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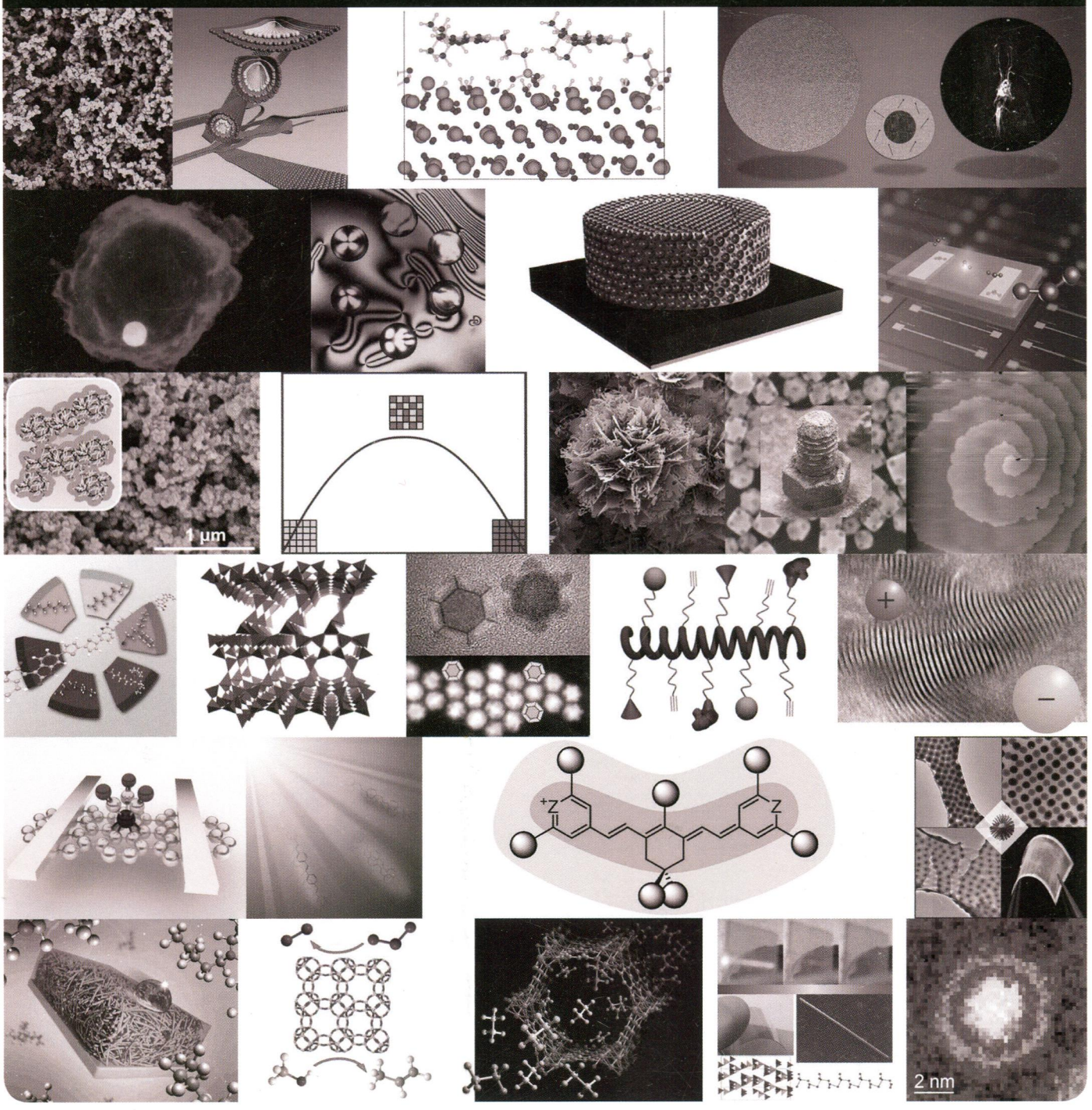
SPECIAL ISSUE: CELEBRATING TWENTY-FIVE YEARS OF CHEMISTRY OF MATERIALS



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CHEMISTRY OF MATERIALS

JANUARY 14, 2014
VOLUME 26 ISSUE 1

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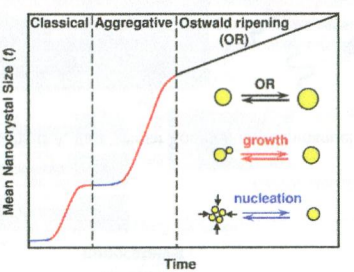
ON THE COVER: The cover image is a collage of 27 images submitted by the authors of the Special Issue papers. The full details regarding the images and the papers to which they refer can be obtained in the Supporting Information available online (see Supporting Information of dx.doi.org/10.1021/cm4037988, "Celebrating Twenty-Five Years of *Chemistry of Materials*" by Leonard V. Interrante and Edwin A. Chandross).

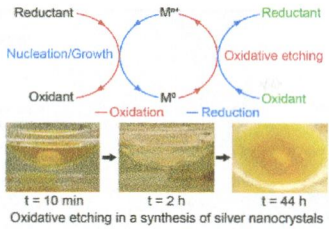
SPECIAL ISSUE: CELEBRATING TWENTY-FIVE YEARS OF CHEMISTRY OF MATERIALS

Nanoparticle Synthesis, Growth and Applications



22 dx.doi.org/10.1021/cm402023g

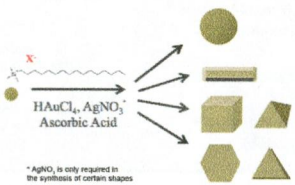
Oxidative Etching and Its Role in Manipulating the Nucleation and Growth of Noble-Metal Nanocrystals
Yiqun Zheng, Jie Zeng, Aleksey Ruditskiy, Maochang Liu, and Younan Xia*



Oxidative etching in a synthesis of silver nanocrystals

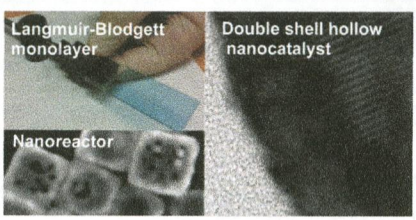
34 dx.doi.org/10.1021/cm402384j

Anisotropic Noble Metal Nanocrystal Growth: The Role of Halides
Samuel E. Lohse, Nathan D. Burrows, Leonardo Scarabelli, Luis M. Liz-Marzán,* and Catherine J. Murphy*



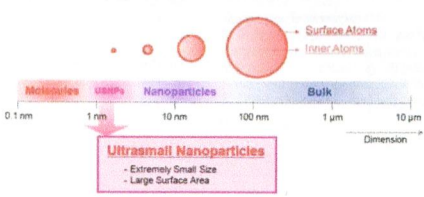
44 dx.doi.org/10.1021/cm4020892

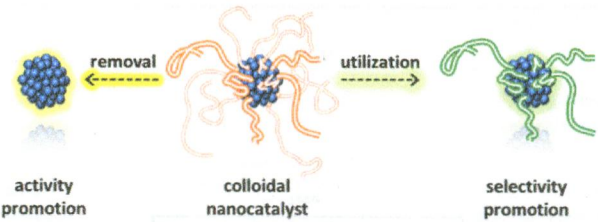
Hollow and Solid Metallic Nanoparticles in Sensing and in Nanocatalysis
Mahmoud A. Mahmoud, Daniel O'Neil, and Mostafa A. El-Sayed*

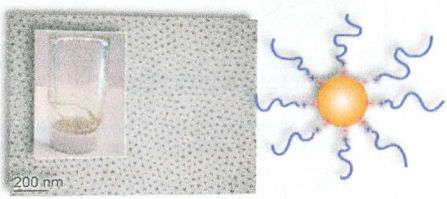


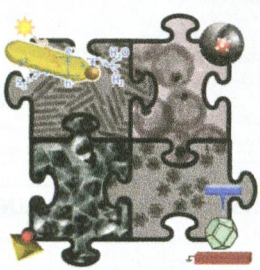
59 dx.doi.org/10.1021/cm402225z

Synthesis, Characterization, and Application of Ultrasmall Nanoparticles
Byung Hyo Kim, Michael J. Hackett, Jongnam Park,* and Taeghwan Hyeon*





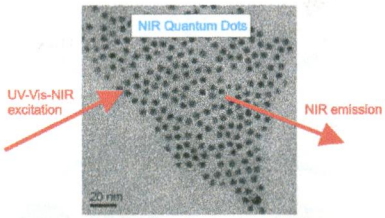




111 dx.doi.org/10.1021/cm4021436

Near-Infrared Quantum Dots and Their Delicate Synthesis, Challenging Characterization, and Exciting Potential Applications

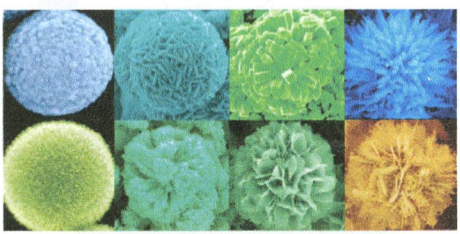
Frank C. J. M. van Veggel*



123 dx.doi.org/10.1021/cm4018248

Hierarchical SnO_2 Nanostructures: Recent Advances in Design, Synthesis, and Applications

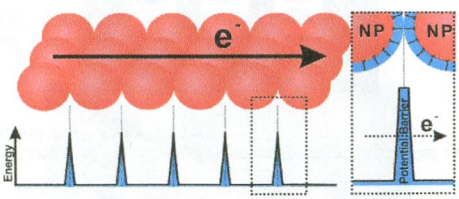
Hongkang Wang and Andrey L. Rogach*



134 dx.doi.org/10.1021/cm402675k

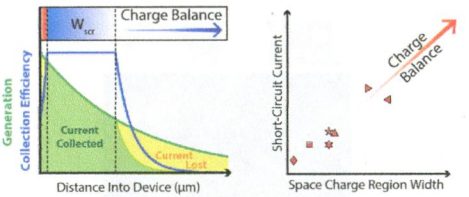
Charge Transport Dilemma of Solution-Processed Nanomaterials

Ji-Young Kim and Nicholas A. Kotov*



153 dx.doi.org/10.1021/cm402383r

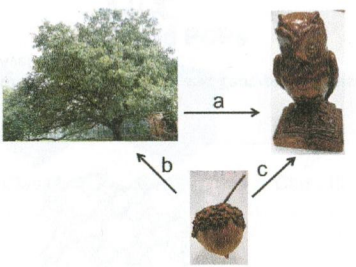
Postsynthetic Doping Control of Nanocrystal Thin Films: Balancing Space Charge to Improve Photovoltaic Efficiency
Jesse H. Engel and A. Paul Alivisatos*



Nanostructured Carbon Materials

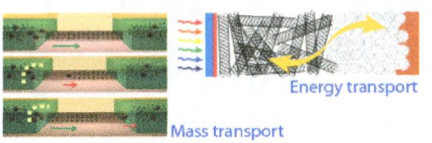
163 dx.doi.org/10.1021/cm402179h

Top-Down versus Bottom-Up Fabrication of Graphene-Based Electronics
James M. Tour*



172 dx.doi.org/10.1021/cm402895e

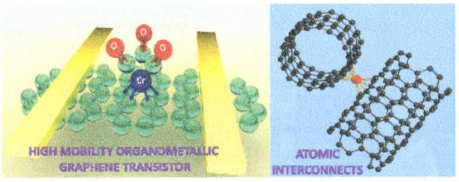
Low Dimensional Carbon Materials for Applications in Mass and Energy Transport
Qing Hua Wang, Darin O. Bellisario, Lee W. Drahushuk, Rishabh M. Jain, Sebastian Kruss, Markita P. Landry, Sayalee G. Mahajan, Steven F. E. Shimizu, Zachary W. Ulissi, and Michael S. Strano*



184 dx.doi.org/10.1021/cm4025809

Metals on Graphene and Carbon Nanotube Surfaces: From Mobile Atoms to Atomtronics to Bulk Metals to Clusters and Catalysts

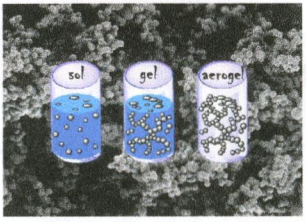
Santanu Sarkar, Matthew L. Moser, Xiaojuan Tian, Xixiang Zhang, Yas Fadel Al-Hadeethi, and Robert C. Haddon*



196 dx.doi.org/10.1021/cm402239e

Carbon Aerogels and Monoliths: Control of Porosity and Nanoarchitecture via Sol–Gel routes

Markus Antonietti,* Nina Fechler, and Tim-Patrick Fellinger

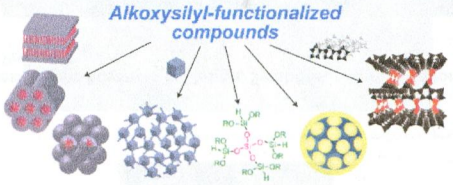


Nanoporous Materials

211 dx.doi.org/10.1021/cm4023387

Utilization of Alkoxysilyl Groups for the Creation of Structurally Controlled Siloxane-Based Nanomaterials

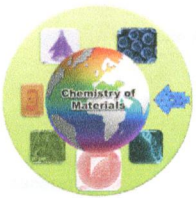
Kazuyuki Kuroda,* Atsushi Shimojima,* Kazufumi Kawahara, Ryutaro Wakabayashi, Yasuhiro Tamura, Yusuke Asakura, and Masaki Kitahara



221 dx.doi.org/10.1021/cm402528b

Molecular Engineering of Functional Inorganic and Hybrid Materials

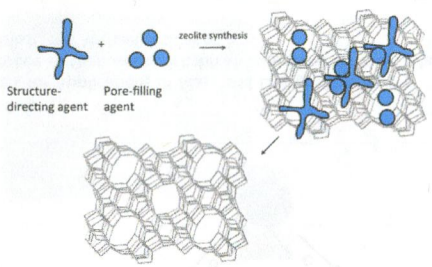
C. Sanchez,* C. Boissiere, S. Cassaignon, C. Chaneac, O. Durupthy, M. Faustini, D. Grosso, C. Laberty-Robert, L. Nicole, D. Portehault, F. Ribot, L. Rozes, and C. Sassoye



239 dx.doi.org/10.1021/cm401914u

Zeolites from a Materials Chemistry Perspective

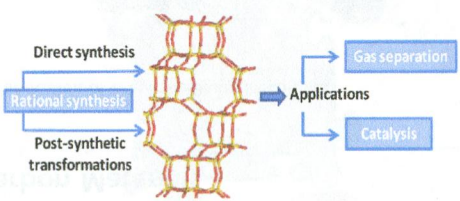
Mark E. Davis*

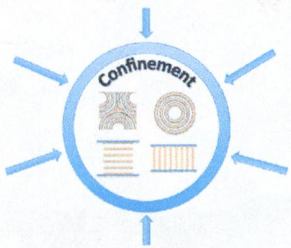


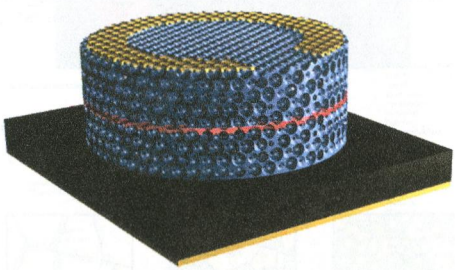
246 dx.doi.org/10.1021/cm4015095

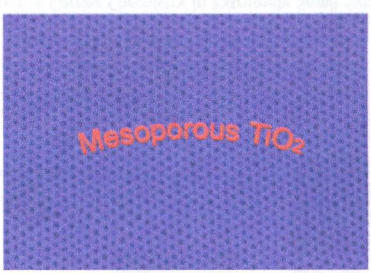
Synthesis Strategies for Preparing Useful Small Pore Zeolites and Zeotypes for Gas Separations and Catalysis

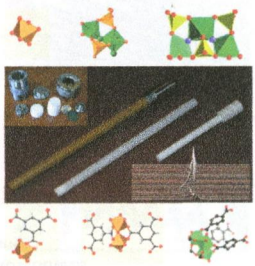
Manuel Moliner, Cristina Martínez, and Avelino Corma*

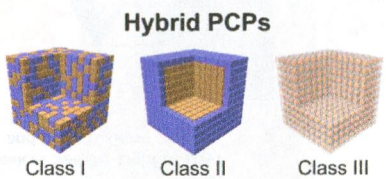


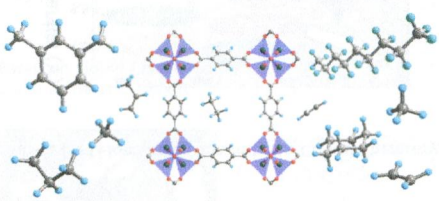










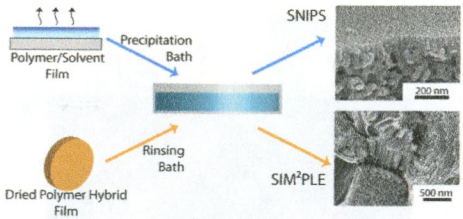


339 S

dx.doi.org/10.1021/cm4024056

Hierarchically Porous Materials from Block Copolymers

Rachel Mika Dorin, Hiroaki Sai, and Ulrich Wiesner*



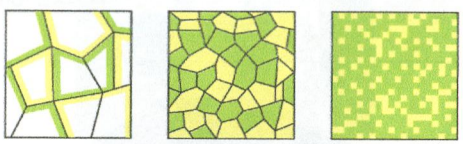
Energy Storage and Conversion

348 S

dx.doi.org/10.1021/cm4021657

Pushing Nanoionics to the Limits: Charge Carrier Chemistry in Extremely Small Systems

Joachim Maier*

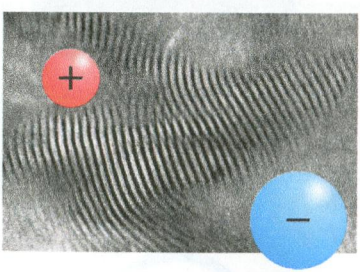


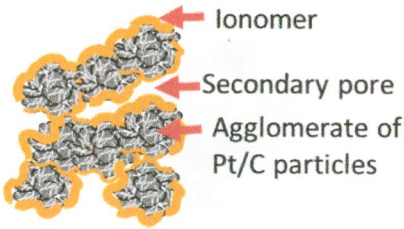
361

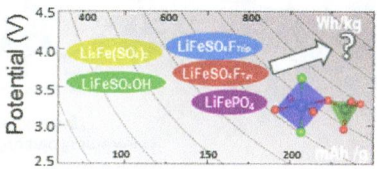
dx.doi.org/10.1021/cm402742u

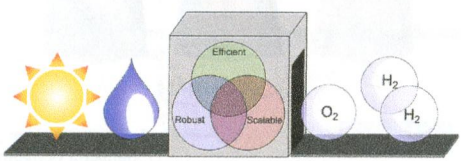
Ion Conducting Membranes for Fuel Cells and other Electrochemical Devices

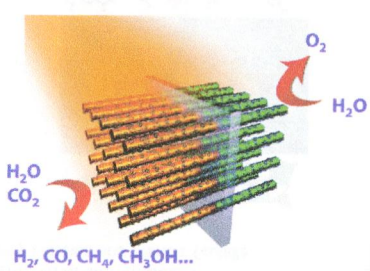
Klaus-Dieter Kreuer*

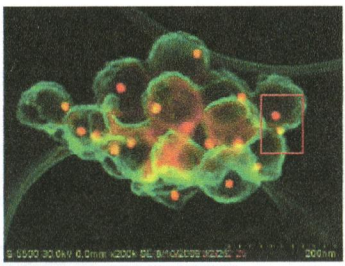




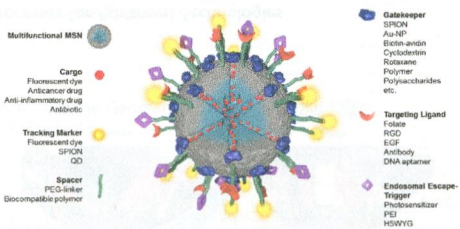


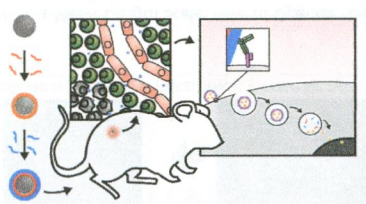


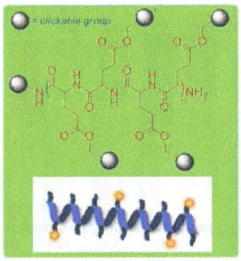


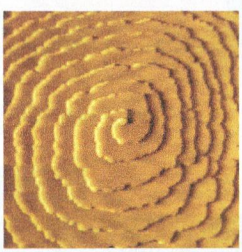


Materials Chemistry in Medicine and Biology

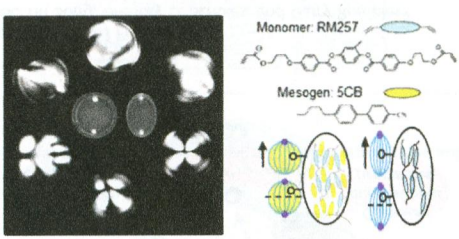


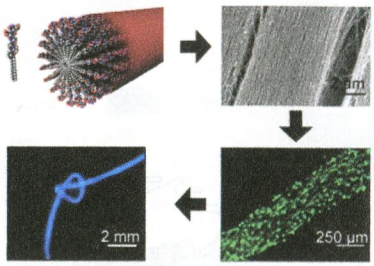


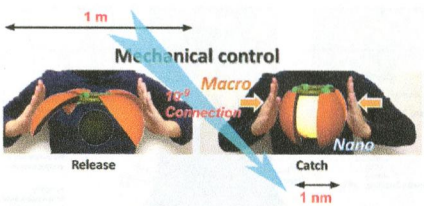


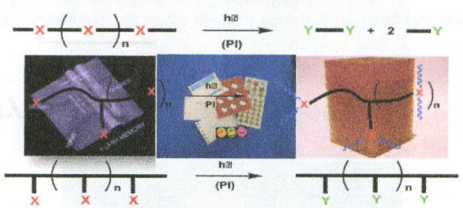


Organic Materials in Electronics and Photonics





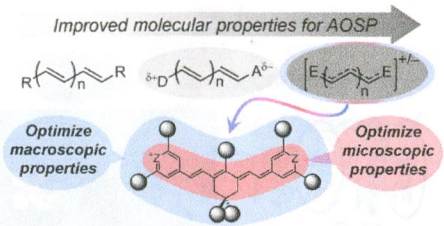




549 dx.doi.org/10.1021/cm402893s

Design of Organic Chromophores for All-Optical Signal Processing Applications

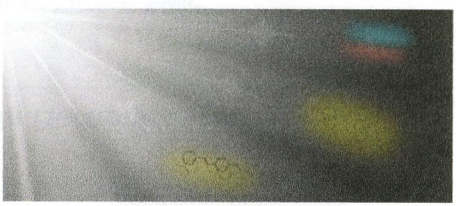
Joel M. Hales,* Stephen Barlow, Hyeongeu Kim, Sukrit Mukhopadhyay, Jean-Luc Brédas, Joseph W. Perry,* and Seth R. Marder*



561 dx.doi.org/10.1021/cm4027144

Charge Photogeneration in Neat Conjugated Polymers

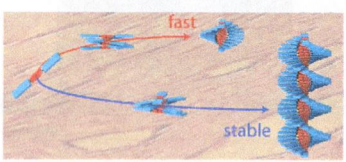
Obadiah G. Reid, Ryan D. Pensack, Yin Song, Gregory D. Scholes, and Garry Rumbles*



576 dx.doi.org/10.1021/cm4021172

Pathway Complexity in π-Conjugated Materials

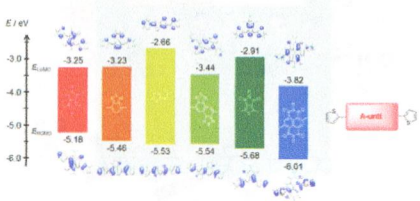
Peter A. Korevaar, Tom F. A. de Greef, and E. W. Meijer*

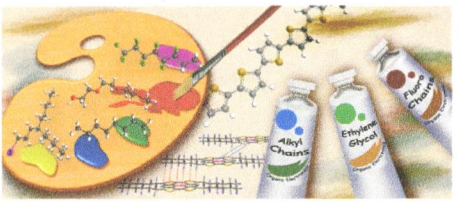


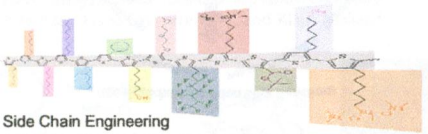
587 dx.doi.org/10.1021/cm4021063

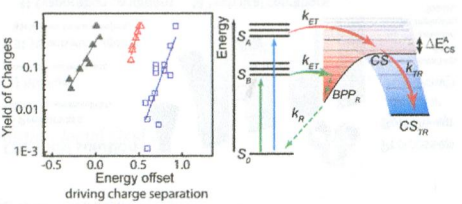
π-Building Blocks for Organic Electronics: Revaluation of "Inductive" and "Resonance" Effects of π-Electron Deficient Units

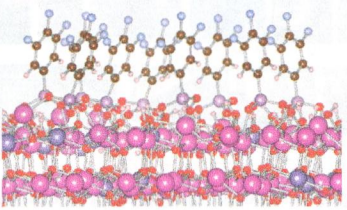
Kazuo Takimiya,* Itaru Osaka,* and Masahiro Nakano

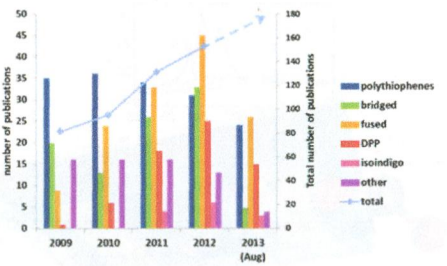


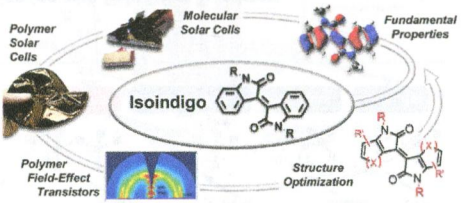


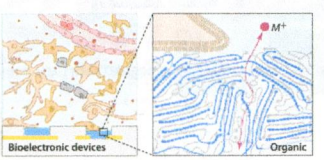


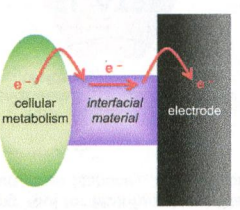










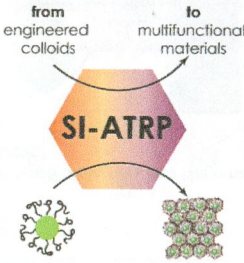


Surfaces, Interfaces and Coatings

745 dx.doi.org/10.1021/cm4023634

Surface-Initiated Polymerization as an Enabling Tool for Multifunctional (Nano-)Engineered Hybrid Materials

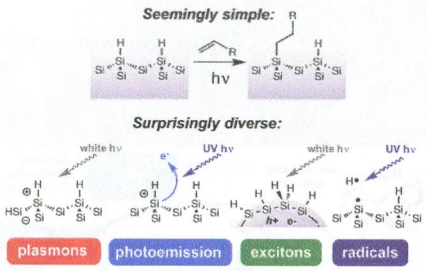
Chin Ming Hui, Joanna Pietrasik, Michael Schmitt, Clare Mahoney, Jihoon Choi, Michael R. Bockstaller,* and Krzysztof Matyjaszewski*



763 dx.doi.org/10.1021/cm402120f

Illuminating Silicon Surface Hydrosilylation: An Unexpected Plurality of Mechanisms

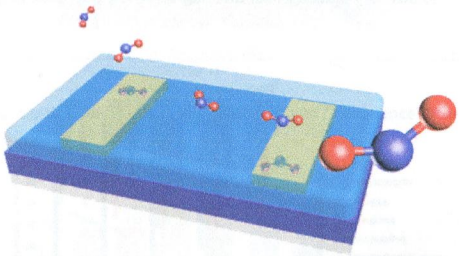
Jillian M. Buriak*

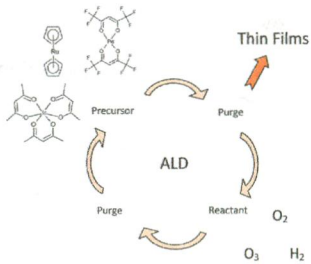


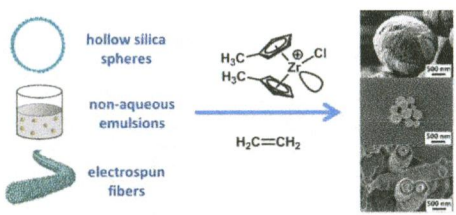
773 dx.doi.org/10.1021/cm4020628

NO_2 Detection and Real-Time Sensing with Field-Effect Transistors

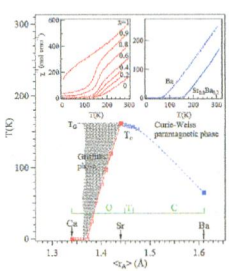
Anne-Marije Andringa, Claudia Piliego, Ilias Katsouras, Paul W. M. Blom, and Dago M. de Leeuw*

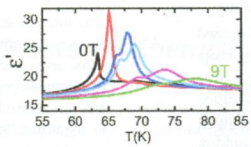


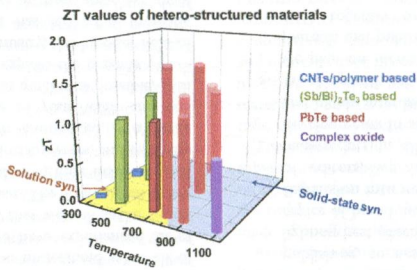


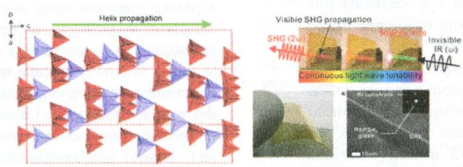


Inorganic Materials









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