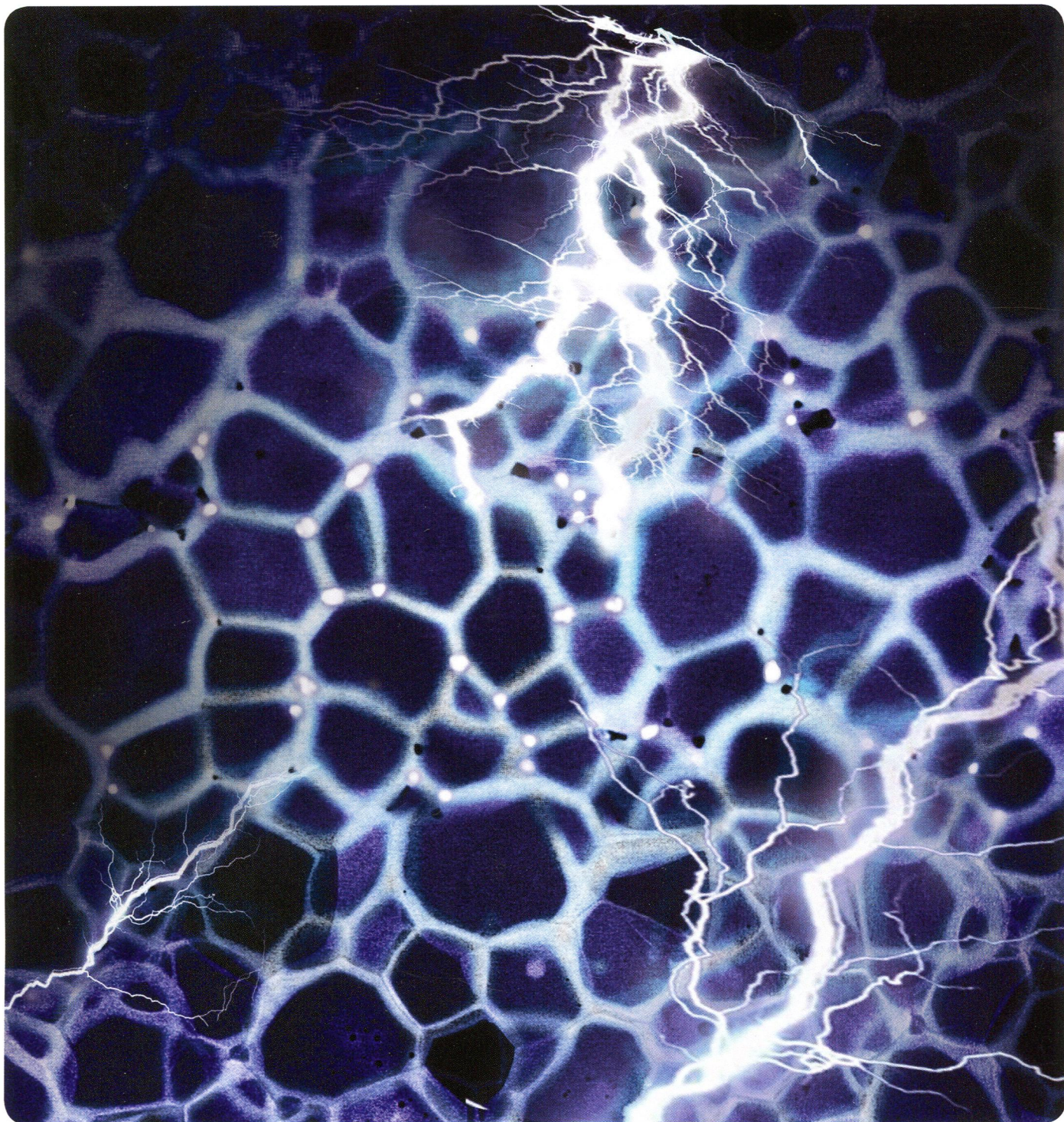




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ON THE COVER: Upon employing a novel strategy using spark plasma sintering technique, the grains of bulk polycrystalline Pr-doped SrTiO₃ ceramics were enhanced with Pr-rich grain boundaries which improved their thermoelectric properties. Specifically, this morphology resulted in a significant improvement in carrier mobility and the thermoelectric power factor in this broadly functional oxide material. Cover image designed by Ryan Newman. For more information, see “Large Thermoelectric Power Factor in Pr-Doped SrTiO_{3-δ} Ceramics via Grain-Boundary-Induced Mobility Enhancement” by Arash Mehdizadeh Dehkordi,* Sriparna Bhattacharya, Taghi Darroudi, Jennifer W. Graff, Udo Schwingschlögl, Husam N. Alshareef, and Terry M. Tritt* (*Chem. Mater.* 2014, 26, 2478–2485).

Editorial

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Your Research Results Look Compelling, but Are They Reliable?

Jillian M. Buriak

[dx.doi.org/10.1021/cm5010449](https://doi.org/10.1021/cm5010449)

Communications

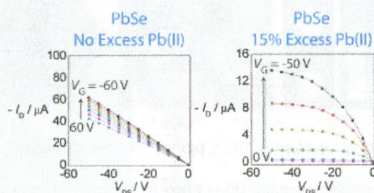
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Influence of Surface Composition on Electronic Transport through Naked Nanocrystal Networks

Evelyn L. Rosen, April M. Sawvel, Delia J. Milliron, and Brett A. Helms*

[dx.doi.org/10.1021/cm404149u](https://doi.org/10.1021/cm404149u)



Articles

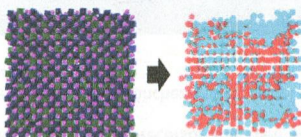
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Local Crystal Structure of Antiferroelectric Bi₂Mn_{4/3}Ni_{2/3}O₆ in Commensurate and Incommensurate Phases Described by Pair Distribution Function (PDF) and Reverse Monte Carlo (RMC) Modeling

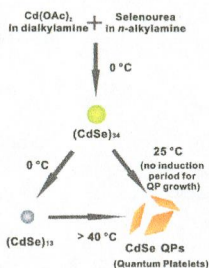
Robert J. Szczecinski, Samantha Y. Chong, Philip A. Chater, Helen Hughes, Matthew G. Tucker, John B. Claridge,* and Matthew J. Rosseinsky

[dx.doi.org/10.1021/cm4038439](https://doi.org/10.1021/cm4038439)



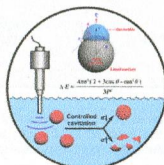
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Yuanyuan Wang, Ying Zhang, Fudong Wang, Daryl E. Giblin, Jessica Hoy, Henry W. Rohrs, Richard A. Loomis, and William E. Buhro*



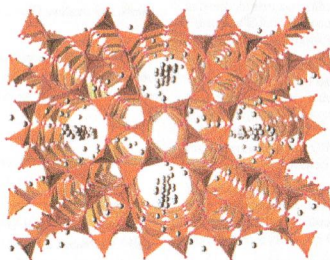
Controlled Cavitation at Nano/Microparticle Surfaces

Lu Zhang, Valentina Belova, Hongqiang Wang, Wenfei Dong,* and Helmuth Möhwald*



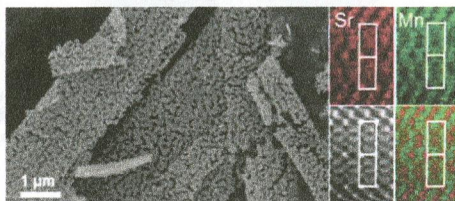
High Pressure Polymerization in a Confined Space: Conjugated Chain/Zeolite Nanocomposites

Demetrio Scelta, Matteo Ceppatelli, Mario Santoro,* Roberto Bini, Federico A. Gorelli, Andrea Perucchi, Mohamed Mezouar, Arie van der Lee, and Julien Haines



Synthesis of 4H-SrMnO_{3,0} Nanoparticles from a Molecular Precursor and Their Topotactic Reduction Pathway Identified at Atomic Scale

Irma N. González-Jiménez, Almudena Torres-Pardo, Ana E. Sánchez-Peláez, Ángel Gutiérrez, Mar García-Hernández, José M. González-Calbet, Marina Parras, and Áurea Varela*



Synthesis, X-ray Opacity, and Biological Compatibility of Ultra-High Payload Elemental Bismuth Nanoparticle X-ray Contrast Agents

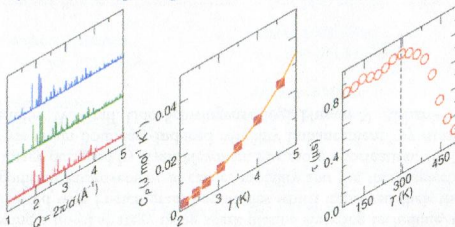
Anna L. Brown, Pratap C. Naha, Victor Benavides-Montes, Harold I. Litt, Andrea M. Goforth,* and David P. Cormode*



Consequences of Optimal Bond Valence on Structural Rigidity and Improved Luminescence Properties in Sr₂Ba_{2-x}SiO₄:Eu²⁺ Orthosilicate Phosphors

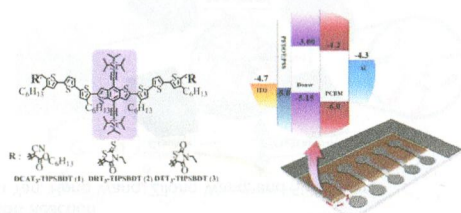
Kristin A. Denault,* Jakoah Brgoch, Michael W. Gaultois, Alexander Mikhailovsky, Ralf Petry, Holger Winkler, Steven P. DenBaars, and Ram Seshadri*

optimal bonding → rigid lattice → enhanced luminescence



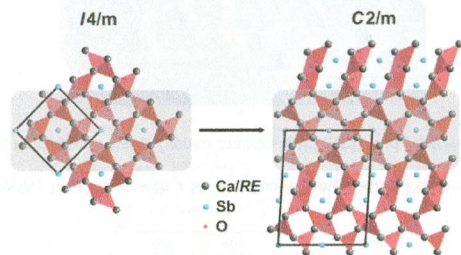
High-Performance Organic Solar Cells with Efficient Semiconducting Small Molecules Containing an Electron-Rich Benzodithiophene Derivative

Namwo Lim, Nara Cho, Sanghyun Paek, Chulwoo Kim, Jae Kwan Lee,* and Jaejung Ko*



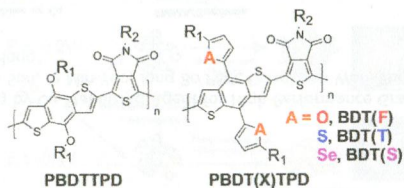
Synthesis, Crystal Structure, and Electronic Properties of the $CaRE_2SbO_4$ and $Ca_2RE_6Sb_2O_{10}$ phases (RE = Rare-Earth Metal)

Scott Forbes, Fang Yuan, Bayrammurad Saparov, Athena S. Sefat, Kosuke Kosuda, Taras Kolodiazhnyi, and Yurij Mozharivskiy*



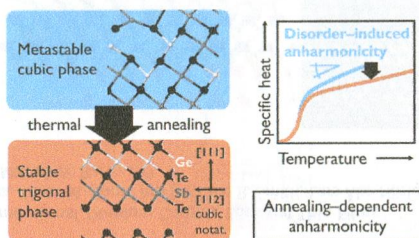
Ring Substituents Mediate the Morphology of PBDDTPD-PCBM Bulk-Heterojunction Solar Cells

Julien Warnan, Abdulrahman El Labban, Clément Cabanetos, Eric T. Hoke, Pradeep Kumar Shukla, Chad Risko, Jean-Luc Brédas, Michael D. McGehee, and Pierre M. Beaujuge*



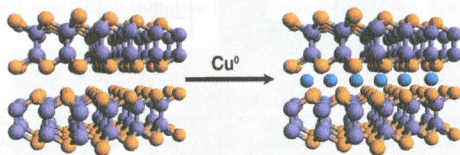
Specific Heat of $(\text{GeTe})_x(\text{Sb}_2\text{Te}_3)_{1-x}$ Phase-Change Materials: The Impact of Disorder and Anharmonicity

Peter Zalden,* Karl Simon Siegert, Stéphane Rols, Henry E. Fischer, Franziska Schlich, Te Hu, and Matthias Wuttig*



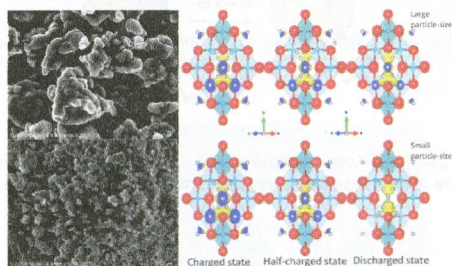
General Strategy for Zero-Valent Intercalation into Two-Dimensional Layered Nanomaterials

Janina P. Motter, Kristie J. Koski, and Yi Cui*



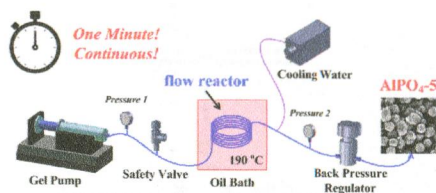
Lithium Migration in $\text{Li}_4\text{Ti}_5\text{O}_{12}$ Studied Using in Situ Neutron Powder Diffraction

Wei Kong Pang, Vanessa K. Peterson,* Neeraj Sharma, Je-Jang Shiu, and She-huang Wu*



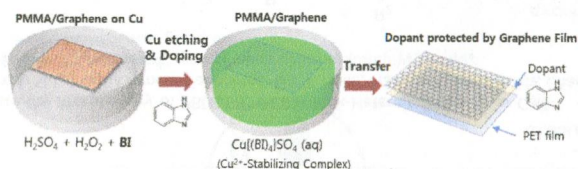
Ultrafast Continuous-Flow Synthesis of Crystalline Microporous Aluminophosphate $\text{AlPO}_4\text{-5}$

Zhendong Liu, Toru Wakihara, Daisuke Nishioka, Kazunori Oshima, Takahiko Takewaki, and Tatsuya Okubo*



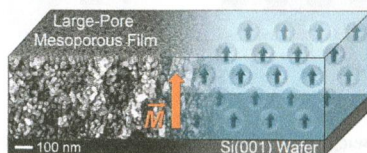
Simultaneous Etching and Doping by Cu-Stabilizing Agent for High-Performance Graphene-Based Transparent Electrodes

Sang Jin Kim, Jaechul Ryu, Suyeon Son, Je Min Yoo, Jong Bo Park, Dongkwan Won, Eun-Kyu Lee, Sung-Pyo Cho, Sukang Bae, Seungmin Cho,* and Byung Hee Hong*



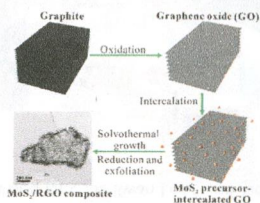
Large-Pore Mesoporous $\text{Ho}_3\text{Fe}_5\text{O}_{12}$ Thin Films with a Strong Room-Temperature Perpendicular Magnetic Anisotropy by Sol-Gel Processing

Christian Suchomski,* Christian Reitz, Damir Pajic, Zvonko Jaglicic, Igor Djerdj, and Torsten Brezesinski*



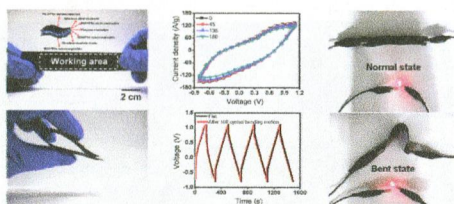
Space-Confined Growth of MoS_2 Nanosheets within Graphite: The Layered Hybrid of MoS_2 and Graphene as an Active Catalyst for Hydrogen Evolution Reaction

Xiaoli Zheng, Jianbo Xu, Keyou Yan, Hong Wang, Zilong Wang, and Shihe Yang*

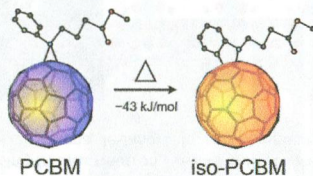


In Situ Synthesis of Graphene/Polyselenophene Nanohybrid Materials as Highly Flexible Energy Storage Electrodes

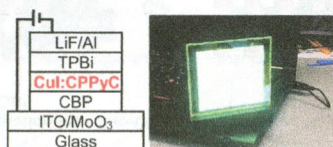
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**Thermal [6,6] → [6,6] Isomerization and Decomposition of PCBM (Phenyl-C₆₁-butyric Acid Methyl Ester)**

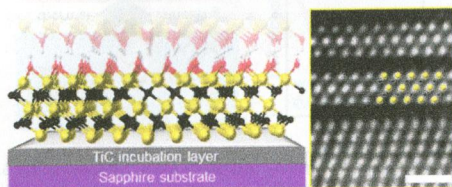
Bryon W. Larson, James B. Whitaker, Alexey A. Popov,* Nikos Kopidakis,* Garry Rumbles,* Olga V. Boltalina,* and Steven H. Strauss*

**Simple and High Efficiency Phosphorescence Organic Light-Emitting Diodes with Codeposited Copper(I) Emitter**

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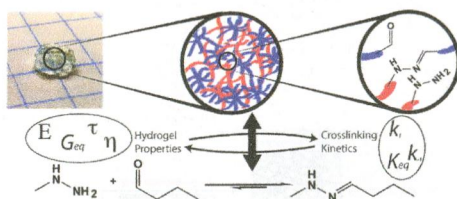
**Transparent Conductive Two-Dimensional Titanium Carbide Epitaxial Thin Films**

Joseph Halim, Maria R. Lukatskaya, Kevin M. Cook, Jun Lu, Cole R. Smith, Lars-Åke Näslund, Steven J. May, Lars Hultman, Yury Gogotsi,* Per Eklund,* and Michel W. Barsoum*



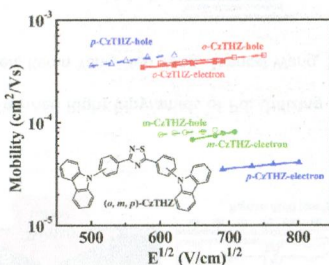
Bis-Aliphatic Hydrazone-Linked Hydrogels Form Most Rapidly at Physiological pH: Identifying the Origin of Hydrogel Properties with Small Molecule Kinetic Studies

Daniel D. McKinnon, Dylan W. Domaille, Jennifer N. Cha,* and Kristi S. Anseth*



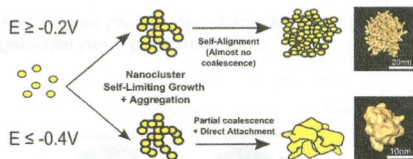
Construction of High Tg Bipolar Host Materials with Balanced Electron–Hole Mobility Based on 1,2,4-Thiadiazole for Phosphorescent Organic Light-Emitting Diodes

Jiangjiang Jin, Wenzhi Zhang, Bo Wang, Guanyuan Mu, Peng Xu, Lei Wang,* Hong Huang, Jiangshan Chen,* and Dongge Ma



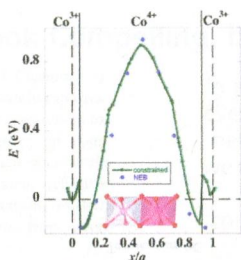
The Role of Nanocluster Aggregation, Coalescence, and Recrystallization in the Electrochemical Deposition of Platinum Nanostructures

Jon Ustarroz, Thomas Altantzis, Joshua A. Hammons, Annick Hubin, Sara Bals, and Herman Terryn*



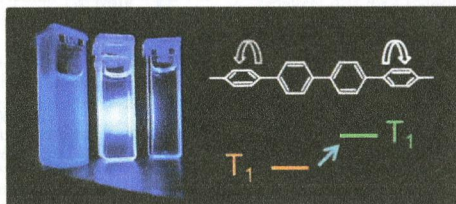
First-Principles Analysis of Phase Stability in Layered–Layered Composite Cathodes for Lithium-Ion Batteries

Hakim Iddir and Roy Benedek*



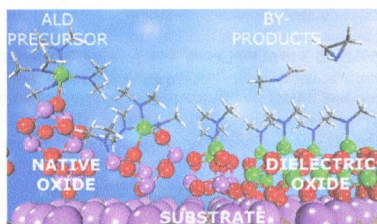
Engineering Blue Fluorescent Bulk Emitters for OLEDs: Triplet Harvesting by Green Phosphors

Simone Hofmann,* Markus Hummert, Reinhard Scholz, Regina Luschnitz, Caroline Murawski, Paul-Anton Will, Susanne I. Hintschich, Jörg Alex, Vyngintas Jankus, Andrew P. Monkman, Björn Lüsse, Karl Leo, and Malte C. Gather



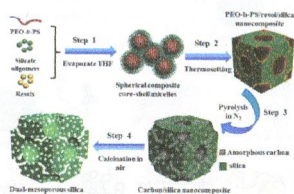
Decomposition of Metal Alkylamides, Alkyls, and Halides at Reducible Oxide Surfaces: Mechanism of ‘Clean-up’ During Atomic Layer Deposition of Dielectrics onto III–V Substrates

Sylvia Klejna and Simon D. Elliott*



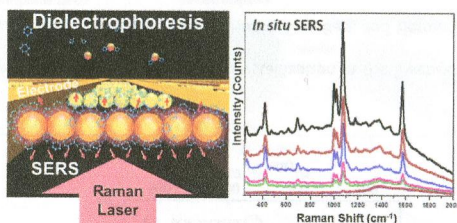
Tricomponent Coassembly Approach To Synthesize Ordered Mesoporous Carbon/Silica Nanocomposites and Their Derivative Mesoporous Silicas with Dual Porosities

Yuhui Li, Jing Wei, Wei Luo, Chun Wang, Wei Li, Shanshan Feng, Qin Yue, Minghong Wang, Ahmed A. Elzatahry, Yonghui Deng,* and Dongyuan Zhao



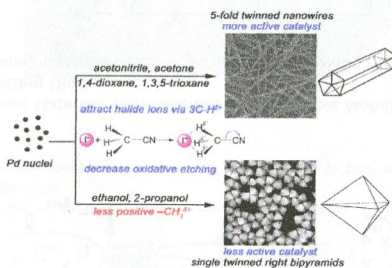
Rapid and Sensitive in Situ SERS Detection Using Dielectrophoresis

Sudhir Cherukulappurath, Si Hoon Lee, Antonio Campos, Christy L. Haynes, and Sang-Hyun Oh*



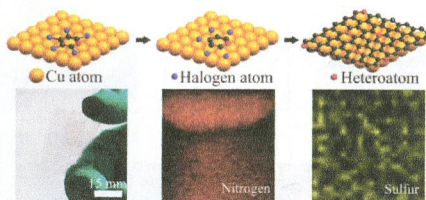
5-fold Twinned Nanowires and Single Twinned Right Bipyramids of Pd: Utilizing Small Organic Molecules To Tune the Etching Degree of O₂/Halides

Na Lu, Wei Chen,* Guoyong Fang, Bi Chen, Keqin Yang, Yun Yang, Zhencai Wang, Shaoming Huang,* and Yadong Li



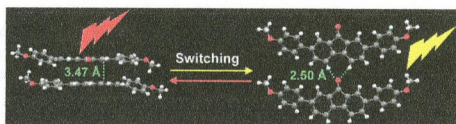
Low-Temperature Growth of Large-Area Heteroatom-Doped Graphene Film

Jia Zhang, Junjie Li, Zhenlong Wang,* Xiaona Wang, Wei Feng, Wei Zheng, Wenwu Cao, and PingAn Hu*



Fluorenone Organic Crystals: Two-Color Luminescence Switching and Reversible Phase Transformations between π - π Stacking-Directed Packing and Hydrogen Bond-Directed Packing

Mao-Sen Yuan, Dong-En Wang, Pengchong Xue, Wenji Wang, Jian-Chun Wang, Qin Tu, Zhiqiang Liu, Yang Liu, Yanrong Zhang, and Jinyi Wang*



Large Thermoelectric Power Factor in Pr-Doped $\text{SrTiO}_{3-\delta}$ Ceramics via Grain-Boundary-Induced Mobility Enhancement

Arash Mehdizadeh Dehkordi,* Sriparna Bhattacharya, Taghi Darroudi, Jennifer W. Graff, Udo Schwingenschlöggl, Husam N. Alshareef, and Terry M. Tritt*

