cells
H. Kim, S. Bong, S. Woo, I. Kim, and O. H. Han
- 1349 Comparison Electrooxidation of Ethylene Glycol and Ethanol on Platinum Alloy Nanoparticles Dispersed in Metal Oxide Matrix
K. Miecznikowski
- 1350 Platinum Based Catalysts Modified with CeO₂ for Ethanol Oxidation
A. C. Tavares, R. G. Freitas, M. J. Paulo, S. Ntais, and E. C. Pereira

- 1351 Platinum Systems Electrodeposited in the Presence of Iron or Palladium Concomitantly or Not with Rutin or Quercetin On a Glassy Carbon Surface Effectively Catalyze Oxygen Reduction Reaction
G. V. Fortunato, L. B. Venaruso, and G. Maia
- 1352 Micromesoporous VC and WC Derived Carbons Supported Catalysts as Cathodes for Polymer Electrolyte Membrane Fuel Cells in Sulfuric and Perchloric Acid Solutions
E. Härk, V. Steinberg, S. Sepp, J. Nerut, K. Vaarmets, and E. Lust
- 1353 Electrochemical Oxidation of Carbon in Low Temperature Fuel Cells: Influence of the Gas Atmosphere
L. Dubau, L. Castanheira, M. Lopez-Haro, P. Bayle-Guillemaud, L. Guétaz, and F. Maillard
- 1354 Support Effects On Ethanol Oxidation at Pt Nanoparticles
P. G. Pickup, R. Beiramzadeh Moghaddam, and D. D. James
- 1355 Catalyst Design and Fabrication for Ethanol Oxidation
S. G. Sun
- 1356 Electrocatalytic Carbon Nanotube Composites for Oxygen Reduction and Glucose Oxidation. Application the Production of Electrical Power
S. Cosnier
- 1357 Ethanol Oxidation and Beyond: Trends in Alternative Fuel Oxidation Schemes and Progress Towards the Complete Oxidation of Higher Energy Density Fuels
S. D. Minteer
- 1358 An Optimal and Membrane-Less Glucose/Oxygen Enzymatic Fuel Cell Based On a Bioanode with a High Coulombic Efficiency and Current Density
L. Gorton, M. Shao, M. N. Zafar, M. Falk, R. Ludwig, C. K. Peterbauer, D. A. Guschin, D. Leech, S. Shleev, and W. Schuhmann
- 1359 A Case for Core-Shell Catalysts in Fuel Cells and Water Electrolysis
S. Sunde, M. Tsytkin, J. L. Gómez de la Fuente, P. Ochal, F. Seland, N. Muthuswamy, M. Rønning, L. E. Owe, A. Reksten, R. Haverkamp, and D. Chen
- 1360 Tolerance Effect by Tuning Substrate and Catalysts Centers Entities
J. Ma, A. Habrioux, C. Morais, and N. Alonso-Vante
- 1361 Plurimetallic Alloys Bonded in Carbon Nitride “shells” Supported on “cores” of Conducting Nanoparticles as Electrocatalysts for the Oxygen Reduction Reaction (ORR)
V. Di Noto, E. Negro, K. Vezzù, S. Lavina, and G. Pace
- 1362 Role of Oxygen Permeation in Direct Ethanol Fuel Cells with Noble Metals Anodes
A. Lewera, A. Jablonski, and J. Seweryn
- 1363 Formic Acid Oxidation at Pd Electrodes
R. L. Sacci and D. A. Harrington

- 1364 CO Methanation Reaction for Improving the CO Tolerance in PEMFC Anodes
G. A. Saglietti, V. A. Paganin, P. P. Lopes, and E. A. Ticianelli
- 1365 Ethanol Tolerant Manganese Oxide Electrocatalysts for the Oxygen Reduction Reaction in Alkaline Medium
A. C. Garcia, J. J. Linares, E. A. Ticianelli, C. Cremers, and M. Chatenet
- 1366 Limiting the Amount of Oxides in Pt-Mn Alloy Catalysts for Ethanol Oxidation
E. B. Easton, M. R. Zamanzad Ghavidel, O. Reid, M. Ammam, and L. E. Prest
- 1367 Physico-Chemical and Electrocatalytic Properties of Nanostructured TiO₂-Pt Thin Films
Y. Wang, A. Tabet-Aoul, and M. Mohamedi
- 1368 Electrocatalytic Activity of Graphene-Supported Pt-Cu Catalysts Prepared by an Impregnation Method for Ethanol Oxidation
Z. Lv, H. Dong, and L. Dong
- 1369 Towards Understanding the Role Played by Surface Discontinuities on Electrocatalytic Activity
A. C. Chialvo and M. R. Gennero de Chialvo
- 1370 Decore: A New European Project Aiming at Innovative DEFCs Operating at Intermediate Temperatures
G. Granozzi
- 1371 Far From Equilibrium Electro-Oxidation of Small Organic Molecules: The Use of *On Line* Differential Electrochemical Mass Spectrometry (DEMS)
H. Varela, M. V. F. Delmonde, R. Nagao, D. A. Cantane, and F. H. B. Lima
- 1372 Template Assisted Synthesis of WO₃ Nanowires
T. Hussain, Z. U. Nisa, A. T. Shah, A. Mujahid, and K. Shehzad
- 1373 Carbide Derived Carbon as a Support for Pt and Pt-Ru Nanocluster Activated Catalysts
E. Lust, E. Härk, K. Vaarmets, J. Nerut, S. Sepp, J. Eskusson, I. Tallo, H. Kurig, T. Thomberg, and V. Steinberg
- 1374 Activity of Platinum-Based Nanoparticles for the Oxidation of C1 and C2 Alcohols
J. Ribeiro, T. C. Evangelista, F. E. Teran, and K. B. Kokoh
- 1375 Electrospun Materials as Electrocatalyst Supports for PEM Fuel Cells
S. Cavaliere, I. Savych, S. Subianto, D. J. Jones, and J. Rozière
- 1376 Ethanol Oxidation at Elevated Temperatures in the Gas Phase: A Dems Study
C. Cremers, C. Niether, D. J. Jones, K. Pinkwart, and J. Tübke
- 1377 Oxidation of Ethanol Under Potential Scanning Conditions
P. Majidi and P. G. Pickup

- 1378 Effects of Additives On the Structure and Activity of Pt-Mn Alloys towards Ethanol Oxidation
M. R. Zamanzad Ghavidel and E. B. Easton

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Physical and Analytical Electrochemistry

- 1379 Electrochemical Reduction of CO₂ in Aqueous Cetyltrimethylammonium Bromide Solutions
K. L. Phani, N. Sreekanth, and C. Jeyabharathi
- 1380 Method Development for Quantification of Activity of Carbon-Supported Cu Nanoparticles Toward CO₂ Electroreduction
O. Baturina, M. Padilla, A. Serov, Z. Wang, A. Epshteyn, and W. Li
- 1381 CO₂ Electroreduction At Pd/Au(111) and Pd/Pt(111) Multilayers
A. Januszewska, R. Jurczakowski, and P. J. Kulesza
- 1382 STEP- Developing of a Mobile Outdoor System for the Solar Thermal Electrochemical Process for Green Cement Production
J. Lau, J. Stuart, B. Cui, and S. Licht
- 1383 CO₂-brine Solubility and the Effects of Salt Precipitation During Carbon Dioxide Injection through Pore-Scale Network Modeling
J. S. Ellis and A. Bazylak
- 1384 Pore Network Reconstructions and Pore-Scale Characterization of Limestone and Carbonate-Based Rocks for Deep Geologic Carbon Sequestration
M. Freire-Gormaly, J. S. Ellis, A. Bazylak, and H. L. MacLean
- 1385 A Reference Electrode for Room Temperature Ionic Liquids Electrochemical Studies
B. Shvartsev, H. Shasha, E. Gileadi, R. Eichel, and Y. Ein-Eli
- 1386 Influence of Electrode Potential On the Interfacial Structure of Cleaved Single Crystal Bi(111) Electrode | 1-Butyl-4-Methylpyridinium Tetrafluoroborate Interface
E. Anderson, V. Grozovski, L. Siinor, C. Siimenson, V. Ivaništšev, K. Lust, and E. Lust
- 1387 Solvation: Why Lithium Trifluoromethanesulfonate in Common Battery Solvents Makes a Poor Electrolyte
M. P. Foley, C. J. Worosz, L. M. Haverhals, K. D. Sweely, W. Henderson, H. De Long, and P. C. Trulove
- 1388 Oxygen Reduction Reaction at Nafion Film-Coated Carbon Supported Platinum Electrode: Transport and Kinetics
M. R. Reda

- 1389 Enzymatic Biofuel Cells for Energy Harvesting
S. D. Minteer
- 1390 Removal of Erythrocyte Ghosts From Biological Media by Means of Electrochemically Modified Activated Carbon
M. S. Khubutiya, M. M. Goldin, N. V. Borovkova, M. S. Makarov, A. A. Stepanov, V. B. Khvatov, and M. M. Goldin
- 1391 Redox Potential and Antioxidant Activity Monitoring for Complication Diagnosis in Patients with Kidney Transplants
A. K. Evseev, M. M. Goldin, M. Mirzaeian, A. V. Pinchuk, G. R. Garaeva, E. V. Klychnikova, M. M. Goldin, and V. A. Kolesnikov
- 1392 Non-Enzymatic Glucose Oxidation at Electrocatalytic Metal Oxide Films
R. Doyle and M. E. G. Lyons
- 1393 The Electrochemical Approach towards Proton Coupled Electron Transfer Reaction Pathways for Oxidation of Thymine in Water
M. T. Soomro, G. Grampp, and T. X. Nguyen
- 1394 Analysis of the Time Dependence of the Platinum Electrode Open-Circuit Potential in Blood Serum
A. K. Evseev, M. M. Goldin, A. D. Davydov, B. M. Grafov, and M. M. Goldin
- 1395 Spectroelectrochemical Investigations of Electrochemical Processes Using Optically Transparent Carbon Electrodes
K. J. Stevenson, E. K. Walker, M. Charlton, and S. Murugesan
- 1396 PMIRRAS Studies of Electric Field Driven Changes in Conformation and Orientation of Proteins in a Model Membrane Supported on a Au(111) Surface
J. J. Leitch, C. L. Brosseau, T. Laredo, J. R. Dutcher, and J. Lipkowski
- 1397 Nitric Oxide Reduction and Oxidation on Polycrystalline Platinum: Differential Reflectance Spectroscopic Studies
A. J. Jebaraj and D. A. Scherson
- 1398 Synchrotron Infrared Radiation for Spectroelectrochemical Microscopy
I. J. Burgess
- 1399 Electroanalytical Performance of Nitrogen-Containing Tetrahedral Amorphous Carbon Thin-Film Electrodes
G. M. Swain, X. Yang, L. Haubold, and G. DeVivo
- 1400 Charge Transport in Solid State Molecular Junctions
R. L. McCreery, A. Bergren, H. Yan, S. Y. Sayed, J. Fereiro, J. C. Lacroix, M. Kondratenko, and A. Kovalenko
- 1401 Development and Characterization of Highly Efficient Integrated Bioelectrocatalytic Systems Utilizing Nanostructured Carbon, Enzymes, Biofilms and Metal Nanoparticles
P. J. Kulesza

- 1402 Quantitative Correlations Between the Coverage and the Normal Incidence Differential Reflectance for Bromide Adsorbed on a Polycrystalline Platinum Rotating Disk Electrode
D. A. Scherson and J. Xu
- 1403 The Effect of Short Voltage Pulses On the Passivation of 316L Stainless Steel
E. J. Pewsey and G. T. Burstein
- 1404 Electron Transfer At the Solid/Gas Interface
A. Elahi, M. Calleja, J. R. Butler, and D. J. Caruana
- 1405 Near-Infrared Electrogenetaed Chemiluminescence of Au₂₅L₁₈: A Mechanistic Study
M. Hesari, Z. Ding, and M. S. Workentin
- 1406 Electrochemical Sensing Based on Redox-Involved Electron Propagation Through Ferrocenes Anchored to Electrode-Supported Cylindrical Nanopores
T. Ito and F. Li
- 1407 Interfacial Water Inside Ionomer Membrane Pores and Channels Probed by Infrared Spectroscopy
C. Korzeniewski, S. Liu, and A. Aquino
- 1408 On the Kinetics of the Electrochemical Charging Reaction of Hydridable Alloys
V. Vivier, B. Puga, F. Huet, S. Joiret, J. Zhang, C. Georges, J. Monnier, M. Latroche, L. Goubault, and P. Bernard
- 1409 The Effects of Internal Pressure Evolution on the Ageing of Commercial Li-Ion Cells
A. Matasso
- 1410 Redox-Active Iron-Based Organometallic π -Conjugated Wires and Their Covalent Immobilization On Oxide-Free Hydrogen-Terminated Silicon Surfaces
B. Fabre, F. Paul, N. Gauthier, G. Grelaud, M. G. Humphrey, and K. Green
- 1411 Hydrogen Electrosorption Into Palladium-Nitrogen Alloys
P. Polczynski, G. Dercz, and R. Jurczakowski
- 1412 In Situ STM Studies of Cd (0001) Electrode in Aqueous Electrolyte Solution
P. Pikma, V. Grozovski, and E. Lust
- 1413 Amperometric Trace Determination of Rh(III) and Os(VIII) with Thiodipropionic Acid
R. Langyan and S. P. Khatkar
- 1414 Selectiveness of Copper and Polypyrrole Modified Copper Electrodes for Nitrate and Nitrite Electroreduction: A Comparative Study and Application in Ground Water
T. T. P. Nguyen, T. V. Nguyen, B. D. K. Do, and M. A. Pham
- 1415 Comparative Study of Anomalous Codeposition of Ni-Zn in Different Acid Solutions
Y. Addi Sr.
- 1416 Electrochemical Properties of Ag(II) in Concentrated Sulfuric Acid Solutions
P. Polczynski, R. Jurczakowski, and W. Grochala

- 1417 Role of Competitive Ion Adsorption in the Oxidation of Formic Acid on Au
J. R. Strobl and D. A. Harrington
- 1418 Localized Diazonium Ions Generation Based on the Electrocatalytic Formation of Nitrite
G. Shul and D. Bélanger
- 1419 Transient Kinetic Modeling of Hydrocarbon Oxidation On Pt-Ceria Anodes by the Anode Transport and Reaction Process Model
V. Medvedev, S. B. Adler, and E. M. Stuve

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- 1420 Structure and Conduction Properties of Polyimide-Poly (Ethylene Glycol) Films for Fuel Cell Membrane Applications
E. Coletta, M. Toney, and C. W. Frank
- 1421 Ionic-Liquid Gel Based Carbon Dioxide Gas Sensor
M. Honda, Y. Takei, K. Ishizu, H. Imamoto, K. Matsumoto, I. Shimoyama, T. Itoh, and R. Maeda
- 1422 Radiation Effects on the Performance of Proton Exchange Membranes in Electrochemical Cells
H. Li, K. Krishnaswamy, and S. Suppiah
- 1423 Water Uptake and Proton Conductivity of Polyvinyl Alcohol/Siloxane Interpenetrating Polymer Networks
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- 1424 The Effect of Nano-Fillers on a Silicotungstic Acid-Based Polymer-in-Salt Electrolyte
H. Gao and K. Lian
- 1425 Anion-Conducting, Multiblock Copolymer Membranes: Structure-Property Relationships
P. Kohl, D. Y. Park, and H. Beckham
- 1426 Nanofibre-Reinforced Composite Proton Exchange Membranes for Fuel Cell Applications
S. Subianto, D. J. Jones, S. Cavaliere, J. Rozière, and L. Merlo
- 1427 Effect of Nano-fillers on the Conductivity and Structural Properties of EMIHSO₄-based Polymer Electrolytes
S. Ketabi and K. Lian
- 1428 UV-Raman Spectroscopic Characterizations of Thermally Processed Nafion and Perfluoroalkyl Ionomer Materials
R. L. Behrens, S. Zheng, G. Karaoglan, M. Holtz, and C. Korzeniewski
- 1429 Electrolyte Solution and Polymer Equilibrium in PFSA Ion Exchange Membrane
Z. Tang, M. Bright, J. S. Lawton, C. N. Sun, D. S. Aaron, A. B. Papandrew, and T. A. Zawodzinski

- 1430 On the Origin of the Effect of Yttrium Based Oxide Nano-Precipitate On the Properties of Oxide Dispersion Strengthened (ODS) Steels
M. R. Reda
- 1431 On the Origin of the Enhanced Activity of the Anode in Solid Oxide Fuel Cell by the Effect of Nanostructured Doping of CeO₂-Based Oxide (ceria)
M. R. Reda
- 1432 On the Determination of the Catalytic Activity of Oxygen Reduction Reaction in Polymer Electrolyte Membrane Fuel Cell (PEMFC)
M. R. Reda
- 1433 In-Situ Evaluation of Sulfide Contaminants Crossover through Electrolyte Membrane of PEMFC
Y. Oono
- 1434 A Hybrid Doped Polypyrrole/Poly(vinylidene chloride-co-acrylonitrile) Solid State Gel Electrolyte for Iodine-Free Dye-Sensitized Solar Cells
M. H. Jung

I6 - State of the Art Tutorial on Membranes and MEAs for Low Temperature Fuel Cells

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- 1435 Fluorinated Ionomers and Membranes for PEM Fuel Cells
S. Hamrock
- 1436 Hybrid Inorganic-Organic Proton Conducting Membranes for Pemfcs: Synthesis, Properties and Relaxations
V. Di Noto, E. Negro, S. Lavina, K. Vezzù, and G. Pace
- 1437 High Temperature Polymer Membranes for Fuel Cells and Sustainable Energy Devices
B. Benicewicz
- 1438 A Tutorial on Alternate Proton Conducting Membranes
S. R. Narayanan and G. K. S. Prakash
- 1439 Elucidating Structure/Function Relations in PEMs with Multiscale Simulations
S. J. Paddison
- 1440 Proton Exchange Membranes for Hydrogen Generation - A Tutorial On Research Needs and Challenges for PEM Electrolysis Vs. Fuel Cells
K. E. Ayers, E. Anderson, C. Capuano, M. Niedzwiecki, and J. Renner
- 1441 Water Uptake in PFSA Membranes
A. Kusoglu, G. S. Hwang, and A. Z. Weber
- 1442 Superprotonic Solid Acid Membranes: Alternative Proton Conductors for Fuel Cells
A. B. Papandrew

1443 Fabrication and Properties of Electrospun Fuel Cell Membranes
P. N. Pintauro, J. B. Ballengee, A. Park, J. W. Park, and R. Wycisk

1444 State-of-the-Art Understanding of Water Management in PEFCs
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J1 - Environmental, Water Quality and Safety Monitoring

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1445 Mixed-Potential NO_x Sensors: Reproducibility Between Devices Prepared by Commercial Manufacturing Methods

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1446 Gas Sensing with Ultrafine and Micro-Scale ZnO Powders: Shape Matters
J. Cheng, J. Wells, and K. Poduska

1447 Nano-Derived, Micro-Chemical Sensors for SO₂ and H₂S Sensing at High-Temperature
E. Ciftiyurek, K. Sabolsky, and E. M. Sabolsky

1448 Ultralow Power Gas Sensors for Environmental and Safety Applications
M. T. Carter, J. R. Stetter, M. Findlay, and V. Patel

1449 Generator-Collector Pulse Electroanalysis at "Piranha Junction" Electrodes
S. E. C. Dale and F. Marken

1450 Direct Detection of *Salmonella* Typhimurium on Rough, Non-Flat Surfaces of Spinach Leaves using Micron-Scale Phage-Based Magnetoelastic Biosensors
S. Horikawa, Y. Chai, K. A. Vaglenov, J. M. Barbaree, and B. A. Chin

1451 Electrochemical Disinfection of Human Urine for Water-Free and Additive-Free Toilets Using Boron-Doped Diamond Electrode
A. S. Raut, G. B. Cunningham, C. B. Parker, B. R. Stoner, and J. T. Glass

1452 Reversible Trapping of Emerging Water Contaminants
S. Delpoux-Ouldriane, M. Gineys, N. Cohaut, and F. Béguin

1453 Size Dependent Disruption of Tethered Lipid Bilayers by Carboxylate-Modified Polystyrene Nanoparticles
Y. Liu and R. Worden

J2 - Nano/Bio Sensors

Sensor, Physical and Analytical Electrochemistry

1454 Glucose Detection at Single Gold Nanowires
K. Dawson, S. Barry, A. Wahl, and A. O'Riordan

- 1455 Solid-State Nanopore Sensors with Integrated Electrodes
T. Albrecht, A. Bahrami, S. Di Lecce, F. Dogan, J. B. Edel, T. Gibb, A. Ivanov, A. Rutkowska, and J. Skalkowska
- 1456 Immobilization of Protein Aptamers on Binary SAM for Protein Sensing Applications
H. Feyzizarnagh, N. Reaver, D. S. Kim, and B. D. Cameron
- 1457 Development of PtRu/Graphene Bimetallic Catalysts for H₂O₂ Detection in Biosensing
C. C. Kung, P. Y. Lin, X. Yu, and C. C. Liu
- 1458 Concept of DNA Biosensors with Protective Outer-Sphere Membranes
J. Labuda, L. Hlavata, K. Benikova, and A. Ambrozy
- 1459 Detection of Prostate Cancer Biomarker, Alpha-Methylacyl-CoA Racemase (AMACR), Using a Nanoparticle Electrochemical Biosensor
P. Y. Lin, K. L. Cheng, J. D. McGuiffin-Cawley, F. S. Shieu, A. C. Samia, S. Gupta, M. Cooney, C. Thompson, and C. C. Liu
- 1460 Sensing at the Nanoscale: Properties of Nanoscale Interfaces between Immiscible Liquids Formed at the Mouths of Nanopore Arrays
D. Arrigan, M. Sairi, R. Mitchell, J. Strutwolf, and D. Silvester
- 1461 Ni(OH)₂/Co(OH)₂-Based Non-Enzymatic Glucose Sensors
C. H. Lien, J. C. Chen, C. C. Hu, and D. S. H. Wang
- 1462 The Effect of Ionic Liquid (BMIM-BF₄) on Screen-Printed Glucose Irc Biosensor Modified with Crosslinking Chitosan Matrix
C. J. Hsueh, E. Nagelli, L. Dai, and C. C. Liu
- 1463 Evaluation of Differentiation State of an Embryonic Stem Cell Using Scanning Electrochemical Microscopy
Y. Takahashi, Y. Matsumae, K. Ino, H. Shiku, and T. Matsue
- 1464 Novel 3D Integration Technology for Whole Cell Bio-Electrochemical Sensor
H. Ragonés, D. Schreiber, A. Inberg, O. Berkh, A. Freeman, and Y. Shacham-Diamand
- 1465 Electropolymerized Molecularly Imprinted Polymer (E-MIP) Sensors
R. Advincola
- 1466 Stochastic Sensors – New Tools for the Screening for Obesity
R. I. Stefan-VAN Staden, L. A. Gugoasa, and J. F. VAN Staden
- 1467 Conductometric Hydrogen Gas Sensor Based On Templateless Electrodeposited Polypyrrole Nanowires
C. Debiemme-Chouvy, L. Al-Mashat, and W. Wlodarski
- 1468 Biofunctionalized Carbon Nanotubes Sensors for Discriminate Detection of Organophosphorus Compounds
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- 1469 Miniaturized Electrochemical Detection Platform for Label-Free Evaluation of Acetylcholinesterase Inhibitor Activity
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- 1470 Enhanced Luminescent Properties of Europium Complex by Replacement of Water Molecules by 1, 10-Phenanthroline
R. K. Lather, V. B. Taxak, and S. P. Khatkar
- 1471 Core@Shell Ni@NiO Nanowire Array Electrode for Catalytic Activity Towards Glucose
M. Jamal, M. Hasan, M. Schmidt, N. Petkov, A. Mathewson, and K. M. Razeeb
- 1472 Exploring Tau Protein Conformation and Aggregation on Surfaces
S. Martić and J. O. Esteves-Villanueva
- 1473 Electrochemical Detection of Cardiac Myoglobin Using Microchannel with Interdigitated Electrodes (MCIE)
N. S. K. Gunda, S. Naicker, and S. Mitra
- 1474 Modification of Silver/Silver Sulfide Nanoparticle on Carbon Nanotube Electrode for Simultaneous Detection of Ascorbic Acid and Dopamine
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- 1475 Microspot with Integrated Pillars (MSIP) for the Detection of Dengue NS1 Virus
N. S. K. Gunda, M. Singh, Y. Purwar, S. L. Shah, K. Kaur, and S. Mitra
- 1476 High Performance Non-Enzymatic Glucose Sensor Based On Nickel Hydroxide Modified Nitrogen-Incorporated Nanodiamond
C. Y. Ko, J. H. Huang, S. Raina, and W. P. Kang
- 1477 Electrochemical Monitoring of Biodegradation of Phenolic Pollutants Using Nanoporous Gold
B. Shah and A. Chen
- 1478 Nitrogen-doped Carbon Nanotube Electrodes for Enzyme Based Electrochemical Biosensing
J. M. Goran and K. J. Stevenson
- 1479 Preparation of Fine Implantable Needle-Type Glucose Lactate Dual Biosensors Using γ -Polyglutamic Acid
K. Edagawa, H. Takaoka, and M. Yasuzawa
- 1480 Modeling Analysis of Electrode Fouling Due to Electro-Oxidation of Phenols
X. Yang, J. Kirsch, J. W. Fergus, and A. Simonian
- 1481 Urea-Enfet Biosensor Based On pH-Egfet Using FTO and ITO Support Films
G. O. Silva and M. Mulato
- 1482 Glucose Detection Using Fluorine Doped Tin Oxide Extended Gate Field Effect Transistors Upon Varied Functionalizations of Glucose Oxidase
R. A. S. Nascimento and M. Mulato

1483 Preparation of Enzyme-Immobilized Biosensor by the Combination of Electrodeposition and Electropolymerization
K. Hiura, S. Furukawa, K. Edagawa, and M. Yasuzawa

1484 DNA Hybridization Detection by Charge Perturbation Through DNA At Poly(thionine)-Modified Glassy Carbon and Gold Electrodes
M. M. Rahman and J. J. Lee

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1485 Fabrication of Hg/Pt Hemispherical Nanoelectrodes for Localized Quantitive Detection of Manganese ²⁺ Produced at Battery Material
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1486 Fabrication of Nanoporous Gold Microelectrode Via Electrochemical Alloying-Dealloying
J. Jiang

1487 Discrete Gold Nanowire Sensor Arrays: Exploiting the Diffusion Regime
A. O'Riordan, A. Wahl, and K. Dawson

1488 Highly Sensitive Junction Electrodes with Self-Assembled Regenerated Cellulose Thin Films
A. Vuorema, M. Sillanpää, M. Vehviläinen, T. Kamppuri, P. Nousiainen, and F. Marken

1489 Miniaturized Electrochemical Immunosensor for Label-Free Detection of Growth Hormone
N. Li and K. Kerman

1490 Nano/Microfluidic Electrocatalysis: Towards High Conversion, Continuous Reactions
N. M. Contento and P. W. Bohn

1491 Novel Carbon Based Materials for Electrochemical Biosensors
J. Chatterjee, J. A. Cardenal, and A. Shellikeri

1492 ZnO Nanogenerator as a Wind Speed Sensor for Human Respiration Detector
H. I. Lin, R. H. Horng, and D. S. Wu

1493 Health and Environmental Applications of Integrating Low Power Sensors with Wireless Technology
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1494 Investigating Electromagnetic Properties of Yttria-Stabilized Zirconia (YSZ) for Wireless Sensor Applications
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- 1497 Film-Based Shear Force Sensor Using Electrolyte
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- 1498 CMOS-SOI-Nems Transistor (TeraMOS) for Terahertz Imaging
A. Svetlitza and Y. Nemirovsky
- 1499 Two Terminal Impedance Spectroscopy of Electrowetting on Dielectric Test Structures
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- 1500 Monitoring of Charged Wall Growth Inside Pipes with Impedance Spectroscopy
R. J. R. Anseth and M. Waskaas
- 1501 Adsorption Study of Metal Ions on Electrochemically Synthesized Poly-(ortho-phenylenediamine)
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- 1502 CO₂ Capture by Modified Diatomite
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- 1503 Evaluation of Electro-Oxidation, Electrocoagulation, Fenton, Electro-Fenton and Photoelectro-Fenton Methods for Treatment of Tannery Effluents
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- 1504 Planar Photoelectrocatalytic (PEC) Device Based On Free-Standing TiO₂ Nanotube Membranes
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- 1505 Treatment of Retting Pond Water and Generation of Electricity using Microbial Fuel Cells
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- 1506 ZnO-MnO₂ Core-Shell Nanocomposites as a Promising Visible-Light Driven Photocatalyst for Pollutants Removal
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- 1507 The Investigation and Characterization of Next Generation Proton Exchange Membranes for Fuel Cell-Based Ethanol Sensors
J. T. S. Allan and E. B. Easton
- 1508 Sensitivity Enhancement of Metal-Oxide-Semiconductor Tunneling Temperature Sensor with Al₂O₃/SiO₂ Dielectric Stacks
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- 1509 Electroanalytical Study of Isoniazid Oxidation on Ni and Co Nanoparticles Modified FTO Electrodes
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- 1510 Charge Sensing Properties of Nanostructured Fluorine-Doped Tin Oxide Surfaces
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- 1511 Charging and Capacitance Properties of Fluorine Doped Tin Oxide Aimed for the Interfacial Part of Miniaturized Biochemical Sensors
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- 1512 Plastic-Based Dye-Doped Guest-Host Liquid Crystal Displays
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- 1513 Development of Screen-Printed Electrochemical Devices for Printable Electrochemistry
I. Shitanda, Y. Hoshi, and M. Itagaki
- 1514 Electrophoretic Mobility and Electronkinetics of Charged Particles on the Electrophoretic Display Performance
C. A. Kim and J. Y. Oh