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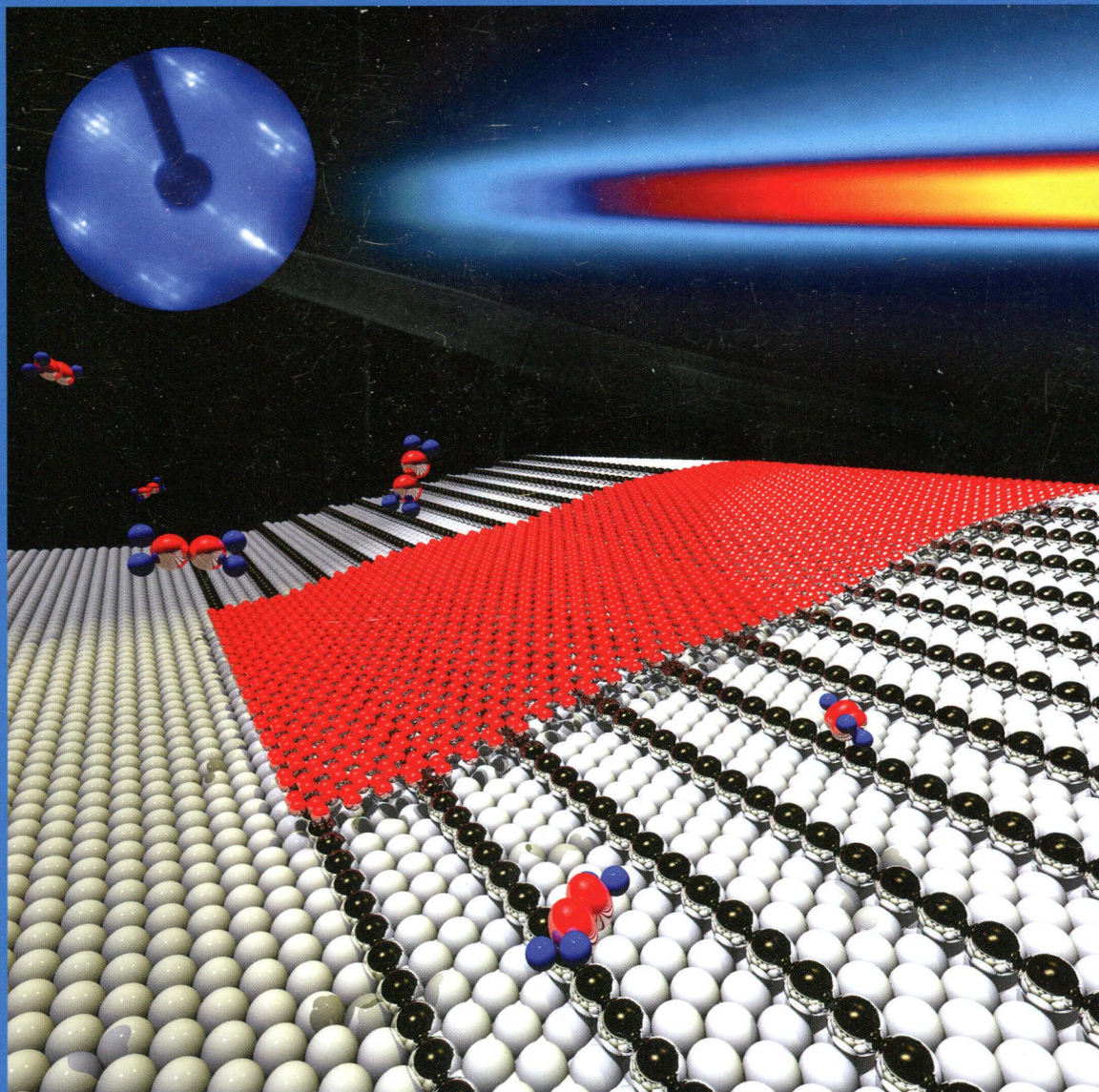
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Epitaxial Graphene
on Vicinal Surfaces:
The Thinnest Carpet
Grown on the Smallest
Atomic Staircase
(see page 6242)

ENERGY CONVERSION AND STORAGE, OPTICAL AND ELECTRONIC DEVICES,
INTERFACES, NANOMATERIALS, AND HARD MATTER



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ON THE COVER: Epitaxial graphene on vicinal surfaces: the thinnest carpet grown on the smallest atomic staircase. Perspective view of a cannonball model of graphene grown on Rh(533) (red, C atoms; white, terrace Rh atoms; black, step Rh atoms). The single carbon layer forms an extended film covering the atomic steps of the substrate, like a carpet on a nanoscale staircase. The structural anisotropy of the vicinal surface leads to a moiré cell with nonequivalent lattice vectors in the directions parallel and orthogonal to the steps. This is visible from the low-energy diffraction pattern of the graphene-covered substrate (top left). In the background, a waterfall plot of the C1s core level evolution during graphene growth is shown. Our results suggest a key role of the steps in promoting the formation of graphene with high structural qualities and stabilizing it against C–C bond breakup at high temperature via a step-induced defect-healing mechanism first predicted by theoretical calculations. See page 6242.

Articles

Energy Conversion and Storage; Energy and Charge Transport

5997



dx.doi.org/10.1021/jp409724c

Semiconductors Used in Photovoltaic and Photocatalytic Devices: Assessing Fundamental Properties from DFT
Tangui Le Bahers,* Michel Rérat, and Philippe Sautet

6009

dx.doi.org/10.1021/jp4104855

Cluster Approach To Model Titanium Dioxide as Isolated or Organic Dye Sensitized Nanoobjects
Malgorzata Makowska-Janusik,* Olga Gladii, Abdelhadi Kassiba, Johann Bouclé, and Nathalie Herlin-Boime

6019



dx.doi.org/10.1021/jp410497f

Optimizing the Band Edges of Tungsten Trioxide for Water Oxidation: A First-Principles Study
Yuan Ping* and Giulia Galli

6029



dx.doi.org/10.1021/jp410646u

Photophysical Characterization of a Helical Peptide Chromophore–Water Oxidation Catalyst Assembly on a Semiconductor Surface Using Ultrafast Spectroscopy
Stephanie E. Bettis, Derek M. Ryan, Melissa K. Gish, Leila Alibabaei, Thomas J. Meyer, Marcey L. Waters, and John M. Papanikolas*

6038



dx.doi.org/10.1021/jp411286w

Novel Donor–Acceptor Random Copolymers Containing Phenanthrocarbazole and Diketopyrrolopyrrole for Organic Photovoltaics and the Significant Molecular Geometry Effect on Their Performance
Zhiqiang Deng, Lie Chen,* Feiyan Wu, and Yiwang Chen

6046

[dx.doi.org/10.1021/jp4117613](https://doi.org/10.1021/jp4117613)**Theoretical Studies of Carbonyl-Based Organic Molecules for Energy Storage Applications: The Heteroatom and Substituent Effect**

Kenneth Hernández-Burgos, Stephen E. Burkhardt, Gabriel G. Rodríguez-Calero, Richard G. Hennig,* and Héctor D. Abruña*

6052

[dx.doi.org/10.1021/jp411948d](https://doi.org/10.1021/jp411948d)**Relationship between Mobilities from Time-of-Flight and Dark-Injection Space-Charge-Limited Current Measurements for Organic Semiconductors: A Monte Carlo Study**

Haoyuan Li, Lian Duan,* Deqiang Zhang, Guifang Dong, Juan Qiao, Liduo Wang, and Yong Qiu

6059

Highly Selective Enclathration of Ethylene from Gas Mixtures

Jong-Won Lee, Seong-Pil Kang,* and Ji-Ho Yoon*

[dx.doi.org/10.1021/jp4124716](https://doi.org/10.1021/jp4124716)

6064

Lithium Polymer Gel Electrolytes Designed to Control Ionic Mobility

Yuria Saito,* Miki Okano, Tetsuo Sakai, and Taisuke Kamada

[dx.doi.org/10.1021/jp412611a](https://doi.org/10.1021/jp412611a)

6069

Probing Lithiation Kinetics of Carbon-Coated ZnFe₂O₄ Nanoparticle Battery Anodes

Fernando Martínez-Julian, Antonio Guerrero, Marta Haro, Juan Bisquert, Dominic Bresser, Elie Paillard, Stefano Passerini, and Gemà Garcia-Belmonte*

[dx.doi.org/10.1021/jp412641v](https://doi.org/10.1021/jp412641v)

6077

[dx.doi.org/10.1021/jp412810n](https://doi.org/10.1021/jp412810n)**CaIn₂O₄/Fe-TiO₂ Composite Photocatalysts with Enhanced Visible Light Performance for Hydrogen Production**

Wenhao Yan, Yi Zhang, Wei Xie, Song Sun, Jianjun Ding,* Jun Bao, and Chen Gao*

6084

[dx.doi.org/10.1021/jp500253k](https://doi.org/10.1021/jp500253k)**Facile Solvent-Free Synthesis of Anhydrous Alkali Metal Dodecaborate M₂B₁₂H₁₂ (M = Li, Na, K)**

Liqing He, Hai-Wen Li,* Son-Jong Hwang, and Etsuo Akiba

6090

[dx.doi.org/10.1021/jp500996b](https://doi.org/10.1021/jp500996b)**Tunable Streaming Current in a pH-Regulated Nanochannel by a Field Effect Transistor**










Song Xue, Li-Hsien Yeh,* Yu Ma, and Shizhi Qian*

6100

[dx.doi.org/10.1021/jp5010874](https://doi.org/10.1021/jp5010874)**Mobility of Holes in Oligo- and Polyfluorenes of Defined Lengths**

Matthew J. Bird, Obadiah G. Reid, Andrew R. Cook, Sadayuki Asaoka, Yuki Shibano, Hiroshi Imahori, Garry Rumbles, and John R. Miller*

- 6110  [dx.doi.org/10.1021/jp404896q](https://doi.org/10.1021/jp404896q)
First-Principles Studies of Paramagnetic Vivianite $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ Surfaces
Henry P. Pinto,* Andrea Michalkova, and Jerzy Leszczynski
- 6122  [dx.doi.org/10.1021/jp4053677](https://doi.org/10.1021/jp4053677)
Reversibility of the Modification of HZSM-5 with Phosphate Anions
Mirosław Derewinski,* Preet Sarv, Xianyong Sun, Sebastian Müller, Andre C. van Veen, and Johannes A. Lercher*
- 6132 [dx.doi.org/10.1021/jp405637g](https://doi.org/10.1021/jp405637g)
Electrochemical Atomic Layer Deposition of CdS on Ag Single Crystals: Effects of Substrate Orientation on Film Structure
Francesco Carlà,* Francesca Loglio, Andrea Resta, Roberto Felici, Elisa Lastraioli, Massimo Innocenti, and Maria Luisa Foresti
- 6140  [dx.doi.org/10.1021/jp412566p](https://doi.org/10.1021/jp412566p)
Indomethacin Embedded into MIL-101 Frameworks: A Solid-State NMR Study
Tomaž Čendak, Emanuela Žunkovič, Tina Ukmar Godec, Matjaž Mazaj, Nataša Zabukovec Logar, and Gregor Mali*
- 6151  [dx.doi.org/10.1021/jp4072108](https://doi.org/10.1021/jp4072108)
Ferrocene/Ferrocenium Redox Couple at Au(111)/Ionic Liquid and Au(111)/Acetonitrile Interfaces: A Molecular-Level View at the Elementary Act
Victoria A. Nikitina, Sergey A. Kisenko, Renat R. Nazmutdinov,* Michael D. Bronshtein, and Galina A. Tsrilina
- 6165 [dx.doi.org/10.1021/jp408150k](https://doi.org/10.1021/jp408150k)
Structure and Barrier Properties of Biodegradable Polyhydroxyalkanoate Films
Nadège Follain,* Corinne Chappey, Eric Dargent, Frédéric Chivrac, Raphaël Crétois, and Stéphane Marais
- 6178 [dx.doi.org/10.1021/jp4087283](https://doi.org/10.1021/jp4087283)
Catalytic Ammonia Decomposition during Nanocrystalline Iron Nitriding at 475 °C with NH_3/H_2 Mixtures of Different Nitriding Potentials
Rafał Pelka,* Karolina Kielbasa, and Walerian Arabczyk
- 6186 [dx.doi.org/10.1021/jp4105213](https://doi.org/10.1021/jp4105213)
Scanning Tunneling Microscopy Investigation of Ultrathin Titanium Oxide Films Grown on $\text{Pt}_3\text{Ti}(111)$
Christian Breinlich, Maria Buchholz, Marco Moors,* Séverine Le Moal, Conrad Becker, and Klaus Wandelt
- 6193  [dx.doi.org/10.1021/jp410745c](https://doi.org/10.1021/jp410745c)
Photodesorption and Photostability of Acetone Ices: Relevance to Solid Phase Astrochemistry
Guilherme C. Almeida,* Sérgio Pilling, Diana P. P. Andrade, Nathany Lisboa S. Castro, Edgar Mendoza, Heloisa M. Boechat-Roberty, and Maria Luiza M. Rocco

- 6201  [dx.doi.org/10.1021/jp4108156](https://doi.org/10.1021/jp4108156)
Bilayer Graphene Growth via a Penetration Mechanism
Ping Wu, Xiaofang Zhai, Zhenyu Li,* and Jinlong Yang
- 6207  [dx.doi.org/10.1021/jp4110097](https://doi.org/10.1021/jp4110097)
Detailed Investigation of the Binary Adsorption of Carbon Dioxide and Methane in Zeolite Na-ZSM-5 Studied Using in Situ ATR-FTIR Spectroscopy
Lindsay Ohlin and Mattias Grahn*
- 6214  [dx.doi.org/10.1021/jp4112102](https://doi.org/10.1021/jp4112102)
Coverage-Dependent Modification of the Surface Electronic Structure of an Organic-Semiconductor-Adsorbate Layer
Sung-Young Hong, Po-Chun Yeh, Ilkyu Lee, Jæeun Yu, Jerry I. Dadap, Colin Nuckolls, and Richard M. Osgood*
- 6226  [dx.doi.org/10.1021/jp411405r](https://doi.org/10.1021/jp411405r)
Preparation and Characterization of γ -Al₂O₃ with Rich Brønsted Acid Sites and Its Application in the Fluid Catalytic Cracking Process
Rui Feng, Songtao Liu, Peng Bai, Ke Qiao, Youhe Wang, Hamid A. Al-Megren, Mark J. Rood, and Zifeng Yan*
- 6235  [dx.doi.org/10.1021/jp411422x](https://doi.org/10.1021/jp411422x)
Tuning the Adsorption of Aromatic Molecules on Platinum via Halogenation
Rengin Peköz,* Karen Johnston, and Davide Donadio*
- 6242  [dx.doi.org/10.1021/jp411582a](https://doi.org/10.1021/jp411582a)
The Thinnest Carpet on the Smallest Staircase: The Growth of Graphene on Rh(533)
B. Casarin, A. Cian, Z. Feng, E. Monachino, F. Randi, G. Zamborlini, M. Zonno, E. Miniussi, P. Lacovig, S. Lizzit, and A. Baraldi*
- 6251  [dx.doi.org/10.1021/jp4117563](https://doi.org/10.1021/jp4117563)
Structure and Mobility of Acetic Acid at the Anatase (101)/Acetonitrile Interface
Clelia Spreafico, Florian Schiffmann, and Joost VandeVondele*
- 6261  [dx.doi.org/10.1021/jp411797u](https://doi.org/10.1021/jp411797u)
Electrochemically Assembled Gold Nanostructures Platform: Electrochemistry, Kinetic Analysis, and Biomedical Application
Rachna Sharma, Md. Azahar Ali, N. Rajan Selvi, Vidya Nand Singh, Ravindra K. Sinha, and Ved Varun Agrawal*
- 6272  [dx.doi.org/10.1021/jp411889e](https://doi.org/10.1021/jp411889e)
Photochemical Glaser Coupling at Metal Surfaces
Hong-Ying Gao,* Dingyong Zhong, Harry Mönig, Hendrik Wagner, Philipp-Alexander Held, Alexander Timmer, Armido Studer,* and Harald Fuchs*

6278

[dx.doi.org/10.1021/jp4118979](https://doi.org/10.1021/jp4118979)

Thermally Controlled Adenine Dimer Chain Rotation on Cu(110): The Critical Role of van der Waals Interactions
Yu Yang Zhang, Ye-Liang Wang, Lei Meng, Sheng Bai Zhang,* and Hong-Jun Gao*

6283

[dx.doi.org/10.1021/jp4119088](https://doi.org/10.1021/jp4119088)

Formation of Subnanometer Zr-WO_x Clusters within Mesoporous W–Zr Mixed Oxides as Strong Solid Acid Catalysts for Friedel–Crafts Alkylation
Sha Li, Hui Zhou, Chuanhong Jin, Ningdong Feng, Fen Liu, Feng Deng, Jian-Qiang Wang, Wei Huang, Liping Xiao,* and Jie Fan*

6291

[dx.doi.org/10.1021/jp4119309](https://doi.org/10.1021/jp4119309)

Reversible P3HT/Oxygen Charge Transfer Complex Identification in Thin Films Exposed to Direct Contact with Water
Sebastiano Bellani, Daniele Fazzi, Paola Bruno, Ester Giussani, Eleonora Valeria Canesi, Guglielmo Lanzani,* and Maria Rosa Antognazza*

6300

[dx.doi.org/10.1021/jp4126396](https://doi.org/10.1021/jp4126396)

Asymmetric Organic–Inorganic Hybrid Giant Molecule: Cyanobiphenyl Monosubstituted Polyhedral Oligomeric Silsesquioxane Nanoparticles for Vertical Alignment of Liquid Crystals
Dae-Yoon Kim, Soeun Kim, Sang-A Lee, Young-Eun Choi, Won-Jin Yoon, Shiao-Wei Kuo, Chih-Hao Hsu, Mingjun Huang, Seung Hee Lee,* and Kwang-Un Jeong*

6307

[dx.doi.org/10.1021/jp412711b](https://doi.org/10.1021/jp412711b)

Ni/graphene Nanostructure and Its Electron-Enhanced Catalytic Action for Hydrogenation Reaction of Nitrophenol
Yan-ge Wu, Ming Wen,* Qing-sheng Wu, and Hao Fang

6314

[dx.doi.org/10.1021/jp5000649](https://doi.org/10.1021/jp5000649)

On the Importance of the Associative Carboxyl Mechanism for the Water-Gas Shift Reaction at Pt/CeO₂ Interface Sites
Sara Aranifard, Salai Cheettu Ammal, and Andreas Heyden*

6324

[dx.doi.org/10.1021/jp500185m](https://doi.org/10.1021/jp500185m)

Capturing the Formation of Sub-nanometer Sized CdS Clusters in LTL Zeolite
Abdelhafid Souici, Ka-Lun Wong, Vincent De Waele,* J. L. Marignier, Till H. Metzger, Nassira Keghouche, Svetlana Mintova, and Mehran Mostafavi

6335










[dx.doi.org/10.1021/jp500285j](https://doi.org/10.1021/jp500285j)

Modeling of Potential Oscillation during Galvanostatic Electrooxidation of Formic Acid at Platinum Electrode
Dong Mei, Zheng-Da He, Dao Chuan Jiang, Jun Cai, and Yan-Xia Chen*

6344

[dx.doi.org/10.1021/jp500359v](https://doi.org/10.1021/jp500359v)

Superhydrophobic and Superoleophilic Miniature Device for the Collection of Oils from Water Surfaces
Fajun Wang, Sheng Lei, Mingshan Xue, Junfei Ou, Changquan Li, and Wen Li*

- 6352  [dx.doi.org/10.1021/jp500628w](https://doi.org/10.1021/jp500628w)
Low-Temperature Growth Improves Metal/Polymer Interfaces: Vapor-Deposited Ca on PMMA
Huanxin Ju, Yifan Ye, Xuefei Feng, Haibin Pan, Junfa Zhu,* Nancy Ruzycski, and Charles T. Campbell*
- 6359  [dx.doi.org/10.1021/jp501427k](https://doi.org/10.1021/jp501427k)
First-Principles Study on the Mechanism of Photoselective Catalytic Reduction of NO by NH₃ on Anatase TiO₂(101) Surface
Yongfei Ji and Yi Luo*
- Plasmonics, Optical Materials, and Hard Matter**
- 6365  [dx.doi.org/10.1021/jp411128m](https://doi.org/10.1021/jp411128m)
Wavelength-Tuned Light Emission via Modifying the Band Edge Symmetry: Doped SnO₂ as an Example
Hang Zhou, Rui Deng,* Yong-Feng Li,* Bin Yao, Zhan-Hui Ding, Qing-Xiao Wang, Yu Han, Tom Wu, and Lei Liu
- 6372  [dx.doi.org/10.1021/jp411259f](https://doi.org/10.1021/jp411259f)
Effects of Extended π -Conjugation in Phenanthroline (N[^]N) and Phenylpyridine (C[^]N) Ligands on the Photophysics and Reverse Saturable Absorption of Cationic Heteroleptic Iridium(III) Complexes
Yuhao Li, Naveen Dandu, Rui Liu, Zhongjing Li, Svetlana Kilina, and Wenfang Sun*
- 6385  [dx.doi.org/10.1021/jp411851g](https://doi.org/10.1021/jp411851g)
Computational Insight into the Explosive Detection Mechanisms in Silafluorene- and Silole-Containing Photoluminescent Polymers
Burcu Dedeođlu, Viktorya Aviyente, and Alimet Sema Özen*
- 6398  [dx.doi.org/10.1021/jp412223m](https://doi.org/10.1021/jp412223m)
Plasmon-Enhanced Triplet–Triplet Annihilation Using Silver Nanoplates
Kianoosh Poorkazem, Amelia V. Hesketh, and Timothy L. Kelly*
- 6405  [dx.doi.org/10.1021/jp412409u](https://doi.org/10.1021/jp412409u)
Gold Bipyramid Nanoparticle Dimers
Edward W. Malachosky and Philippe Guyot-Sionnest*
- 6413  [dx.doi.org/10.1021/jp412500r](https://doi.org/10.1021/jp412500r)
Solution Properties and Effect of Anions on Third-Order Optical Nonlinearity of Porphyrin–Heteropolyoxometalate Hybrid System
Zonghai Shi, Yunshan Zhou,* Lijuan Zhang,* Sadaf ul Hassan, and Ningning Qu
- 6423  [dx.doi.org/10.1021/jp412508c](https://doi.org/10.1021/jp412508c)
Single-Molecule Spectroscopic Imaging Studies of Polarity Gradients Prepared by Infusion-Withdrawal Dip-Coating
Dipak Giri, Chelsea N. Hanks, Maryanne M. Collinson,* and Daniel A. Higgins*

6433  [dx.doi.org/10.1021/jp4125342](https://doi.org/10.1021/jp4125342)

Composition and Constitution of Compressed Strontium Polyhydrides

James Hooper, Tyson Terpstra, Andrew Shamp, and Eva Zurek*

6448 [dx.doi.org/10.1021/jp500546r](https://doi.org/10.1021/jp500546r)

Band Gap Engineering of SnO₂ by Epitaxial Strain: Experimental and Theoretical Investigations

Wei Zhou, Yanyu Liu, Yuzhe Yang, and Ping Wu*

Physical Processes in Nanomaterials and Nanostructures

6454 [dx.doi.org/10.1021/jp4072197](https://doi.org/10.1021/jp4072197)

Observation of Ultrafast Carrier Dynamics and Phonon Relaxation of Graphene from the Deep-Ultraviolet to the Visible Region

Kawon Oum, Thomas Lenzer,* Mirko Scholz, Dae Yool Jung, Onejae Sul,* Byung Jin Cho, Jens Lange, and Andreas Müller

6462 [dx.doi.org/10.1021/jp4109915](https://doi.org/10.1021/jp4109915)


Tuning the Interlayer Coupling of the Twisted Bilayer Graphene by Molecular Adsorption

Lan Meng, Wei Yan, Longjing Yin, Zhao-Dong Chu, Yanfeng Zhang, Lei Feng, Ruifen Dou,* and Jiakai Nie

6467  [dx.doi.org/10.1021/jp4113865](https://doi.org/10.1021/jp4113865)

Multilevel Operation of Resonant Tunneling with Binary Molecules in a Metal–Insulator–Semiconductor Configuration

Hoon-Seok Seo, Ryoma Hayakawa, Toyohiro Chikyow, and Yutaka Wakayama*

6473  [dx.doi.org/10.1021/jp412091t](https://doi.org/10.1021/jp412091t)

NMR Relaxation Enhancement of Water Protons by Gd-Doped Boron Nitride Nanotubes

Lucia Calucci,* Gianni Ciofani, Virgilio Mattoli, Barbara Mazzolai, Adriano Boni, and Claudia Forte

6480 [dx.doi.org/10.1021/jp412694y](https://doi.org/10.1021/jp412694y)

Small Cu Clusters Adsorbed on ZnO(10 $\bar{1}$ 0) Show Even–Odd Alternations in Stability and Charge Transfer

Matti Hellström, Daniel Spångberg, Kersti Hermansson, and Peter Broqvist*

6491  [dx.doi.org/10.1021/jp5000123](https://doi.org/10.1021/jp5000123)

Ionic Liquids Confined in Hydrophilic Nanocontacts: Structure and Lubricity in the Presence of Water

R. M. Espinosa-Marzal, A. Arcifa, A. Rossi, and N. D. Spencer*

6504  [dx.doi.org/10.1021/jp500377s](https://doi.org/10.1021/jp500377s)

Hydrogen-Driven Cage Unzipping of C₆₀ into Nano-Graphenes

Alexandr V. Talyzin,* Serhiy Luzan, Ilya V. Anoshkin, Albert G. Nasibulin, Esko I. Kauppinen, Andrzej Dzwilewski, Ahmed Kreta, Janko Jamnik, Abdou Hassanien, Anna Lundstedt, and Helena Grennberg

6514

[dx.doi.org/10.1021/jp500653c](https://doi.org/10.1021/jp500653c)

Carbon Fluoride, CF_x : Structural Diversity as Predicted by First Principles
C. Goyenola, S. Stafström, S. Schmidt, L. Hultman, and G. K. Gueorguiev*

6522



[dx.doi.org/10.1021/jp500716z](https://doi.org/10.1021/jp500716z)

Stability, Oxidation, and Shape Evolution of PVP-Capped Pd Nanocrystals
Gillian Collins, Michael Schmidt, Gerard P. McGlacken, Colm O'Dwyer, and Justin D. Holmes*

6531

[dx.doi.org/10.1021/jp501068a](https://doi.org/10.1021/jp501068a)

FRET between Close-Packed Quasi-Monodispersed PbS QDs in a Porous Matrix
Aleksandr P. Litvin, Elena V. Ushakova, Peter S. Parfenov, Anatoly V. Fedorov, and Alexander V. Baranov*

Additions and Corrections

6536

[dx.doi.org/10.1021/jp5015912](https://doi.org/10.1021/jp5015912)

Correction to "Size-Dependent Hydrogenation of *p*-Nitrophenol with Pd Nanoparticles Synthesized with Poly(amido)amine Dendrimer Templates"
Justin A. Johnson, John J. Makis, Katherine A. Marvin, Stacia E. Rodenbusch, and Keith J. Stevenson*