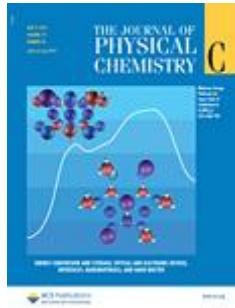


THE JOURNAL OF PHYSICAL CHEMISTRY C



Larger Cover

May 9, 2013

Volume 117, Issue 18

Pages 9049-9528

ENERGY CONVERSION AND STORAGE; ENERGY AND CHARGE TRANSPORT

The Role of Hole Transport in Hybrid Inorganic/Organic Silicon/Poly(3,4-ethylenedioxy-thiophene):Poly(styrenesulfonate) Heterojunction Solar Cells

Matthias Pietsch, Muhammad Y. Bashouti, and Silke Christiansen

pp 9049-9055

Publication Date (Web): April 10, 2013 (Article)

DOI: 10.1021/jp308349f

CAS Section:

Electrochemical, Radiational, and Thermal Energy Technology

Preparation, Comparative Energy Storage Properties, and Impedance Spectroscopy Studies of Environmentally Friendly Cathode, Li(MMn_{11/6})O₄ (M = Mn_{1/6}, Co_{1/6}, (Co_{1/12}Cr_{1/12}))

M. V. Reddy, A. Sakunthala, S. SelvashekaraPandian, and B. V. R. Chowdari

pp 9056-9064

Publication Date (Web): April 4, 2013 (Article)

DOI: 10.1021/jp309180k

CAS Section:

Electrochemical, Radiational, and Thermal Energy Technology

Effect of Temperature on Structure and Electronic Properties of Nanometric Spinel-Type Cobalt Oxides

G. Godillot, L. Guerlou-Demourgues, L. Croguennec, K. M. Shaju, and C. Delmas
pp 9065-9075

Publication Date (Web): April 5, 2013 (Article)
DOI: 10.1021/jp3100359

Section:

Electrochemical, Radiational, and Thermal Energy Technology

Tuning the HOMO and LUMO Energy Levels of Organic Dyes with *N*-Carboxomethylpyridinium as Acceptor To Optimize the Efficiency of Dye-Sensitized Solar Cells

Ming Cheng, Xichuan Yang, Fuguo Zhang, Jianghua Zhao, and Licheng Sun
pp 9076-9083

Publication Date (Web): April 10, 2013 (Article)
DOI: 10.1021/jp311378b

Section:

Electrochemical, Radiational, and Thermal Energy Technology

Li-ion Conduction in the LiBH₄:LiI System from Density Functional Theory Calculations and Quasi-Elastic Neutron Scattering

Jon Steinar Gardarsson Myrdal, Didier Blanchard, Dadi Sveinbjörnsson, and Tejs Vegge
pp 9084-9091

Publication Date (Web): March 11, 2013 (Article)
DOI: 10.1021/jp311980h

Section:

Electric Phenomena

Theoretical Analysis of Built-in Interfacial Electric Dipole Field in Dye-Sensitized Solar Cells

Cunku Dong, Xin Li, Wei Zhao, Pengfei Jin, and Jingyao Qi
pp 9092-9103

Publication Date (Web): April 1, 2013 (Article)
DOI: 10.1021/jp312834n

Section:

Electrochemical, Radiational, and Thermal Energy Technology

Strategic Modification of BiVO₄ for Improving Photoelectrochemical Water Oxidation Performance

Hye Won Jeong, Tae Hwa Jeon, Jum Suk Jang, Wonyong Choi, and Hyunwoong Park
pp 9104-9112

Publication Date (Web): April 16, 2013 (Article)

DOI: 10.1021/jp400415m

 **Section:**

Electrochemical, Radiational, and Thermal Energy Technology

Bi₂WO₆ Quantum Dots Decorated Reduced Graphene Oxide: Improved Charge Separation and Enhanced Photoconversion Efficiency

Songmei Sun, Wenzhong Wang, and Ling Zhang
pp 9113-9120

Publication Date (Web): April 15, 2013 (Article)

DOI: 10.1021/jp4004592

 **Section:**

Electrochemical, Radiational, and Thermal Energy Technology

Sacrificial Template Synthesis and Photothermal Conversion Enhancements of Hierarchical and Hollow CuInS₂ Microspheres

Daxiong Wu, Jinfeng Duan, Canying Zhang, Kai Guo, and Haitao Zhu
pp 9121-9128

Publication Date (Web): April 17, 2013 (Article)

DOI: 10.1021/jp400806k

 **Section:**

Ceramics

Investigation of Phase Separation in Bulk Heterojunction Solar Cells via Supramolecular Chemistry

Raja Bhaskar Kanth Siram, Meera Stephen, Farman Ali, and Satish Patil
pp 9129-9136

Publication Date (Web): April 29, 2013 (Article)

DOI: 10.1021/jp401523u

 **Section:**

Electrochemical, Radiational, and Thermal Energy Technology

MnO₂-Based Thermopower Wave Sources with Exceptionally Large Output Voltages

Sumeet Walia, Sivacarendran Balendhran, Pyshar Yi, David Yao, Serge Zhuiykov, Muthu Pannirselvam, Rodney Weber, Michael S. Strano, Madhu Bhaskaran, Sharath Sriram, and Kourosh Kalantar-zadeh
pp 9137-9142

Publication Date (Web): April 10, 2013 (Article)

DOI: 10.1021/jp401731b

 **Section:**

Electric Phenomena

Abnormal Temperature-Dependent Electron Transport in Hole Transport Material *N,N'*-Diphenyl-*N,N'*-bis(3- methylphenyl)-[1,1'-biphenyl]-4,4'-diamine (TPD)

Yun He, Yongmao Hu, Xiaoqing Chen, Huan Peng, Yintao You, Qi Zeng, Xindong Gao, and Xiaoyuan Hou

pp 9143-9147

Publication Date (Web): April 17, 2013 (Article)

DOI: 10.1021/jp401914n

 **Section:**

Electric Phenomena

Anisotropy of Polarizability of Fullerene Higher Adducts for Assessing the Efficiency of Their Use in Organic Solar Cells

Denis Sh. Sabirov

pp 9148-9153

Publication Date (Web): April 15, 2013 (Article)

DOI: 10.1021/jp401944x

 **Section:**

Electrochemical, Radiational, and Thermal Energy Technology

Artificial Light-Harvesting Model in a Self-Assembly Composed of Cationic Dyes and Inorganic Nanosheet

Yohei Ishida, Tetsuya Shimada, and Shinsuke Takagi

pp 9154-9163

Publication Date (Web): April 18, 2013 (Article)

DOI: 10.1021/jp4022757

 **Section:**

Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes

Reversible Surface Segregation of Pt in a Pt₃Au/C Catalyst and Its Effect on the Oxygen Reduction Reaction

Kug-Seung Lee, Hee-Young Park, Hyung Chul Ham, Sung Jong Yoo, Hyoung Juhn Kim, EunAe Cho, Arumugam Manthiram, and Jong Hyun Jang

pp 9164-9170

Publication Date (Web): April 3, 2013 (Article)

DOI: 10.1021/jp403135k

 **Section:**

Electrochemistry

Observing Charge Dynamics in Surface Reactions by Time-Resolved Stark Effects

Michael Meister, Björn Baumeier, Neil Pschirer, Rüdiger Sens, Ingmar Bruder, Frédéric Laquai, Denis Andrienko, and Ian A. Howard

pp 9171-9177

Publication Date (Web): April 11, 2013 (Article)

DOI: 10.1021/jp403268c

 **Section:**

Biochemical Methods

Molecular Insights into Carbon Nanotube Supercapacitors: Capacitance Independent of Voltage and Temperature

Guang Feng, Song Li, Jennifer S. Atchison, Volker Presser, and Peter T. Cummings

pp 9178-9186

Publication Date (Web): April 12, 2013 (Article)

DOI: 10.1021/jp403547k

 **Section:**

Electric Phenomena

SURFACES, INTERFACES, POROUS MATERIALS, AND CATALYSIS

Electrochemical CO₂ and CO Reduction on Metal-Functionalized Porphyrin-like Graphene

Vladimir Tripkovic, Marco Vanin, Mohammedreza Karamad, Mårten E. Björketun, Karsten W. Jacobsen, Kristian S. Thygesen, and Jan Rossmeisl
pp 9187-9195

Publication Date (Web): April 10, 2013 (Article)

DOI: 10.1021/jp306172k

 **Section:**

Electrochemistry

Infrared Study of Strongly and Weakly Adsorbed CO₂ on Fresh and Oxidatively Degraded Amine Sorbents

Chakravartula S. Srikanth and Steven S. C. Chuang
pp 9196-9205

Publication Date (Web): April 8, 2013 (Article)

DOI: 10.1021/jp311232f

 **Section:**

Surface Chemistry and Colloids

Enhanced Extraction Rates through Gap States of Molybdenum Oxide Anode Buffer

Binayak Dasgupta, Wei Peng Goh, Zi En Ooi, Lai Mun Wong, Chang Yun Jiang, Yi Ren, Eng Soon Tok, Jisheng Pan, Jie Zhang, and Sing Yang Chiam
pp 9206-9211

Publication Date (Web): March 26, 2013 (Article)

DOI: 10.1021/jp3114013

 **Section:**

Electrochemical, Radiational, and Thermal Energy Technology

Spontaneous Change in Molecular Orientation at Order-Disorder Transition of Tetracene on Ag(111)

Tomoki Sueyoshi, Martin Willenbockel, Michael Naboka, Alexei Nefedov, Serguei Soubatch, Christof Wöll, and F. Stefan Tautz
pp 9212-9222

Publication Date (Web): April 4, 2013 (Article)

DOI: 10.1021/jp312117p

 **Section:**

Surface Chemistry and Colloids

Synthesis of Dispersed Superfine fcc Nickel Single Crystals in Gas Phase

Wei Gao, Shaobo Shen, and Yao Cheng

pp 9223-9228

Publication Date (Web): April 4, 2013 (Article)

DOI: 10.1021/jp3128725

 **Section:**

Nonferrous Metals and Alloys

Growth and Interface Reactivity of Titanium Oxide Thin Films on Fe(001)

A. Brambilla, A. Calloni, G. Berti, G. Bussetti, L. Duò, and F. Ciccacci

pp 9229-9236

Publication Date (Web): April 15, 2013 (Article)

DOI: 10.1021/jp400159j

 **Section:**

Surface Chemistry and Colloids

Accessibility of Acid Sites in Hierarchical Zeolites: Quantitative IR Studies of Pivalonitrile Adsorption

Karolina Sadowska, Kinga Góra-Marek, and Jerzy Datka

pp 9237-9244

Publication Date (Web): April 12, 2013 (Article)

DOI: 10.1021/jp400400t

 **Section:**

Surface Chemistry and Colloids

Role of Hydrophobic Interaction in Controlling the Orientation of Dicationic Porphyrins on Solid Surfaces

Miharu Eguchi, Tetsuya Shimada, Donald A. Tryk, Haruo Inoue, and Shinsuke Takagi

pp 9245-9251

Publication Date (Web): April 11, 2013 (Article)

DOI: 10.1021/jp400645d

 **Section:**

Surface Chemistry and Colloids

Acoustic Enhancement of Surface Diffusion

Chengping Wu, Vladimir Yu. Zaitsev, and Leonid V. Zhigilei
pp 9252-9258

Publication Date (Web): April 10, 2013 (Article)

DOI: 10.1021/jp400884d

 **Section:**

Surface Chemistry and Colloids

Intercalation of Li at the Graphene/Cu Interface

Liang Zhang, Yifan Ye, Dingling Cheng, Haibin Pan, and Junfa Zhu
pp 9259-9265

Publication Date (Web): April 15, 2013 (Article)

DOI: 10.1021/jp401290f

 **Section:**

Inorganic Chemicals and Reactions

Separating Catalytic Activity at Edges and Terraces on Platinum: Hydrogen Dissociation

I. M. N. Groot, A. W. Kleyn, and L. B. F. Juurlink
pp 9266-9274

Publication Date (Web): March 28, 2013 (Article)

DOI: 10.1021/jp401355c

 **Section:**

Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms

Exotic High Activity Surface Patterns in PtAu Nanoclusters

Junais Habeeb Mokkath and Udo Schwingenschlögl
pp 9275-9280

Publication Date (Web): April 16, 2013 (Article)

DOI: 10.1021/jp401466h

 **Section:**

General Physical Chemistry

Selective Optical Sensing of Hg(II) in Aqueous Media by H-Acid/SBA-15: A Combined Experimental and Theoretical Study

Pezhman Zarabadi-Poor, Alireza Badiei, Ali Akbar Yousefi, and Joaquín Barroso-Flores
pp 9281-9289

Publication Date (Web): April 15, 2013 (Article)
DOI: 10.1021/jp401479z

Section:

Inorganic Analytical Chemistry

Final State Distributions of the Radical Photoproducts from the UV Photooxidation of 2-Butanone on TiO₂(110)

Daniel P. Wilson, David P. Sporleder, and Michael G. White
pp 9290-9300

Publication Date (Web): April 10, 2013 (Article)
DOI: 10.1021/jp401838r

Section:

Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes

Selective Dynamic CO₂ Separations on Mg-MOF-74 at Low Pressures: A Detailed Comparison with 13X

Tom Remy, Sunil A. Peter, Stijn Van der Perre, Pieterjan Valvekens, Dirk E. De Vos, Gino V. Baron, and Joeri F. M. Denayer
pp 9301-9310

Publication Date (Web): April 10, 2013 (Article)
DOI: 10.1021/jp401923v

Section:

Fossil Fuels, Derivatives, and Related Products

The Structure of Silica Surfaces Exposed to Atomic Oxygen

Paul Norman, Thomas E. Schwartzentruber, Hannah Leverentz, Sijie Luo, Rubén Meana-Pañeda, Yuliya Paukku, and Donald G. Truhlar
pp 9311-9321

Publication Date (Web): April 10, 2013 (Article)
DOI: 10.1021/jp4019525

Section:

Surface Chemistry and Colloids

Field Effect Modulation of Surface Charge Property and Electroosmotic Flow in a Nanochannel: Stern Layer Effect

Christopher Hughes, Li-Hsien Yeh, and Shizhi Qian

pp 9322-9331

Publication Date (Web): April 10, 2013 (Article)

DOI: 10.1021/jp402018u



Biochemical Methods

Carbon Doping of Hexagonal Boron Nitride by Using CO Molecules

Zilong Liu, Qingzhong Xue, Teng Zhang, Yehan Tao, Cuicui Ling, and Meixia Shan

pp 9332-9339

Publication Date (Web): April 17, 2013 (Article)

DOI: 10.1021/jp402297n



Electric Phenomena

Understanding Hydrogen Sorption in a Metal–Organic Framework with Open-Metal Sites and Amide Functional Groups

Tony Pham, Katherine A. Forrest, Patrick Nugent, Youssef Belmabkhout, Ryan Luebke, Mohamed Eddaoudi, Michael J. Zaworotko, and Brian Space
pp 9340-9354

Publication Date (Web): April 12, 2013 (Article)

DOI: 10.1021/jp402304a



Surface Chemistry and Colloids

Characterization of SAMs Derived from Octadecyloxyphenylethanethiols by Sum Frequency Generation

Jack Deodato C. Jacob, Supachai Rittikulsittichai, T. Randall Lee, and Steven Baldelli

pp 9355-9365

Publication Date (Web): April 29, 2013 (Article)

DOI: 10.1021/jp402311g

Section:

Surface Chemistry and Colloids

Near-Surface Accumulation of Hydrogen and CO Blocking Effects on a Pd–Au Alloy

Shohei Ogura, Michio Okada, and Katsuyuki Fukutani

pp 9366-9371

Publication Date (Web): April 16, 2013 (Article)

DOI: 10.1021/jp402317h

Section:

Surface Chemistry and Colloids

PLASMONICS, OPTICAL MATERIALS, AND HARD MATTER Luminescent Properties of Eu(III) Chelates on Metal Nanorods

Jian Zhang, Yi Fu, Krishanu Ray, Yuan Wang, and Joseph. R. Lakowicz

pp 9372-9380

Publication Date (Web): April 12, 2013 (Article)

DOI: 10.1021/jp3091667

Section:

Optical, Electron, and Mass Spectroscopy and Other Related Properties

Nanodentures and Mechanical Electrodynamics: Three-Dimensional Relative Orientation of Plasmonic Nanoarches from Absorption Spectra

Robert C. Boutelle, Yi Gao, Chris Arntsen, and Daniel Neuhauser

pp 9381-9385

Publication Date (Web): April 15, 2013 (Article)

DOI: 10.1021/jp312386h

Section:

Optical, Electron, and Mass Spectroscopy and Other Related Properties

Plasma-Mediated Nanocavitation and Photothermal Effects in Ultrafast Laser Irradiation of Gold Nanorods in Water

Étienne Boulais, Rémi Lachaine, and Michel Meunier

pp 9386-9396

Publication Date (Web): April 16, 2013 (Article)

DOI: 10.1021/jp312475h

Section:

Optical, Electron, and Mass Spectroscopy and Other Related Properties

Truncated Power Law Analysis of Blinking SERS of Thiacyanine Molecules Adsorbed on Single Silver Nanoaggregates by Excitation at Various Wavelengths

Yasutaka Kitahama, Ai Enogaki, Yuhei Tanaka, Tamitake Itoh, and Yukihiro Ozaki

pp 9397-9403

Publication Date (Web): April 15, 2013 (Article)

DOI: 10.1021/jp312530j

Section:

Optical, Electron, and Mass Spectroscopy and Other Related Properties

Optical Investigation of Self-Aggregation of a Tetrazole-Substituted Diphenylacetylene Derivative: Steady and Excited State Dynamics in Solid and Solution State

Venugopal Karunakaran, Deepak D. Prabhu, and Suresh Das

pp 9404-9415

Publication Date (Web): April 11, 2013 (Article)

DOI: 10.1021/jp400115c

Section:

Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes

Molecular Origins of the High-Performance Nonlinear Optical Susceptibility in a Phenolic Polyene Chromophore: Electron Density Distributions, Hydrogen Bonding, and ab Initio Calculations

Tze-Chia Lin, Jacqueline M. Cole, Andrew P. Higginbotham, Alison J. Edwards, Ross O. Piltz, Javier Pérez-Moreno, Ji-Youn Seo, Seung-Chul Lee, Koen Clays, and O-Pil Kwon

pp 9416-9430

Publication Date (Web): April 12, 2013 (Article)

DOI: 10.1021/jp400648q

Section:

Optical, Electron, and Mass Spectroscopy and Other Related Properties

Preventing the Degradation of Ag Nanoparticles Using an Ultrathin α - Al_2O_3 Layer as Protective Barrier

G. Baraldi, M. Carrada, J. Toudert, F. J. Ferrer, A. Arbouet, V. Paillard, and J. Gonzalo

pp 9431-9439

Publication Date (Web): April 30, 2013 (Article)

DOI: 10.1021/jp401421m

 **Section:**

Optical, Electron, and Mass Spectroscopy and Other Related Properties

In Situ “Doping” Inverse Silica Opals with Size-Controllable Gold Nanoparticles for Refractive Index Sensing

Zhongyu Cai, Yan Jun Liu, Xianmao Lu, and Jinghua Teng

pp 9440-9445

Publication Date (Web): April 12, 2013 (Article)

DOI: 10.1021/jp4024298

 **Section:**

Optical, Electron, and Mass Spectroscopy and Other Related Properties

PHYSICAL PROCESSES IN NANOMATERIALS AND NANOSTRUCTURES

Synthesis and Raman Spectroscopy of Multiphasic Nanostructured Bi–Te Networks with Tailored Composition

Gayatri D. Keskar, Ramakrishna Podila, Lihua Zhang, Apparao M. Rao, and Lisa D. Pfefferle

pp 9446-9455

Publication Date (Web): April 5, 2013 (Article)

DOI: 10.1021/jp402879h

 **Section:**

Electric Phenomena

Effects of Pressure, Temperature, and Particles Size on O_2 Diffusion Dynamics in Silica Nanoparticles

G. Iovino, S. Agnello, F. M. Gelardi, and R. Boscaino

pp 9456-9462

Publication Date (Web): April 14, 2013 (Article)

DOI: 10.1021/jp312614j

 **Section:**

Surface Chemistry and Colloids

Lasing and Amplified Spontaneous Emission in a Polymeric Inverse Opal Photonic Crystal Resonating Cavity

Feng Jin, Lan-Ting Shi, Mei-Ling Zheng, Xian-Zi Dong, Shu Chen, Zhen-Sheng Zhao, and Xuan-Ming Duan

pp 9463-9468

Publication Date (Web): April 15, 2013 (Article)

DOI: 10.1021/jp312617s

 **Section:**

Optical, Electron, and Mass Spectroscopy and Other Related Properties

Diffusiophoresis of Polyelectrolytes in Nanodevices: Importance of Boundary

Jyh-Ping Hsu, Kuan-Liang Liu, and Shiojenn Tseng

pp 9469-9476

Publication Date (Web): April 10, 2013 (Article)

DOI: 10.1021/jp312702r

 **Section:**

Physical Properties of Synthetic High Polymers

In Situ Monitoring of the Nucleation of Polyaniline Nanoparticles from Sodium Dodecyl Sulfate Micelles: A Nuclear Magnetic Resonance Study

Xiaodong Wu, Kong Liu, Lude Lu, Qiaofeng Han, Fengli Bei, Xujie Yang, Xin Wang, Qiong Wu, and Weihua Zhu

pp 9477-9484

Publication Date (Web): April 11, 2013 (Article)

DOI: 10.1021/jp312803x

 **Section:**

Surface Chemistry and Colloids

Hydrogen-Terminated Graphene by Laser Vaporization-Controlled Condensation of Graphite Oxide. Observation of Hydrogen-Capped Carbon Chains C_nH^- , C_nH^+ , and $C_nH_2^+$ ($n = 2-30$) in the Gas Phase

Parichehr Afshani, Isaac Attah, Sherif Moussa, James Terner, and M. S. El-Shall

pp 9485-9495

Publication Date (Web): April 1, 2013 (Article)

DOI: 10.1021/jp401318d

Section:

Surface Chemistry and Colloids

EDS, HRTEM/STEM, and X-ray Absorption Spectroscopy Studies of Co-Substituted Maghemite Nanoparticles

D. Carta, A. Corrias, A. Falqui, R. Brescia, E. Fantechi, F. Pineider, and C. Sangregorio

pp 9496-9506

Publication Date (Web): April 10, 2013 (Article)

DOI: 10.1021/jp401706c

Section:

Optical, Electron, and Mass Spectroscopy and Other Related Properties

Self-Assembled Multilayer Graphene Oxide Membrane and Carbon Nanotubes Synthesized Using a Rare Form of Natural Graphite

A. R. Kumarasinghe, Lilantha Samaranayake, Federica Bondino, Elana Magnano, Nilwala Kottegoda, Elvio Carlino, U. N. Ratnayake, A. A. P. de Alwis, Veranja Karunaratne, and Gehan A. J. Amaratunga

pp 9507-9519

Publication Date (Web): April 4, 2013 (Article)

DOI: 10.1021/jp402428j

Section:

Ceramics

Study of Synergistic Effect of Ce- and S-Codoping on the Enhancement of Visible-Light Photocatalytic Activity of TiO_2

Muhammad Nasir, Zhenhao Xi, Mingyang Xing, Jinlong Zhang, Feng Chen,
Baozhu Tian, and Segomotsso Bagwasi

pp 9520-9528

Publication Date (Web): April 16, 2013 (Article)

DOI: 10.1021/jp402575w