

NH

J80/p5S



Volume 269, 10 December 2014

ISSN 0378-7753

JOURNAL OF POWER SOURCES

The International Journal on the Science and
Technology of Electrochemical Energy Systems

Regional Editors

C.K. Dyer (N&S America)
Z. Ogumi (Japan & P.R. China)
S. Passerini (Europe, Middle East
and Africa)
D.A.J. Rand (Asia-Pacific)

**Regional and Special
Issues Co-ordinating
Editor**

P.T. Moseley

**Founding
Editor**

D.H. Collins

Available online at www.sciencedirect.com

ScienceDirect



Contents

Review

Status of hydrogen fuel cell electric buses worldwide.....	975
--	-----

T. Hua, R. Ahluwalia, L. Eudy, G. Singer, B. Jermer, N. Asselin-Miller, S. Wessel, T. Patterson, J. Marcinkoski

Fuel Cells: Science and Technology

High durability and hydroxide ion conducting pore-filled anion exchange membranes for alkaline fuel cell applications.....	1
--	---

Y. Zhao, H. Yu, F. Xie, Y. Liu, Z. Shao, B. Yi

A detailed study of Au–Ni bimetal synthesized by the phase separation mechanism for the cathode of low-temperature solid oxide fuel cells	46
---	----

T. Yang, C.M. Rodrigues de Almeida, D. Ramasamy, F.J. Almeida Loureiro

Lysine-derived mesoporous carbon nanotubes as a proficient non-precious catalyst for oxygen reduction reaction.....	54
---	----

R. Wang, T. Zhou, H. Wang, H. Feng, S. Ji

One-pot synthesis of monodisperse palladium–copper nanocrystals supported on reduced graphene oxide nanosheets with improved catalytic activity and methanol tolerance for oxygen reduction reaction.....	104
---	-----

J.-J. Lv, S.-S. Li, A.-J. Wang, L.-P. Mei, J.-J. Feng, J.-R. Chen, Z. Chen

Effect of high oxygen reduction reaction activity of octahedral PtNi nanoparticle electrocatalysts on proton exchange membrane fuel cell performance.....	117
---	-----

R. Sakamoto, K. Omichi, T. Furuta, M. Ichikawa

Simple synthesis of platinum–palladium nanoflowers on reduced graphene oxide and their enhanced catalytic activity for oxygen reduction reaction	136
--	-----

J.-J. Lv, J.-N. Zheng, H.-B. Zhang, M. Lin, A.-J. Wang, J.-R. Chen, J.-J. Feng

Shape-dependent catalytic activity of oxygen reduction reaction (ORR) on silver nanodecahedra and nanocubes.....	152
--	-----

Q. Wang, X. Cui, W. Guan, L. Zhang, X. Fan, Z. Shi, W. Zheng

Improving carbon dioxide yields and cell efficiencies for ethanol oxidation by potential scanning.....	173
--	-----

P. Majidi, P.G. Pickup

Oxygen incorporation at the three-phase boundary of LSCF–SDC composite.....	180
---	-----

B. Hu, Y. Wang, C. Xia

Mesoporous nitrogen-rich carbon materials as cathode catalysts in microbial fuel cells	212
--	-----

Y. Ahn, I. Ivanov, T.C. Nagaiah, A. Bordoloi, B.E. Logan

The key role of metal dopants in nitrogen-doped carbon xerogel for oxygen reduction reaction.....	225
---	-----

S. Liu, C. Deng, L. Yao, H. Zhong, H. Zhang

Self-powered wastewater treatment for the enhanced operation of a facultative lagoon.....	284
---	-----

T. Ewing, J.T. Babauta, E. Atci, N. Tang, J. Orellana, D. Heo, H. Beyenal

Study of low concentration CO poisoning of Pt anode in a proton exchange membrane fuel cell using spatial electrochemical impedance spectroscopy	344
--	-----

T.V. Reshetenko, K. Bethune, M.A. Rubio, R. Rocheleau

Controlling for peak power extraction from microbial fuel cells can increase stack voltage and avoid cell reversal	363
--	-----

H.C. Boghani, G. Papaharalabos, I. Michie, K.R. Fradler, R.M. Dinsdale, A.J. Guwy, I. Ieropoulos, J. Greenman, G.C. Premier

Performance and stability of Pd nanostructures in an alkaline direct ethanol fuel cell	370
--	-----

R. Carrera-Cerritos, R. Fuentes-Ramírez, F.M. Cuevas-Muñiz, J. Ledesma-García, L.G. Arriaga

Poly(vinylidene fluoride-co-hexafluoropropylene) phase inversion coating as a diffusion layer to enhance the cathode performance in microbial fuel cells.....	379
---	-----

W. Yang, F. Zhang, W. He, J. Liu, M.A. Hickner, B.E. Logan

The impact of fibre surface morphology on the effective thermal conductivity of a polymer electrolyte membrane fuel cell gas diffusion layer.....	385
S.J. Botelho, A. Bazylak	
Reducing start-up time and minimizing energy losses of Microbial Fuel Cells using Maximum Power Point Tracking strategy.....	403
D. Molognoni, S. Puig, M.D. Balaguer, A. Liberale, A.G. Capodaglio, A. Callegari, J. Colprim	
High performance $\text{La}_2\text{NiO}_{4+\delta}$ -infiltrated $(\text{La}_{0.6}\text{Sr}_{0.4})_{0.995}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ cathode for solid oxide fuel cells	412
X. Zhang, H. Zhang, X. Liu	
Metals as electron acceptors in single-chamber microbial fuel cells.....	430
Y. Li, Y. Wu, S. Puranik, Y. Lei, T. Vadas, B. Li	
Physical and electrochemical evaluation of ATO supported IrO_2 catalyst for proton exchange membrane water electrolyser.....	451
V.K. Puthiyapura, M. Mamlouk, S. Pasupathi, B.G. Pollet, K. Scott	
Nanoporous gold on three-dimensional nickel foam: An efficient hybrid electrode for hydrogen peroxide electroreduction in acid media.....	461
X. Ke, Y. Xu, C. Yu, J. Zhao, G. Cui, D. Higgins, Q. Li, G. Wu	
Pd-Ir alloy as an anode material for borohydride oxidation	498
I. Merino-Jimenez, M.J. Janik, C. Ponce de Leon, F.C. Walsh	
$\text{LaNi}_{0.6}\text{Co}_{0.4}\text{O}_{3-\delta}$ dip-coated on Fe-Cr mesh as a composite cathode contact material on intermediate solid oxide fuel cells	509
A. Morán-Ruiz, K. Vidal, A. Larrañaga, M.A. Laguna-Bercero, J.M. Porras-Vázquez, P.R. Slater, M.I. Arriortua	
Oxygen partial pressures on gas-diffusion layer surface and gas-flow channel wall in polymer electrolyte fuel cell during power generation studied by visualization technique combined with numerical simulation.....	556
Y. Ishigami, W. Waskitoaji, M. Yoneda, K. Takada, T. Hyakutake, T. Suga, M. Uchida, Y. Nagumo, J. Inukai, H. Nishide, M. Watanabe	
Nanoporous PtFe alloys as highly active and durable electrocatalysts for oxygen reduction reaction.....	589
H. Duan, Q. Hao, C. Xu	
Oxidation/reduction studies on nanoporous platinum films by electrical resistance measurements	621
L. Zhu, S. Kapoor, Q. Parry, A. Nahata, A.V. Virkar	
Impact of IrRu oxygen evolution reaction catalysts on Pt nanostructured thin films under start-up/shutdown cycling	671
D.A. Cullen, K.L. More, L.L. Atanasoska, R.T. Atanasoski	
A novel composite cathode for intermediate temperature solid oxide fuel cell	723
L. Zhang, J. Yang, J. Li	
Impregnated $\text{Nd}_2\text{NiO}_{4+\delta}$ - scandia stabilized zirconia composite cathode for intermediate-temperature solid oxide fuel cells	812
T. Chen, Y. Zhou, C. Yuan, M. Liu, X. Meng, Z. Zhan, C. Xia, S. Wang	
Optimized electrode arrangement and activation of bioelectrodes activity by carbon nanoparticles for efficient ethanol microfluidic biofuel cells	834
D. Selloum, S. Tingry, V. Techer, L. Renaud, C. Innocent, A. Zouaoui	
Design of a non-precious metal electrocatalyst for alkaline electrolyte oxygen reduction by using soybean biomass as the nitrogen source of electrocatalytically active center structures.....	841
C.-Z. Guo, W.-L. Liao, C.-G. Chen	
Nanostructured F doped IrO_2 electro-catalyst powders for PEM based water electrolysis	855
K.S. Kadakia, P.H. Jampani, O.I. Velikokhatnyi, M.K. Datta, S.K. Park, D.H. Hong, S.J. Chung, P.N. Kumta	
Enhancement of proton conductivity of chitosan membrane enabled by sulfonated graphene oxide under both hydrated and anhydrous conditions.....	898
Y. Liu, J. Wang, H. Zhang, C. Ma, J. Liu, S. Cao, X. Zhang	
Degradation study by 3D reconstruction of a nickel–yttria stabilized zirconia cathode after high temperature steam electrolysis operation	927
E. Lay-Grindler, J. Laurencin, J. Villanova, P. Cloetens, P. Bleuet, A. Mansuy, J. Mougin, G. Delette	
Fuel Cells: Engineering	
An investigation on corrosion protection of chromium nitride coated Fe-Cr alloy as a bipolar plate material for proton exchange membrane fuel cells	81
T.J. Pan, B. Zhang, J. Li, Y.X. He, F. Lin	
Tortuosity factor of three-dimensional infiltrate network	189
Y. Zhang, C. Xia, F. Chen	
$\text{SrFe}_{0.75}\text{Mo}_{0.25}\text{O}_{3-\delta}$ impregnated 430L alloys for efficient fuel oxidation in metal supported solid oxide fuel cells	244
Y. Zhou, X. Meng, C. Yuan, T. Luo, X. Ye, J. Li, S. Wang, Z. Zhan	
Discrete geometry optimization for reducing flow non-uniformity, asymmetry, and parasitic minor loss pressure drops in Z-type configurations of fuel cells.....	274
J.M. Jackson, M.L. Hupert, S.A. Soper	
Thermal coupling potential of Solid Oxide Fuel Cells with metal hydride tanks: Thermodynamic and design considerations towards integrated systems.....	440
A.G. Yiotis, M.E. Kainourgiakis, L.I. Kosmidis, G.C. Charalambopoulos, A.K. Stubos	
A three-dimensional numerical model of a micro laminar flow fuel cell with a bridge-shaped microchannel cross-section.....	542
P.O. Lopez-Montesinos, A.V. Desai, P.J.A. Kenis	
Mathematical model for the analysis of structure and optimal operational parameters of a solid oxide fuel cell generator	632
A. Coralli, H. Villela de Miranda, C.F. Espiúca Monteiro, J.F. Resende da Silva, P.E. Valadão de Miranda	
Direct formic acid microfluidic fuel cell design and performance evolution.....	783
A. Moreno-Zuria, A. Dector, F.M. Cuevas-Muñiz, J.P. Esquivel, N. Sabaté, J. Ledesma-García, L.G. Arriaga, A.U. Chávez-Ramírez	

Fuel Cells: Fuel Processing

Porosity and fractal study of functionalized carbon nanofibers: Effects of the functionalization degree on hydrogen storage capacity.....	69
---	----

F. Galindo-Hernández, B. Portales, J.M. Domínguez, D. Angeles-Beltrán

Thermodynamics of high-temperature, high-pressure water electrolysis.....	424
---	-----

D. Todd, M. Schwager, W. Mérida

Ni-Mn based alloys as versatile catalyst for different electrochemical reactions	597
--	-----

O. Aaboubi, A.-Y. Ali-Omar, E. Dzoyem, J. Marthe, M. Boudifa

Low-cost method for sodium borohydride regeneration and the energy efficiency of its hydrolysis and regeneration process	768
--	-----

L.Z. Ouyang, H. Zhong, Z.M. Li, Z.J. Cao, H. Wang, J.W. Liu, X.K. Zhu, M. Zhu

Lithium Batteries: Science and Technology

Synthesis and electrochemical properties of Zn-doped, carbon coated lithium vanadium phosphate cathode materials for lithium-ion batteries	15
--	----

Y. Yang, W. Xu, R. Guo, L. Liu, S. Wang, D. Xie, Y. Wan

Synthesis of lithium nickel cobalt manganese oxide cathode materials by infrared induction heating	31
--	----

C.-T. Hsieh, Y.-F. Chen, C.-T. Pai, C.-Y. Mo

One-pot synthesis of bicrystalline titanium dioxide spheres with a core-shell structure as anode materials for lithium and sodium ion batteries	37
---	----

Z. Yan, L. Liu, J. Tan, Q. Zhou, Z. Huang, D. Xia, H. Shu, X. Yang, X. Wang

Key parameters in design of lithium sulfur batteries.....	111
---	-----

N. Ding, S.W. Chien, T.S.A. Hor, Z. Liu, Y. Zong

Silicon oxycarbide/nano-silicon composite anodes for Li-ion batteries: Considerable influence of nano-crystalline vs. nano-amorphous silicon embedment on the electrochemical properties.....	164
---	-----

J. Kaspar, M. Graczyk-Zajac, S. Lauterbach, H.-J. Kleebe, R. Riedel

Ionic conductor cerous phosphate and carbon hybrid coating LiFePO ₄ with improved electrochemical properties for lithium ion batteries	194
---	-----

Z. Ma, G. Shao, X. Qin, Y. Fan, G. Wang, J. Song, T. Liu

Electrochemical properties of LiNi _{1/3} Co _{1/3} Mn _{1/3} O ₂ cathode material modified by coating with Al ₂ O ₃ nanoparticles	236
---	-----

K. Araki, N. Taguchi, H. Sakaebi, K. Tatsumi, Z. Ogumi

On the origin of the capacity fading for aluminium negative electrodes in Li-ion batteries	266
--	-----

G. Oltean, C.-W. Tai, K. Edström, L. Nyholm

Effect of surface Li ₃ PO ₄ coating on LiNi _{0.5} Mn _{1.5} O ₄ epitaxial thin film electrodes synthesized by pulsed laser deposition	293
---	-----

H. Konishi, K. Suzuki, S. Taminato, K. Kim, Y. Zheng, S. Kim, J. Lim, M. Hirayama, J.-Y. Son, Y. Cui, R. Kanno

Poly(methyl methacrylate-acrylonitrile-ethyl acrylate) terpolymer based gel electrolyte for LiNi _{0.5} Mn _{1.5} O ₄ cathode of high voltage lithium ion battery	299
--	-----

P. Sun, Y. Liao, H. Xie, T. Chen, M. Rao, W. Li

The influence of the carbonate species on LiNi _{0.8} Co _{0.15} Al _{0.05} O ₂ surfaces for all-solid-state lithium ion battery performance.....	396
--	-----

H. Visbal, S. Fujiki, Y. Aihara, T. Watanabe, Y. Park, S. Doo

Effects of polymeric binders on electrochemical performances of spinel lithium manganese oxide cathodes in lithium ion batteries..	418
--	-----

S. Lee, E.-Y. Kim, H. Lee, E.-S. Oh

Facile synthesis of ultrasmall tin oxide nanoparticles embedded in carbon as high-performance anode for lithium-ion batteries.....	479
--	-----

Q. Tian, Y. Tian, Z. Zhang, L. Yang, S.-i. Hirano

Plasma enhanced chemical vapor deposition silicon nitride for a high-performance lithium ion battery anode.....	520
---	-----

J. Yang, R.C. de Guzman, S.O. Salley, K.Y.S. Ng, B.-H. Chen, M.M.-C. Cheng

Mesoporous molybdenum nitride nanobelts as an anode with improved electrochemical properties in lithium ion batteries.....	534
--	-----

H.-C. Park, K.-H. Lee, Y.-W. Lee, S.-J. Kim, D.-M. Kim, M.-C. Kim, K.-W. Park

Synthesis of copper sulfide nanowire bundles in a mixed solvent as a cathode material for lithium-ion batteries.....	550
--	-----

C. Feng, L. Zhang, Z. Wang, X. Song, K. Sun, F. Wu, G. Liu

Materials that can replace liquid electrolytes in Li batteries: Superionic conductivities in Li _{1.7} Al _{0.3} Ti _{1.7} Si _{0.4} P _{2.6} O ₁₂ . Processing combustion synthesized nanopowders to free standing thin films.....	577
--	-----

E. Yi, W. Wang, S. Mohanty, J. Kieffer, R. Tamaki, R.M. Laine

Mixed organic compound-ionic liquid electrolytes for lithium battery electrolyte systems.....	608
---	-----

M. Montanino, M. Moreno, M. Carewska, G. Maresca, E. Simonetti, R. Lo Presti, F. Alessandrini, G.B. Appetecchi

Li-doped N-methoxyethyl-N-methylpyrrolidinium fluorosulfonyl-(trifluoromethanesulfonyl)imide as electrolyte for reliable lithium ion batteries	645
--	-----

A. Moretti, S. Jeong, G.A. Giffin, S. Jeremias, S. Passerini

Organic-inorganic hybrid polymer electrolytes based on polyether diamine, alkoxy silane, and trichlorotriazine: Synthesis, characterization, and electrochemical applications	651
---	-----

D. Saikia, C.-G. Wu, J. Fang, L.-D. Tsai, H.-M. Kao

Additive effect of ionic liquids on the electrochemical property of a sulfur composite electrode for all-solid-state lithium-sulfur battery.....	727
--	-----

S. Kinoshita, K. Okuda, N. Machida, T. Shigematsu

Lithium-active molybdenum trioxide coated LiNi _{0.5} Co _{0.2} Mn _{0.3} O ₂ cathode material with enhanced electrochemical properties for lithium-ion batteries	747
--	-----

F. Wu, J. Tian, Y. Su, Y. Guan, Y. Jin, Z. Wang, T. He, L. Bao, S. Chen

High cycability nano- GeO_2 /mesoporous carbon composite as enhanced energy storage anode material in Li-ion batteries	755
A. Jahel, A. Darwiche, C. Matei Chimbeu, C. Vix-Guterl, L. Monconduit	
A novel porous coral-like $\text{Zn}_{0.5}\text{Ni}_{0.5}\text{Co}_2\text{O}_4$ as an anode material for lithium ion batteries with excellent rate performance	795
X. Song, Q. Ru, Y. Mo, L. Guo, S. Hu, B. An	
An O_2 transport study in porous materials within the $\text{Li}-\text{O}_2$ - system	825
T. Schied, H. Ehrenberg, J. Eckert, S. Oswald, M. Hoffmann, F. Scheiba	
Graphene/silicon nanocomposite anode with enhanced electrochemical stability for lithium-ion battery applications.....	873
F. Maroni, R. Raccichini, A. Birrozzzi, G. Carbonari, R. Tossici, F. Croce, R. Marassi, F. Nobili	
Anode microstructures from high-energy and high-power lithium-ion cylindrical cells obtained by X-ray nano-tomography	912
M. Ender, J. Joos, A. Weber, E. Ivers-Tiffée	
Surface phenomena of high energy $\text{Li}(\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3})\text{O}_2$ /graphite cells at high temperature and high cutoff voltages	920
T. Liu, A. Garsuch, F. Chesneau, B.L. Lucht	
Degradation of lithium ion batteries employing graphite negatives and nickel-cobalt-manganese oxide + spinel manganese oxide positives: Part 1, aging mechanisms and life estimation.....	937
J. Wang, J. Purewal, P. Liu, J. Hicks-Garner, S. Soukazian, E. Sherman, A. Sorenson, L. Vu, H. Tataria, M.W. Verbrugge	
X-ray absorption fine structure imaging of inhomogeneous electrode reaction in LiFePO_4 lithium-ion battery cathode	994
M. Katayama, K. Sumiawaka, R. Miyahara, H. Yamashige, H. Arai, Y. Uchimoto, T. Ohta, Y. Inada, Z. Ogumi	
Lithium Batteries: Engineering	
State of health and charge measurements in lithium-ion batteries using mechanical stress.....	7
J. Cannarella, C.B. Arnold	
Recycling of spent ion-lithium batteries as cobalt hydroxide, and cobalt oxide films formed under a conductive glass substrate, and their electrochemical properties	158
E.M.S. Barbieri, E.P.C. Lima, S.J. Cantarino, M.F.F. Lelis, M.B.J.G. Freitas	
Open circuit voltage characterization of lithium-ion batteries	317
B. Pattipati, B. Balasingam, G.V. Avvari, K.R. Pattipati, Y. Bar-Shalom	
Three dimensional studies of particle failure in silicon based composite electrodes for lithium ion batteries	334
J. Gonzalez, K. Sun, M. Huang, J. Lambros, S. Dillon, I. Chasiotis	
Corrosion of stainless steel battery components by bis(fluorosulfonyl)imide based ionic liquid electrolytes.....	616
T. Evans, J. Olson, V. Bhat, S.-H. Lee	
State-of-charge estimation for battery management system using optimized support vector machine for regression	682
J.N. Hu, J.J. Hu, H.B. Lin, X.P. Li, C.L. Jiang, X.H. Qiu, W.S. Li	
A study of 40 Ah lithium ion batteries at zero percent state of charge as a function of temperature.....	694
P.S. Attidekou, S. Lambert, M. Armstrong, J. Widmer, K. Scott, P.A. Christensen	
Enhanced autonomic shutdown of Li-ion batteries by polydopamine coated polyethylene microspheres	735
M. Baginska, B.J. Blaiszik, T. Rajh, N.R. Sottos, S.R. White	
Fire behavior of carbonates-based electrolytes used in Li-ion rechargeable batteries with a focus on the role of the LiPF_6 and LiFSI salts	804
G.G. Eshetu, J.-P. Bertrand, A. Lecocq, S. Grugeon, S. Laruelle, M. Armand, G. Marlair	
A robust approach to battery fuel gauging, part II: Real time capacity estimation	949
B. Balasingam, G.V. Avvari, B. Pattipati, K.R. Pattipati, Y. Bar-Shalom	
Lithium Batteries: Applications	
Thermo-electrochemical analysis of lithium ion batteries for space applications using Thermal Desktop	486
W. Walker, H. Ardebili	
A novel methodology for non-linear system identification of battery cells used in non-road hybrid electric vehicles.....	883
J. Unger, C. Hametner, S. Jakubek, M. Quasthoff	
Lead-Acid Batteries: Science and Technology	
Lead acetate trihydrate precursor route to synthesize novel ultrafine lead oxide from spent lead acid battery pastes	565
X. Sun, J. Yang, W. Zhang, X. Zhu, Y. Hu, D. Yang, X. Yuan, W. Yu, J. Dong, H. Wang, L. Li, R. Vasant Kumar, S. Liang	
Other Electrochemical Power Sources: Science and Technology	
Synthesis and characterization of carbon black/manganese oxide air cathodes for zinc-air batteries.....	88
P.-C. Li, C.-C. Hu, T.-C. Lee, W.-S. Chang, T.H. Wang	
Na[FSA]-[C ₃ C ₁ pyrr][FSA] ionic liquids as electrolytes for sodium secondary batteries: Effects of Na ion concentration and operation temperature	124
C. Ding, T. Nohira, R. Hagiwara, K. Matsumoto, Y. Okamoto, A. Fukunaga, S. Sakai, K. Nitta, S. Inazawa	
Preparation of La _{1-x} Ca _x MnO ₃ perovskite-graphene composites as oxygen reduction reaction electrocatalyst in alkaline medium....	144
J. Hu, L. Wang, L. Shi, H. Huang	
Structure and properties of the $\text{Na}_2\text{S}-\text{P}_2\text{S}_5$ glasses and glass-ceramics prepared by mechanical milling.....	260
K. Noi, A. Hayashi, M. Tatsumisago	
"Stratifiability index" – A quantitative assessment of acid stratification in flooded lead acid batteries	704
D. Schulte, D.U. Sauer, E. Ebner, A. Börger, S. Gose, H. Wenzl	
Effects of graphene/silver nanohybrid additives on electrochemical properties of magnesium-based amorphous alloy	716
H. Lin-jun, W. Yan-xin, H. Zhen, T. Jian-guo, W. Yao, L. Ji-xian, J. Ji-qing, L. Jing-quan, L.A. Belfiore	
Effect of TiC addition on SnSb-C composite anodes for sodium-ion batteries	848
I.T. Kim, S.-O. Kim, A. Manthiram	
Practical thermodynamic quantities for aqueous vanadium- and iron-based flow batteries	962
N.S. Hudak	

Other Electrochemical Power Sources: Engineering

Modeling an alkaline electrolysis cell through reduced-order and loss-estimate approaches.....	203
J. Milewski, G. Guandalini, S. Campanari	
Maximizing plating density and efficiency for a negative deposition reaction in a flow battery.....	216
K.L. Hawthorne, J.S. Wainright, R.F. Savinell	
Stress analyses for the glass joints of contemporary sodium sulfur batteries.....	773
K. Jung, S. Lee, G. Kim, C.-S. Kim	

Supercapacitors: Science and Technology

Design, synthesis and evaluation of three-dimensional $\text{Co}_3\text{O}_4/\text{Co}_3(\text{VO}_4)_2$ hybrid nanorods on nickel foam as self-supported electrodes for asymmetric supercapacitors.....	61
W.-B. Zhang, L.-B. Kong, X.-J. Ma, Y.-C. Luo, L. Kang	
An asymmetric supercapacitor with highly dispersed nano- Bi_2O_3 and active carbon electrodes	129
D. Qu, L. Wang, D. Zheng, L. Xiao, B. Deng, D. Qu	
Ternary nitrogen-doped graphene/nickel ferrite/polyaniline nanocomposites for high-performance supercapacitors	250
W. Wang, Q. Hao, W. Lei, X. Xia, X. Wang	
Microwave synthesis of titania-coated carbon nanotube composites for electrochemical capacitors.....	526
C.-T. Hsieh, Y.-C. Chen, Y.-F. Chen, M.M. Huq, P.-Y. Chen, B.-S. Jang	
Are tomorrow's micro-supercapacitors hidden in a forest of silicon nanotrees?.....	740
F. Thissandier, P. Gentile, T. Brousse, G. Bidan, S. Sadki	
Layered manganese oxides-decorated and nickel foam-supported carbon nanotubes as advanced binder-free supercapacitor electrodes.....	760
M. Huang, R. Mi, H. Liu, F. Li, X.L. Zhao, W. Zhang, S.X. He, Y.X. Zhang	
Preparation and supercapacitive behaviors of the ordered mesoporous/microporous chromium carbide-derived carbons.....	818
C. Wu, J. Gao, Q. Zhao, Y. Zhang, Y. Bai, X. Wang, X. Wang	

Photo-electrochemical Cells

ZnO@S-doped ZnO core/shell nanocomposites for highly efficient solar water splitting	24
C. Wang, Y. Feng, L. Cai, X. Yang, J. He, W. Yan, Q. Liu, Z. Sun, F. Hu, Z. Xie, T. Yao, S. Wei	
Facile synthesis of tungsten oxide nanostructures for efficient photoelectrochemical water oxidation.....	98
Y. Liu, S. Xie, C. Liu, J. Li, X. Lu, Y. Tong	
Benzonitrile based electrolytes for best operation of dye sensitized solar cells.....	308
A. Latini, F.K. Aldibaja, C. Cavallo, D. Gozzi	
Advanced three-component ZnO/Ag/CdS nanocomposite photoanode for photocatalytic water splitting.....	466
X. Zhang, Y. Li, J. Zhao, S. Wang, Y. Li, H. Dai, X. Sun	
The production of cobalt sulfide/graphene composite for use as a low-cost counter-electrode material in dye-sensitized solar cells ..	473
G. Wang, J. Zhang, S. Kuang, S. Liu, S. Zhuo	
ZnO/PbS core/shell nanorod arrays as efficient counter electrode for quantum dot-sensitized solar cells.....	661
X. Song, M. Wang, J. Deng, Y. Ju, T. Xing, J. Ding, Z. Yang, J. Shao	
Titanium dioxide coated on titanium/stainless steel foil as photoanode for high efficiency flexible dye-sensitized solar cells.....	789
K.-M. Lee, L.-C. Lin, V. Suryanarayanan, C.-G. Wu	
Cadmium sulfide quantum dots sensitized tin dioxide-titanium dioxide heterojunction for efficient photoelectrochemical hydrogen production	866
X. Li, Z. Zhang, L. Chen, Z. Liu, J. Cheng, W. Ni, E. Xie, B. Wang	

Erratum

Corrigendum to "Quantitative microstructure characterization of a Ni-YSZ bi-layer coupled with simulated electrode polarisation" [J. Power Sources 256 (2014) 394–403]	1000
F. Usseglio-Viretta, J. Laurencin, G. Delette, J. Villanova, P. Cloetens, D. Leguillon	