## THE JOURNAL OF PHYSICAL CHEMISTRY



Larger Cover

February 14, 2013 Volume 117, Issue 6 Pages 1501-1988

**Electrophoretic Deposition Special Issue Preface** 

#### **Electrophoretic Deposition: Fundamentals and Applications**

Aldo R. Boccaccini , James H. Dickerson

pp 1501-1501

Publication Date (Web): February 14, 2013 (Special Issue Preface)

**DOI:** 10.1021/jp211212y

#### **Review Article**

### **Applications of Graphene Electrophoretic Deposition. A Review**

A. Chavez-Valdez, M. S. P. Shaffer, and A. R. Boccaccini

pp 1502–1515

Publication Date (Web): October 22, 2012 (Review Article)

**DOI:** 10.1021/jp3064917

Section:

Electrochemical, Radiational, and Thermal Energy Technology

### A Current Opinion on Electrophoretic Deposition in Pulsed and Alternating Fields

Bram Neirinck, Omer Van der Biest, and Jef Vleugels pp 1516–1526

**Publication Date (Web):** September 24, 2012 (Review Article)

**DOI:** 10.1021/jp306777q

Section:

Electric Phenomena

#### **Articles**

### Directed Self-Assembly of Colloidal Model Systems on Charge-Selective Surfaces in External Electric Fields: Theory and Numerical Analysis

Guido Falk pp 1527–1536

**Publication Date (Web):** August 22, 2012 (Article)

**DOI:** 10.1021/jp304672t

Section:

Surface Chemistry and Colloids

### Reducing Strain and Fracture of Electrophoretically Deposited CdSe Nanocrystal Films. I. Postdeposition Infusion of Capping Ligands

Theodore J. Kramer, Sanat K. Kumar, Michael L. Steigerwald, and Irving P. Herman pp 1537–1543

**Publication Date (Web):** September 6, 2012 (Article)

**DOI:** 10.1021/jp305607t

Section: Ceramics

### Reducing Strain and Fracture of Electrophoretically Deposited CdSe Nanocrystal Films. II. Postdeposition Infusion of Monomers

Theodore J. Kramer, Sanat K. Kumar, Michael L. Steigerwald, and Irving P. Herman pp 1544–1549

**Publication Date (Web):** September 6, 2012 (Article)

**DOI:** 10.1021/jp305608f

Section:

Optical, Electron, and Mass Spectroscopy and Other Related Properties

### Nanoparticle-Mediated Gene Transfer From Electrophoretically Coated Metal Surfaces

Anna Kovtun, Sebastian Neumann, Manuel Neumeier, Henning Urch, Rolf Heumann, Michael M. Gepp, Katrin Wallat, Manfred Koeller, Heiko Zimmermann, and Matthias Epple pp 1550–1555

Publication Date (Web): June 29, 2012 (Article)

**DOI:** 10.1021/jp303448v

Section: Pharmaceuticals

## Electrophoretic Deposition of TiO<sub>2</sub>/Er<sup>3+</sup> Nanoparticulate Sols

Mario Borlaf, María Teresa Colomer, Fátima Cabello, Rosalia Serna, and Rodrigo Moreno pp 1556–1562

**Publication Date (Web):** July 16, 2012 (Article)

**DOI:** 10.1021/jp304044w

Section:

Surface Chemistry and Colloids

### **Electrophoretic Nanotechnology of Composite Electrodes for Electrochemical Supercapacitors**

Y. Su and I. Zhitomirsky

pp 1563-1570

Publication Date (Web): June 4, 2012 (Article)

**DOI:** 10.1021/jp304358q

Section:

Electrochemical, Radiational, and Thermal Energy Technology

### Hydrothermally Mixed Hydroxyapatite—Multiwall Carbon Nanotubes Composite Coatings on Biomedical Alloys by Electrophoretic Deposition

C. B. Ustundag, O. Avciata, F. Kaya, and C. Kaya

pp 1571-1576

**Publication Date (Web):** July 10, 2012 (Article)

**DOI:** 10.1021/jp305057p

Section:
Pharmaceuticals

## Development and Characterization of Composite YSZ–PEI Electrophoretically Deposited Membrane for Li-Ion Battery

R. Hadar, D. Golodnitsky, H. Mazor, T. Ripenbein, G. Ardel, Z. Barkay, A. Gladkich, and E.

Peled

pp 1577-1584

**Publication Date (Web):** July 18, 2012 (Article)

**DOI:** 10.1021/jp305087h

Section:

Electrochemical, Radiational, and Thermal Energy Technology

### Oriented Electrophoretic Deposition of GdOCl Nanoplatelets

Kenneth R. Kort and Sarbajit Banerjee

pp 1585-1591

**Publication Date (Web):** September 10, 2012 (Article)

**DOI:** 10.1021/jp3051142

Section: Electrochemistry

### **Study of Polymer Particles Suspensions for Electrophoretic Deposition**

M. Federica De Riccardis, Virginia Martina, and Daniela Carbone pp 1592–1599

**Publication Date (Web):** October 5, 2012 (Article)

**DOI:** 10.1021/jp3051752

Section:

Physical Properties of Synthetic High Polymers

## Functionalizing Ti-Surfaces through the EPD of Hydroxyapatite/NanoY<sub>2</sub>O<sub>3</sub>

P. Parente, A. J. Sanchez-Herencia, M. J. Mesa-Galan, and B. Ferrari pp 1600–1607

**Publication Date (Web):** November 9, 2012 (Article)

**DOI:** 10.1021/jp305176h

Section: Pharmaceuticals

### Highly Ordered Nanorod Assemblies Extending over Device Scale Areas and in Controlled Multilayers by Electrophoretic Deposition

Ajay Singh, Niall J. English, and Kevin M. Ryan pp 1608–1615

Publication Date (Web): October 26, 2012 (Article)

**DOI:** 10.1021/jp305184n

Section:

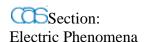
Surface Chemistry and Colloids

### One-Step Electrophoretic Deposition of Reduced Graphene Oxide and Ni(OH)<sub>2</sub> Composite Films for Controlled Syntheses Supercapacitor Electrodes

Haitao Zhang, Xiong Zhang, Dacheng Zhang, Xianzhong Sun, He Lin, Changhui Wang, and Yanwei Ma pp 1616–1627

**Publication Date (Web):** September 20, 2012 (Article)

**DOI:** 10.1021/jp305198j



## Electrophoretic Deposition of the Thiophene-Based Copolymer and Its Composites with $C_{60}$

Kazuya Tada pp 1628–1632

**Publication Date (Web):** July 24, 2012 (Article)

**DOI:** 10.1021/jp305234s

Section:

Plastics Manufacture and Processing

# Corrosion Stability and Bioactivity in Simulated Body Fluid of Silver/Hydroxyapatite and Silver/Hydroxyapatite/Lignin Coatings on Titanium Obtained by Electrophoretic Deposition

Sanja Eraković, Ana Janković, Djordje Veljović, Eriks Palcevskis, Miodrag Mitrić, Tatjana Stevanović, Djordje Janaćković, and Vesna Mišković-Stanković pp 1633–1643

Publication Date (Web): September 19, 2012 (Article)

**DOI:** 10.1021/jp305252a

Section: Pharmaceuticals

## The Alignment of Barium Ferrite Nanoparticles from Their Suspensions in Electric and Magnetic Fields

Darja Lisjak and Simona Ovtar

pp 1644-1650

**Publication Date (Web):** July 26, 2012 (Article)

**DOI:** 10.1021/jp305256t

Section:

Surface Chemistry and Colloids

## Interactions between Lead–Zirconate Titanate, Polyacrylic Acid, and Polyvinyl Butyral in Ethanol and Their Influence on Electrophoretic Deposition Behavior

Danjela Kuscer, Tina Bakarič, Bojan Kozlevčar, Marija Kosec

pp 1651-1659

Publication Date (Web): October 1, 2012 (Article)

**DOI:** 10.1021/jp305289u

Section:

## Role of the Electric Field Affected Zone (EFAZ) on the Electrophoretic Deposition of TiO<sub>2</sub> Nanoparticles under Symmetric Low-Frequency AC Electric Fields

J. Esmaeilzadeh, S. Ghashghaie, B. Raissi Dehkordi, and R. Riahifar pp 1660–1663

Publication Date (Web): October 24, 2012 (Article)

**DOI:** 10.1021/jp3054235

Section: Electric Phenomena

### Using Voronoi Tessellations to Assess Nanoparticle— Nanoparticle Interactions and Ordering in Monolayer Films Formed through Electrophoretic Deposition

Alex J. Krejci, Colin G. W. Thomas, Jyotirmoy Mandal, Isabel Gonzalo-Juan, Weidong He, Ryan L. Stillwell, Ju-Hyun Park, Dhiraj Prasai, Vyacheslav Volkov, Kirill I. Bolotin, and James H. Dickerson pp 1664–1669

Publication Date (Web): August 21, 2012 (Article)

**DOI:** 10.1021/jp305958w

Section:

Surface Chemistry and Colloids

## Critical Role of Suspension Media in Electrophoretic Deposition: The Example of Low Loss Dielectric BaNd<sub>2</sub>Ti<sub>5</sub>O<sub>14</sub> Thick Films

Paula M. Vilarinho, Zhi Fu, Aiying Wu, and Angus I. Kingon pp 1670–1679

Publication Date (Web): November 6, 2012 (Article)

**DOI:** 10.1021/jp3062493

Section:

Electric Phenomena

### SiC-CNT Composite Prepared by Electrophoretic Codeposition and the Polymer Infiltration and Pyrolysis Process

Saša Novak and Aljaž Iveković pp 1680–1685

**Publication Date (Web):** September 21, 2012 (Article)

**DOI:** 10.1021/jp306417c



### **Electrophoretic Deposition of Thermites onto Micro-Engineered Electrodes Prepared by Direct-Ink Writing**

K. T. Sullivan, C. Zhu, D. J. Tanaka, J. D. Kuntz, E. B. Duoss, and A. E. Gash pp 1686–1693

**Publication Date (Web):** August 16, 2012 (Article)

**DOI:** 10.1021/jp306440t

Section:

Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes

## Tetragonal and Cubic Zirconia Multilayered Ceramic Constructs Created by EPD

Carolina Mochales, Stefan Frank, Rolf Zehbe, Tania Traykova, Christine Fleckenstein, Anke Maerten, Claudia Fleck, and Wolf-Dieter Mueller pp 1694–1701

Publication Date (Web): November 6, 2012 (Article)

**DOI:** 10.1021/jp3064432

Section: Ceramics

## Morphology of Electrophoretically Deposited Films on Electrode Strips

Andrew J. Pascall, Kyle T. Sullivan, and Joshua D. Kuntz pp 1702–1707

**Publication Date (Web):** August 6, 2012 (Article)

**DOI:** 10.1021/jp306447n

Section: Electrochemistry

#### Deposition Patterns of Porcelain Coatings Obtained by Electrophoretic Deposition in Acetone. Part 1. Voltage and Time Effect

Georgina García, Gregorio Vargas, and F. J. Rodríguez Varela pp 1708–1713

**Publication Date (Web):** October 5, 2012 (Article)

**DOI:** 10.1021/jp306457z

Section: Pharmaceuticals

### A Hybrid Method Employing Breakdown Anodization and Electrophoretic Deposition for Superhydrophilic Surfaces

Young Soo Joung and Cullen R. Buie

pp 1714-1723

Publication Date (Web): October 15, 2012 (Article)

**DOI:** 10.1021/jp306489g

Section: Electrochemistry

### Characterization and Film Properties of Electrophoretically Deposited Nanosheets of Anionic Titanate and Cationic MgAl-Layered Double Hydroxide

Atsunori Matsuda, Hisatoshi Sakamoto, Mohd Arif Bin Mohd Nor, Go Kawamura, and Hiroyuki Muto

pp 1724-1730

Publication Date (Web): December 3, 2012 (Article)

**DOI:** 10.1021/jp306538q

Section:

Surface Chemistry and Colloids

## Application of the Multi-Step EPD Technique to Fabricate Thick TiO<sub>2</sub> Layers: Effect of Organic Medium Viscosity on the Layer Microstructure

A. A. Sadeghi, T. Ebadzadeh, B. Raissi, S. Ghashghaie, and S. M. A. Fateminia pp 1731–1737

**Publication Date (Web):** January 3, 2013 (Article)

**DOI:** 10.1021/jp306976p

Section: Ceramics

## **Quantitative Attachment and Detachment of Bacterial Spores from Fine Wires through Continuous and Pulsed DC Electrophoretic Deposition**

Wenbo Zhou, Sarah K. Watt, De-Hao Tsai, Vincent T. Lee, and Michael R. Zachariah pp 1738–1745

Publication Date (Web): October 24, 2012 (Article)

**DOI:** 10.1021/jp307282q

Section:

**Biochemical Methods** 

#### **Biophysical Chemistry and Biomolecules**

### Relationship between Conformational Dynamics and Electron Transfer in a Desolvated Peptide. Part I. Structures

David Semrouni, Carine Clavaguéra, and Gilles Ohanessian, Joel H. Parks pp 1746–1755

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

**DOI:** 10.1021/jp3078375

Section:

Amino Acids, Peptides, and Proteins

### Relationship between Conformational Dynamics and Electron Transfer in a Desolvated Peptide. Part II. Temperature Dependence

Joel H. Parks , David Semrouni, Carine Clavaguéra, and Gilles Ohanessian pp 1756–1769

**Publication Date (Web):** January 8, 2013 (Article)

**DOI:** 10.1021/jp3078437

Section:

Physical Organic Chemistry

### Dimerization of Chirally Mutated Enkephalin Neurotransmitters: Implications for Peptide and Protein Aggregation Mechanisms

Christian Bleiholder, Nicholas F. Dupuis, and Michael T. Bowers pp 1770–1779

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

**DOI:** 10.1021/jp306386p

Section:

General Biochemistry

### Methylations of Tryptophan-Modified Naphthoquinone Affect Its Inhibitory Potential toward Aβ Aggregation

Roni Scherzer-Attali, Marino Convertino, Riccardo Pellarin, Ehud Gazit, Daniel Segal, and Amedeo Caflisch

pp 1780–1789

Publication Date (Web): December 23, 2012 (Article)

**DOI:** 10.1021/jp309066p

Section: Pharmacology

Fluorescence of Tryptophan in Designed Hairpin and Trp-Cage Miniproteins: Measurements of Fluorescence Yields

## and Calculations by Quantum Mechanical Molecular Dynamics Simulations

Andrew W. McMillan, Brandon L. Kier, Irene Shu, Aimee Byrne, Niels H. Andersen, and William W. Parson

pp 1790–1809

Publication Date (Web): January 19, 2013 (Article)

**DOI:** 10.1021/jp3097378

Section:

General Biochemistry

## Dendritic Amphiphiles Strongly Affect the Biophysical Properties of DPPC Bilayer Membranes

Riya J. Muckom, Francesca Stanzione, Richard D. Gandour, and Amadeu K. Sum pp 1810–1818

**Publication Date (Web):** January 18, 2013 (Article)

**DOI:** 10.1021/jp310043a

Section:

General Biochemistry

### Single-Molecule Force Spectroscopy Identifies a Small Cold Shock Protein as Being Mechanically Robust

Toni Hoffmann, Katarzyna M. Tych, David J. Brockwell, and Lorna Dougan pp 1819–1826

**Publication Date (Web):** January 8, 2013 (Article)

**DOI:** 10.1021/jp310442s

Section:

General Biochemistry

## Protein Control of S-Nitrosothiol Reactivity: Interplay of Antagonistic Resonance Structures

Marat R. Talipov and Qadir K. Timerghazin

pp 1827-1837

**Publication Date (Web):** January 14, 2013 (Article)

**DOI:** 10.1021/jp310664z

Section:

General Biochemistry

Assessment of the Use of NMR Chemical Shifts as Replica-Averaged Structural Restraints in Molecular Dynamics Simulations to Characterize the Dynamics of Proteins

Carlo Camilloni, Andrea Cavalli, and Michele Vendruscolo

pp 1838–1843

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

**DOI:** 10.1021/jp3106666

Section:

**Biochemical Methods** 

## Aqueous Guanidinium–Carbonate Interactions by Molecular Dynamics and Neutron Scattering: Relevance to Ion–Protein Interactions

Mario Vazdar, Pavel Jungwirth, and Philip E. Mason

pp 1844-1848

Publication Date (Web): December 17, 2012 (Article)

**DOI:** 10.1021/jp310719g

Section:

General Biochemistry

### **Purification of A-Form DNA Fiber Samples by the Removal of B-Form DNA Residues**

Jessica Valle-Orero, Andrew Wildes, Jean-Luc Garden, and Michel Peyrard

pp 1849-1856

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

**DOI:** 10.1021/jp311199f

Section:

**Biochemical Methods** 

#### On the Origin of Thermal Untwisting of DNA

Alexey K. Mazur pp 1857–1861

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

**DOI:** 10.1021/jp311408h

Section:

General Biochemistry

### **Performance of Different Force Fields in Force Probe Simulations**

Thomas Schlesier and Gregor Diezemann

pp 1862–1871

**Publication Date (Web):** January 11, 2013 (Article)

**DOI:** 10.1021/jp3115644

Section:

Physical Organic Chemistry

### Effect of Guanine to Inosine Substitution on Stability of Canonical DNA and RNA Duplexes: Molecular Dynamics Thermodynamics Integration Study

Miroslav Krepl, Michal Otyepka, Pavel Banáš, and Jiří Šponer pp 1872–1879

**Publication Date (Web):** January 27, 2013 (Article)

**DOI:** 10.1021/jp311180u

Section:

General Biochemistry

#### **Recognition of Operator DNA by Tet Repressor**

Christian Berens and Dietmar Porschke

pp 1880–1885

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

**DOI:** 10.1021/jp311877t

Section:

General Biochemistry

Biomaterials, Surfactants, and Membranes

## Interaction between Zwitterionic Surface Activity Ionic Liquid and Anionic Surfactant: Na<sup>+</sup>-Driven Wormlike Micelles

Xiaoqing Wang, Ruitao Wang, Yan Zheng, Limei Sun, Li Yu, Jingjing Jiao, and Rui Wang pp 1886–1895

Publication Date (Web): January 21, 2013 (Article)

**DOI:** 10.1021/jp308016a

Section:

Surface Chemistry and Colloids

Liquids; Chemical and Dynamical Processes in Solution

## Ultrasonic Relaxation Measurements in Aqueous Solution and Molecular Orbital Calculation on Imipramine

Sadakatsu Nishikawa

pp 1896–1900

**Publication Date (Web):** January 22, 2013 (Article)

**DOI:** 10.1021/jp309959m

Section:

Physical Organic Chemistry

### Thermodynamics, Kinetics, and Photochromism of Oaklins: A Recent Family of Deoxyanthocyanidins

André Sousa, Vesselin Petrov, Paula Araújo, Nuno Mateus, Fernando Pina, and Victor de Freitas pp 1901–1910

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

**DOI:** 10.1021/jp3110216

Section:

Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers

### Lewis Molecular Acidity of Ionic Liquids from Empirical Energy—Density Models

Renato Contreras, Arie Aizman, Ricardo A. Tapia, and Andrea Cerda-Monje pp 1911–1920

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

**DOI:** 10.1021/jp3114946

Section:

Physical Organic Chemistry

## Effects of Electronic and Nuclear Interactions on the Excited-State Properties and Structural Dynamics of Copper(I) Diimine Complexes

Michael W. Mara, Nicholas E. Jackson, Jier Huang, Andrew B. Stickrath, Xiaoyi Zhang, Nosheen A. Gothard, Mark A. Ratner, and Lin X. Chen pp 1921–1931

**Publication Date (Web):** January 16, 2013 (Article)

**DOI:** 10.1021/jp311643t

Section:

Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes

### **Investigation of the Photobleaching Process of Eosin Y in Aqueous Solution by Thermal Lens Spectroscopy**

L. S. Herculano, L. C. Malacarne, V. S. Zanuto, G. V. B. Lukasievicz, O. A. Capeloto, and N. G. C. Astrath

pp 1932–1937

**Publication Date (Web):** January 17, 2013 (Article)

**DOI:** 10.1021/jp3119296

Section:

Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes

### Are Alkyl Sulfate-Based Protic and Aprotic Ionic Liquids Stable with Water and Alcohols? A Thermodynamic Approach

Johan Jacquemin, Peter Goodrich, Wei Jiang, David W. Rooney, and Christopher Hardacre pp 1938–1949

**Publication Date (Web):** January 15, 2013 (Article)

**DOI:** 10.1021/jp312241h

Section:

Phase Equilibriums, Chemical Equilibriums, and Solutions

Glasses, Colloids, Polymers, and Soft Matter

## Optical Measures of Thermally Induced Chain Ordering and Oxidative Damage in Polythiophene Films

C. Carach and M. J. Gordon

pp 1950-1957

**Publication Date (Web):** January 24, 2013 (Article)

**DOI:** 10.1021/jp307474u

Section:

Physical Properties of Synthetic High Polymers

## Fluorescent Labeling of a Bisurea-Based Supramolecular Polymer

Philippe Ribagnac, Caroline Cannizzo, Rachel Méallet-Renault, Gilles Clavier, Pierre Audebert, Robert Pansu, and Laurent Bouteiller

pp 1958-1966

**Publication Date (Web):** January 10, 2013 (Article)

**DOI:** 10.1021/jp307829x

Section:

Physical Properties of Synthetic High Polymers

## Combined Measurement of Translational and Rotational Diffusion in Quaternary Acyclic Ammonium and Cyclic Pyrrolidinium Ionic Liquids

Todd M. Alam, Daniel R. Dreyer, Christopher W. Bielawski, and Rodney S. Ruoff pp 1967–1977

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

**DOI:** 10.1021/jp3111953

Section:

General Physical Chemistry

## Binding Behaviors of p-Sulfonatocalix[4] arene with Gemini Guests

Hong-Xia Zhao, Dong-Sheng Guo, and Yu Liu pp 1978–1987

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

**DOI:** 10.1021/jp312744d

an