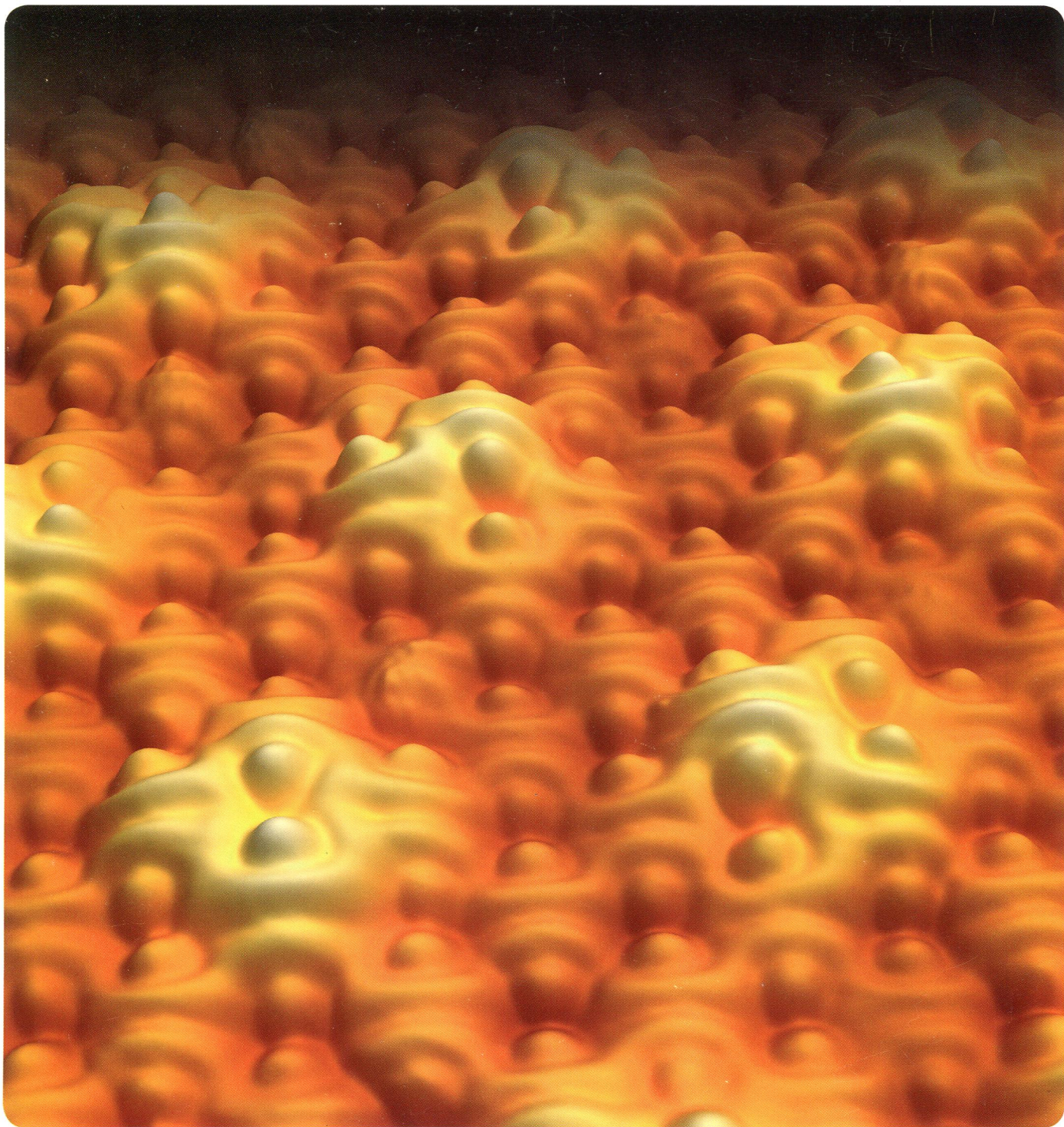




# CHEMISTRY OF MATERIALS

MAY 13, 2014 | VOLUME 26 | NUMBER 9 | [pubs.acs.org/cm](http://pubs.acs.org/cm)





**ON THE COVER:** STM image of a self-assembled monolayer of TCNQ on graphene/Ru(0001) showing the real space distribution of spatially extended spin-split intermolecular bands. For more information, see “Spatially Resolved, Site-Dependent Charge Transfer and Induced Magnetic Moment in TCNQ Adsorbed on Graphene” by Davide Maccariello, Manuela Garnica, Miguel A. Niño, Cristina Navío, Paolo Perna, Sara Barja, Amadeo L. Vázquez de Parga, and Rodolfo Miranda\* (*Chem. Mater.* 2014, 26, 2883–2890).

## Editorial

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Highlights of 2014, Thus Far

Jillian M. Buriak

[dx.doi.org/10.1021/cm5013747](http://dx.doi.org/10.1021/cm5013747)

## Communications

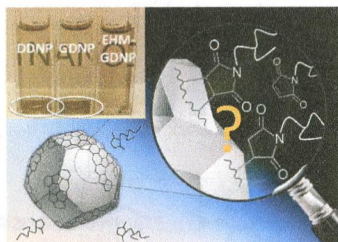
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Direct Functionalization of Nanodiamonds with Maleimide

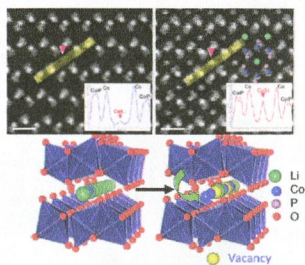
Omar El Tall, Yuanfang Hou, Edy Abou-Hamad, Inam U. Raja, Mohamed N. Hedhili, Wei Peng, Rémi Mahfouz, Osman M. Bakr,\* and Pierre M. Beaujuge\*

[dx.doi.org/10.1021/cm500036x](http://dx.doi.org/10.1021/cm500036x)

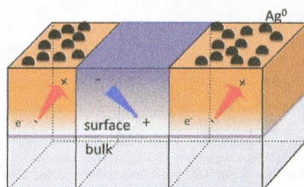


Relocation of Cobalt Ions in Electrochemically Delithiated  $\text{LiCoPO}_4$  Cathode Materials

Quang Duc Trung,\* Murukanahally Kempaiah Devaraju, Yoshikazu Sasaki, Hiroshi Hyodo, Takaaki Tomai, and Itaru Honma\*

Polar Domains at the Surface of Centrosymmetric  $\text{BiVO}_4$ 

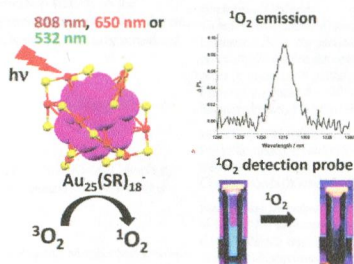
Ratiporn Munprom, Paul A. Salvador, and Gregory S. Rohrer\*



## Articles

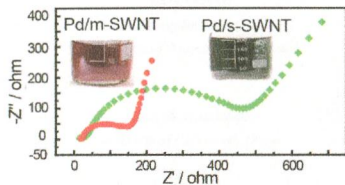
Generation of Singlet Oxygen by Photoexcited  $\text{Au}_{25}(\text{SR})_{18}$  Clusters

Hideya Kawasaki,\* Santosh Kumar, Gao Li, Chenjie Zeng, Douglas R. Kauffman, Junya Yoshimoto, Yasuhiko Iwasaki, and Rongchao Jin\*



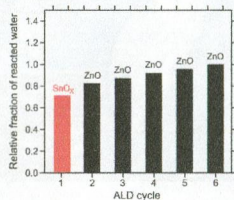
### Boosting Electrocatalytic Performances of Palladium Nanoparticles by Coupling with Metallic Single-Walled Carbon Nanotubes

Jing Zhang, Hongyuan Chen, Hongbo Li, Jiangtao Di, Minghai Chen, Fengxia Geng,\* Zhigang Zhao,\* and Qingwen Li\*



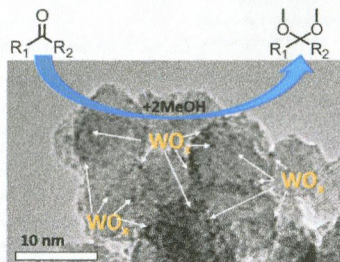
### Correlating Growth Characteristics in Atomic Layer Deposition with Precursor Molecular Structure: The Case of Zinc Oxide

Jukka T. Sankanen,\* Carl Hägglund, and Stacey F. Bent



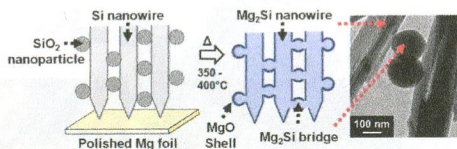
### Tungsten-Promoted Mesoporous Group 4 (Ti, Zr, and Hf) Transition-Metal Oxides for Room-Temperature Solvent-Free Acetalization and Ketalization Reactions

Altug S. Poyraz, Chung-Hao Kuo, Eugene Kim, Yongtao Meng, Mohammad S. Seraji, and Steven L. Suib\*



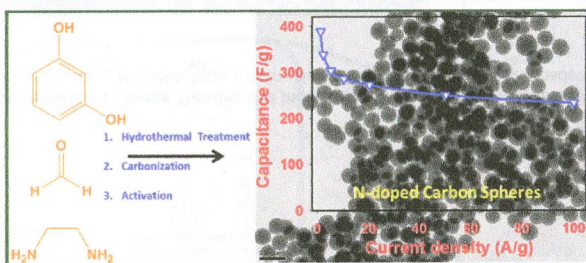
### Solid-State Phase Transformation as a Route for the Simultaneous Synthesis and Welding of Single-Crystalline $\text{Mg}_2\text{Si}$ Nanowires

Yongmin Kang and Sreeram Vaddiraju\*



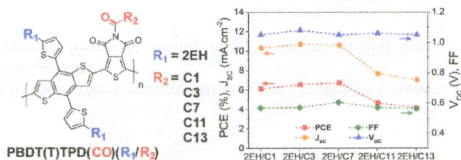
### Nitrogen Enriched Porous Carbon Spheres: Attractive Materials for Supercapacitor Electrodes and $\text{CO}_2$ Adsorption

Nilantha P. Wickramaratne, Jiantie Xu, Min Wang, Lin Zhu, Liming Dai, and Mietek Jaroniec\*



### Electron-Deficient *N*-Alkylol Derivatives of Thieno[3,4-*c*]pyrrole-4,6-dione Yield Efficient Polymer Solar Cells with Open-Circuit Voltages > 1 V

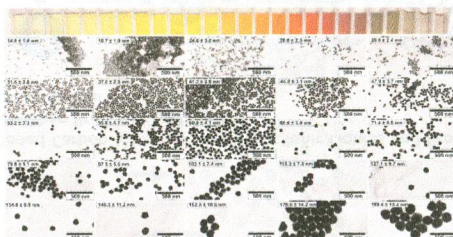
Julien Waman, Clément Cabanetos, Romain Bude, Abdulrahman El Labban, Liang Li, and Pierre M. Beaujuge\*





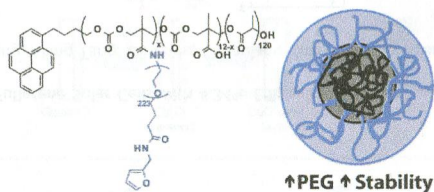
### Synthesis of Highly Monodisperse Citrate-Stabilized Silver Nanoparticles of up to 200 nm: Kinetic Control and Catalytic Properties

Neus G. Bastús,\* Florind Merkoçi, Jordi Piella, and Victor Puntes\*



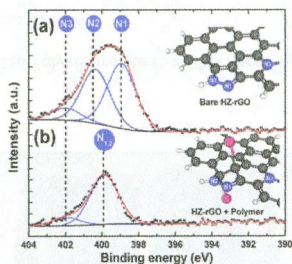
### PEG-Graft Density Controls Polymeric Nanoparticle Micelle Stability

Jennifer Logie, Shawn C. Owen, Christopher K. McLaughlin, and Molly S. Shoichet\*

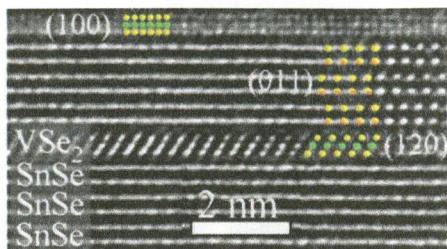


### Influence of Stacking Morphology and Edge Nitrogen Doping on the Dielectric Performance of Graphene–Polymer Nanocomposites

Mahmoud N. Almadhoun, M. N. Hedhili, Ihab N. Odeh, Prince Xavier, Unnat S. Bhansali, and H. N. Alsharief\*

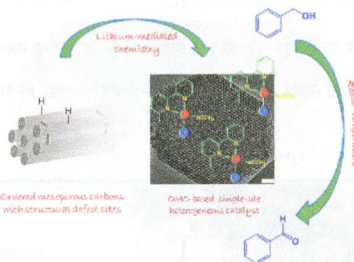


**Synthesis and Systematic Trends in Structure and Electrical Properties of  $[(\text{SnSe})_{1.15}m(\text{VSe}_2)_1]_m$ ,  $m = 1, 2, 3$ , and 4**  
 Ryan Atkins, Michelle Dolgos, Andreas Fiedler, Corinna Grosse, Saskia F. Fischer, Sven P. Rudin, and David C. Johnson\*

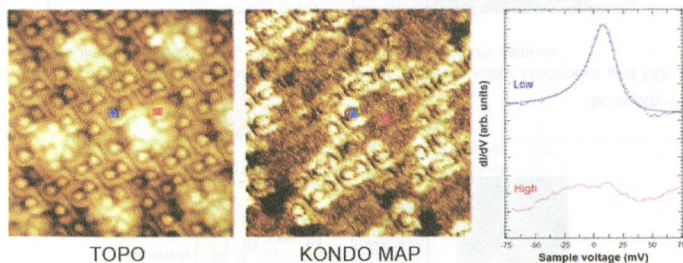


**Universal and Versatile Route for Selective Covalent Tethering of Single-Site Catalysts and Functional Groups on the Surface of Ordered Mesoporous Carbons**

Madhura Joglekar, Svitlana Pylypenko, Megan M. Otting, Justin S. Valenstein, and Brian G. Trewyn\*

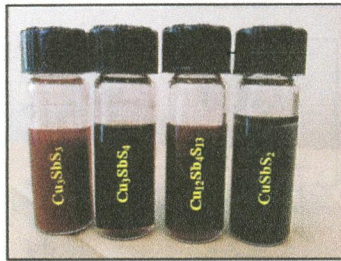


**Spatially Resolved, Site-Dependent Charge Transfer and Induced Magnetic Moment in TCNQ Adsorbed on Graphene**  
 Davide Maccariello, Manuela Garnica, Miguel A. Niño, Cristina Navio, Paolo Perna, Sara Barja, Amadeo L. Vázquez de Parga,\* and Rodolfo Miranda



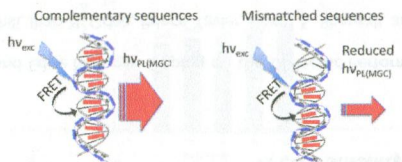
### Selective Nanocrystal Synthesis and Calculated Electronic Structure of All Four Phases of Copper–Antimony–Sulfide

Karthik Ramasamy,\* Hunter Sims, William H. Butler, and Arunava Gupta\*



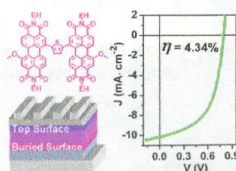
### Energy Transfer from a Cationic Conjugated Polyelectrolyte to a DNA Photonic Wire: Toward Label-Free, Sequence-Specific DNA Sensing

Zhongwei Liu, Hsing-Lin Wang,\* and Mircea Cotlet\*



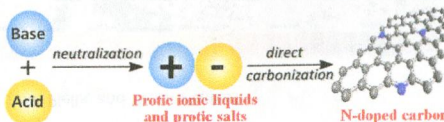
### Perylene–Diimide Based Non-Fullerene Solar Cells with 4.34% Efficiency through Engineering Surface Donor/Acceptor Compositions

Zhenhuan Lu, Bo Jiang, Xin Zhang, Ailing Tang, Lili Chen, Chuanlang Zhan,\* and Jiannian Yao\*



### Direct Synthesis of Nitrogen-Doped Carbon Materials from Protic Ionic Liquids and Protic Salts: Structural and Physicochemical Correlations between Precursor and Carbon

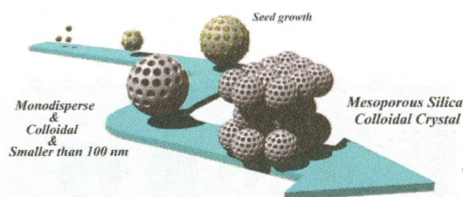
Shiguo Zhang, Kaoru Dokko, and Masayoshi Watanabe\*



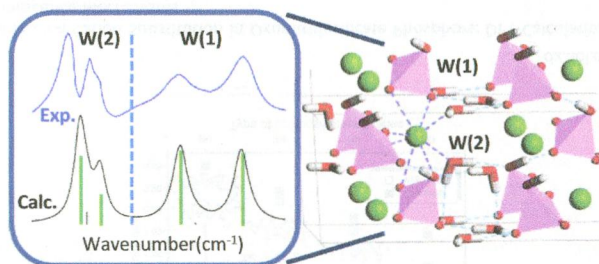


**Preparation of Size-Controlled Monodisperse Colloidal Mesoporous Silica Nanoparticles and Fabrication of Colloidal Crystals**

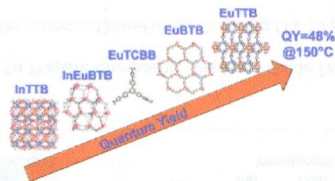
Eisuke Yamamoto, Masaki Kitahara, Takuya Tsumura, and Kazuyuki Kuroda\*

**Infrared Absorption Spectrum of Brushite from First Principles**

Anna Hirsch, Ido Azuri, Lia Addadi, Stephen Weiner, Kesong Yang, Stefano Curtarolo, and Leeor Kronik\*

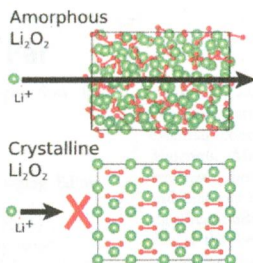
**Efficient Photoluminescence via Metal–Ligand Alteration in a New MOFs Family**

Dorina F. Sava Gallis, Lauren E. S. Rohwer, Mark A. Rodriguez, and Tina M. Nenoff\*



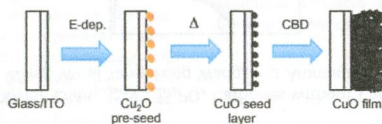
### Enhanced Charge Transport in Amorphous $\text{Li}_2\text{O}_2$

Feng Tian, Maxwell D. Radin, and Donald J. Siegel\*



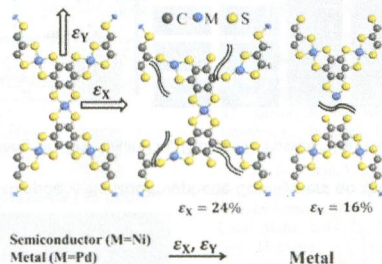
### Seed Layer-Assisted Chemical Bath Deposition of $\text{CuO}$ Films on ITO-Coated Glass Substrates with Tunable Crystallinity and Morphology

Changqiong Zhu and Matthew J. Panzer\*



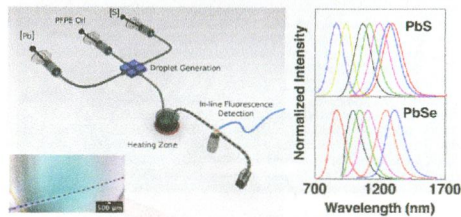
### Mechanical and Electronic Properties of $\pi$ -Conjugated Metal Bis(dithiolene) Complex Sheets

Fazel Shojaei, Jae Ryang Hahn, and Hong Seok Kang\*



### Facile Droplet-based Microfluidic Synthesis of Monodisperse IV–VI Semiconductor Nanocrystals with Coupled In-Line NIR Fluorescence Detection

Ioannis Lignos, Loredana Protesescu, Stavros Stavarakis, Laura Piveteau, Mark J. Speirs, Maria A. Loi, Maksym V. Kovalenko, and Andrew J. deMello\*

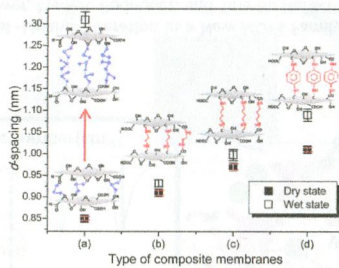


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dx.doi.org/10.1021/cm5007873

### Cross-Linking with Diamine Monomers To Prepare Composite Graphene Oxide-Framework Membranes with Varying *d*-Spacing

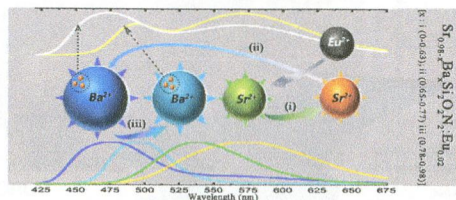
Wei-Song Hung,\* Chi-Hui Tsou, Manuel De Guzman, Quan-Fu An, Ying-Ling Liu, Ya-Ming Zhang, Chien-Chieh Hu, Kueir-Ram Lee, and Juin-Yih Lai

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dx.doi.org/10.1021/cm500844v

### Photoluminescence Tuning via Cation Substitution in Oxonitridosilicate Phosphors: DFT Calculations, Different Site Occupations, and Luminescence Mechanisms

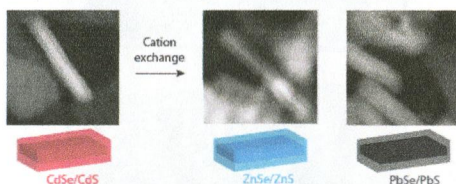
Guogang Li, Chun Che Lin, Wei-Ting Chen, Maxim S. Molochev, Victor V. Atuchin, Chang-Yang Chiang, Wuzong Zhou, Chin-Wei Wang, Wen-Hsien Li, Hwo-Shuenn Sheu, Ting-Shan Chan, Chonggeng Ma, and Ru-Shi Liu\*





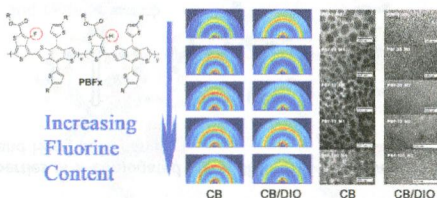
### Synthesis of Zinc and Lead Chalcogenide Core and Core/Shell Nanoplatelets Using Sequential Cation Exchange Reactions

Cécile Bouet, Donatien Laufer, Benoit Mahler, Brice Nadal, Hadrien Heuclin, Silvia Pedetti, Gilles Patriarche, and Benoit Dubertret\*



### Effect of Fluorine Content in Thienothiophene-Benzodithiophene Copolymers on the Morphology and Performance of Polymer Solar Cells

Peng Liu, Kai Zhang, Feng Liu, Yaocheng Jin, Shengjian Liu, Thomas P. Russell,\* Hin-Lap Yip,\* Fei Huang,\* and Yong Cao



### High-Capacity, Aliovalently Doped Olivine $\text{LiMn}_{1-3x/2}\text{V}_x\text{□}_{x/2}\text{PO}_4$ Cathodes without Carbon Coating

Arturo Gutierrez, Ruimin Qiao, Liping Wang, Wanli Yang, Feng Wang, and Arumugam Manthiram\*

