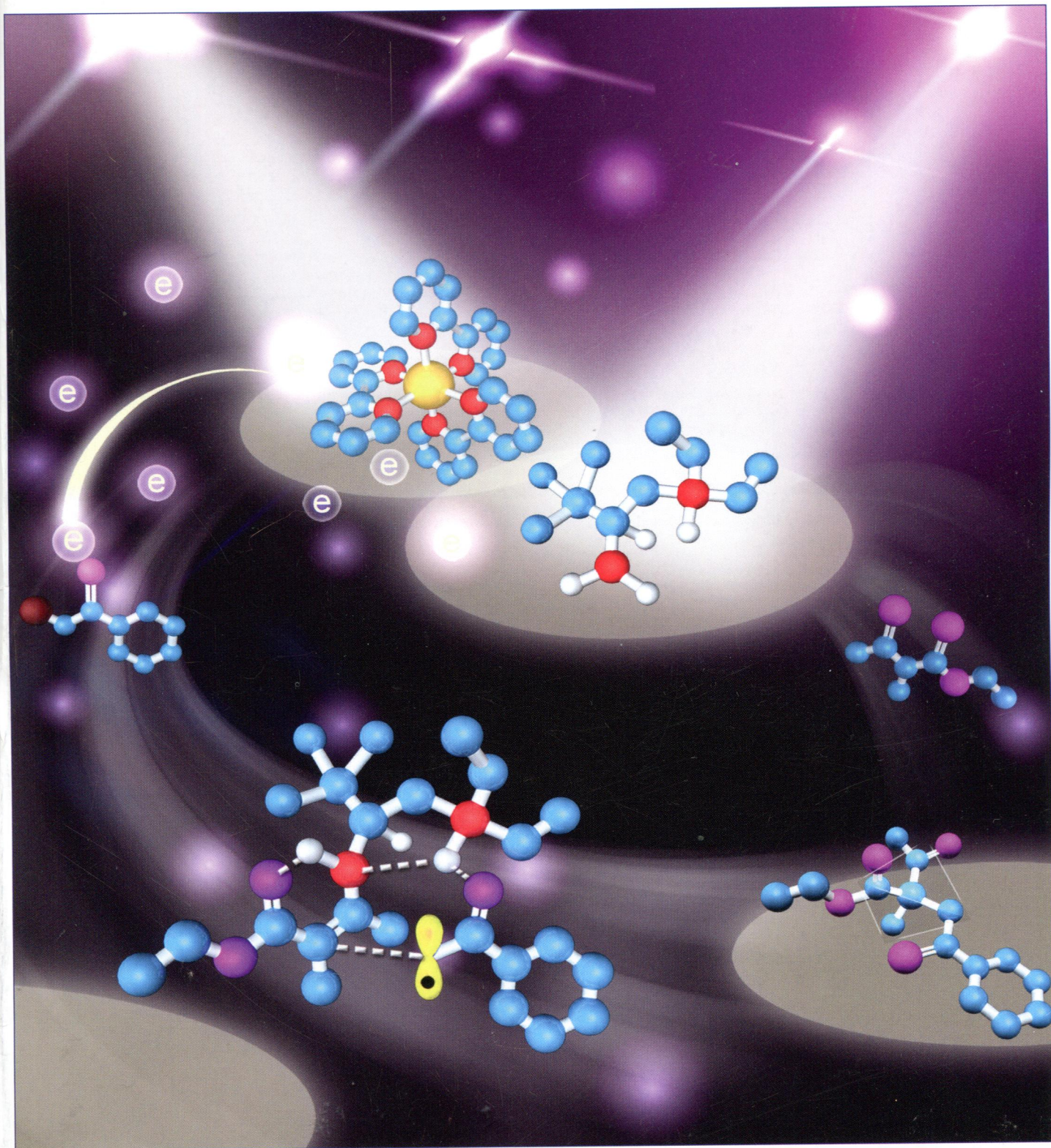


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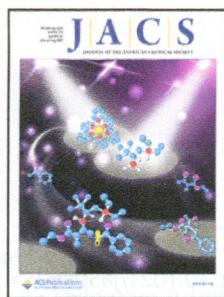
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ON THE COVER: Merging photoredox catalysis and chiral primary amine catalysis enables the coupling of phenacyl radicals and enamine carbonyls to generate acyclic all-carbon quaternary centers with excellent enantioselectivity under visible light irradiation. See Luo and co-workers, p 14642.

Spotlights

14627

Spotlights on Recent JACS Publications
ACS Contributing Correspondents*

dx.doi.org/10.1021/ja510547t

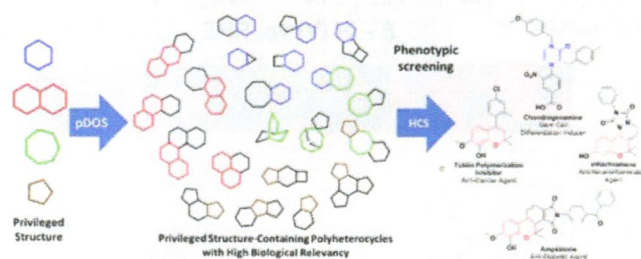


Perspectives

14629

Privileged Structures: Efficient Chemical “Navigators” toward Unexplored Biologically Relevant Chemical Spaces
Jonghoon Kim, Heejun Kim, and Seung Bum Park*

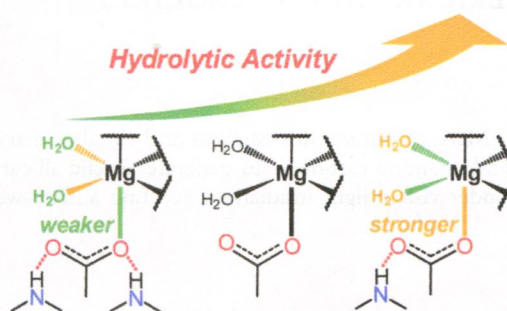
dx.doi.org/10.1021/ja508343a



14639 **S**

dx.doi.org/10.1021/ja509006x

Regulation of the Hydrolytic Activity of Mg^{2+} -Dependent Phosphatase Models by Intramolecular $NH\cdots O$ Hydrogen Bonds
Taka-aki Okamura,* Ryosuke Furuya, and Kiyotaka Onitsuka

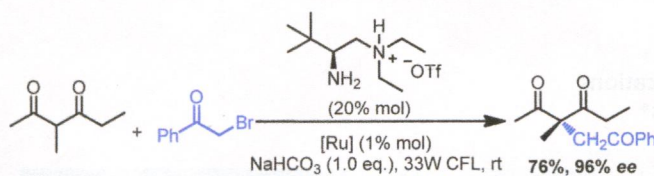


14642 **S**

dx.doi.org/10.1021/ja508605a

Asymmetric α -Photoalkylation of β -Ketocarboxyls by Primary Amine Catalysis: Facile Access to Acyclic All-Carbon Quaternary Stereocenters

Yunbo Zhu, Long Zhang, and Sanzhong Luo*

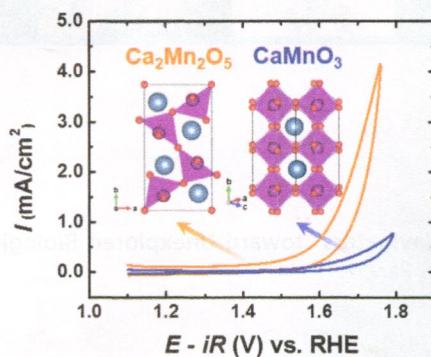


14646 **S**

dx.doi.org/10.1021/ja506254g

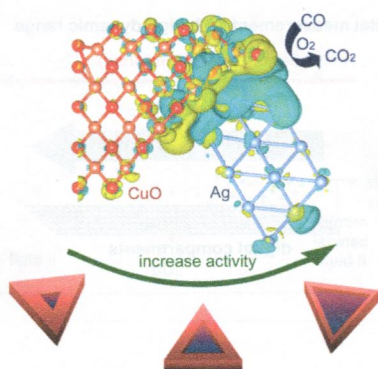
$Ca_2Mn_2O_5$ as Oxygen-Deficient Perovskite Electrocatalyst for Oxygen Evolution Reaction

Jaemin Kim, Xi Yin, Kai-Chieh Tsao, Shaohua Fang, and Hong Yang*



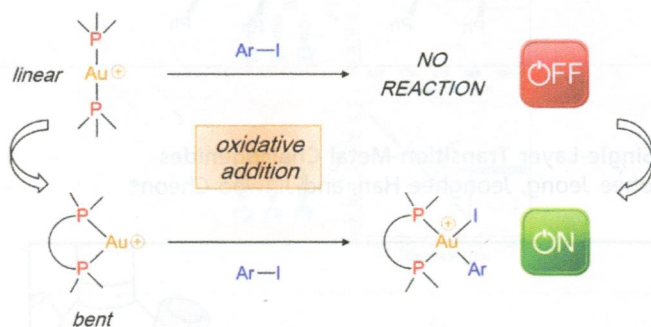
Controllably Interfacing with Metal: A Strategy for Enhancing CO Oxidation on Oxide Catalysts by Surface Polarization

Yu Bai, Wenhua Zhang, Zhenhua Zhang, Jie Zhou, Xijun Wang, Chengming Wang, Weixin Huang,* Jun Jiang,* and Yujie Xiong*



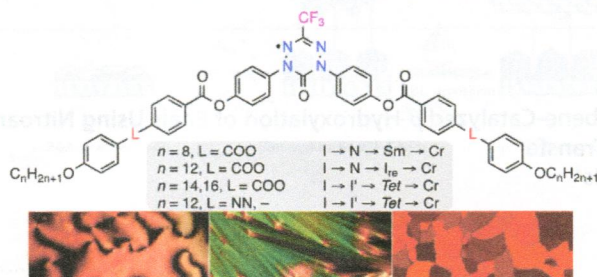
Facile Oxidative Addition of Aryl Iodides to Gold(I) by Ligand Design: Bending Turns on Reactivity

Maximilian Joost, Abdallah Zeineddine, Laura Estévez, Sonia Mallet-Ladeira, Karinne Miqueu, Abderrahmane Amgoune,* and Didier Bourissou*



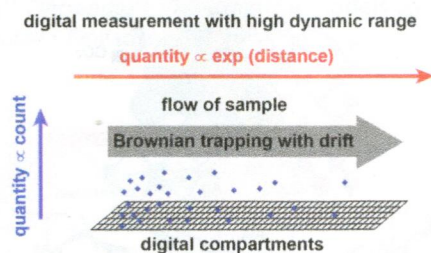
Tetragonal Phase of 6-Oxoverdazyl Bent-Core Derivatives with Photoinduced Ambipolar Charge Transport and Electrooptical Effects

Marcin Jasiński, Damian Pocięcha, Hirosato Monobe, Jacek Szczytko, and Piotr Kaszyński*

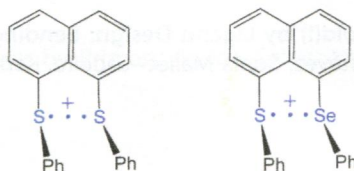


Digital, Ultrasensitive, End-Point Protein Measurements with Large Dynamic Range via Brownian Trapping with Drift

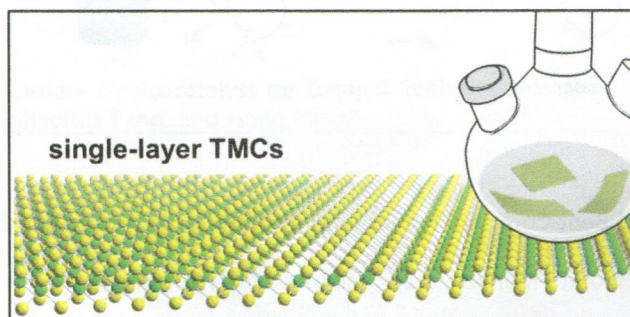
Shencheng Ge, Weishan Liu, Travis Schlappi, and Rustem F. Ismagilov*

**Odd-Electron-Bonded Sulfur Radical Cations: X-ray Structural Evidence of a Sulfur–Sulfur Three-Electron σ -Bond**

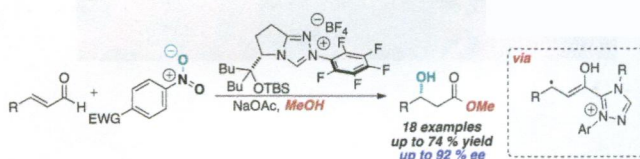
Senwang Zhang, Xingyong Wang, Yunxia Sui,* and Xiping Wang*

**Chemical Synthetic Strategy for Single-Layer Transition-Metal Chalcogenides**

Dongwon Yoo, Minkyung Kim, Sohee Jeong, Jeonghee Han, and Jinwoo Cheon*

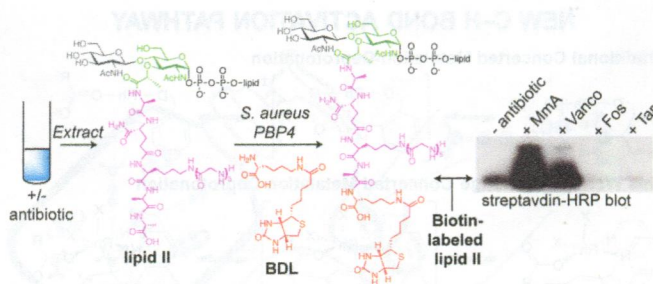
**Enantioselective N-Heterocyclic Carbene-Catalyzed β -Hydroxylation of Enals Using Nitroarenes: An Atom Transfer Reaction That Proceeds via Single Electron Transfer**

Nicholas A. White and Tomislav Rovis*



Detection of Lipid-Linked Peptidoglycan Precursors by Exploiting an Unexpected Transpeptidase Reaction

Yuan Qiao, Matthew D. Lebar, Kathrin Schirner, Kaitlin Schaefer, Hirokazu Tsukamoto, Daniel Kahne,* and Suzanne Walker*

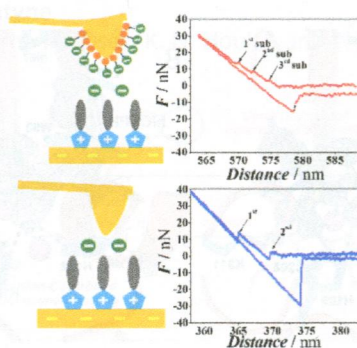


14682

dx.doi.org/10.1021/ja508222m

Resolving Fine Structures of the Electric Double Layer of Electrochemical Interfaces in Ionic Liquids with an AFM Tip Modification Strategy

Yun-Xin Zhong, Jia-Wei Yan,* Mian-Gang Li, Xiao Zhang, Ding-Wen He, and Bing-Wei Mao*

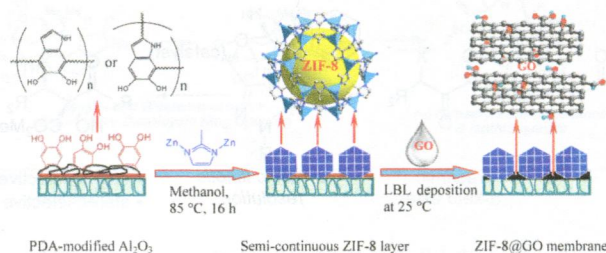


14686

dx.doi.org/10.1021/ja5083602

Bicontinuous Zeolitic Imidazolate Framework ZIF-8@GO Membrane with Enhanced Hydrogen Selectivity

Aisheng Huang,* Qian Liu, Nanyi Wang, Yaqiong Zhu, and Jürgen Caro

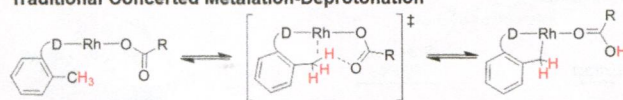


Long-Range C–H Bond Activation by Rh^{III}-Carboxylates

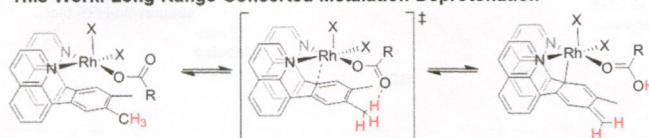
Matthew E. O'Reilly, Ross Fu, Robert J. Nielsen, Michal Sabat, William A. Goddard III,* and T. Brent Gunnoe*

NEW C–H BOND ACTIVATION PATHWAY

Traditional Concerted Metalation-Deprotonation

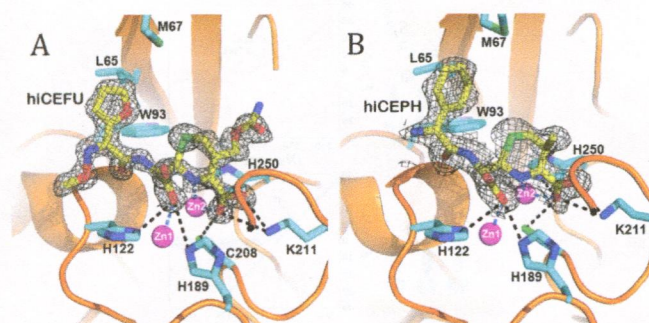


This Work: Long-Range Concerted Metalation-Deprotonation

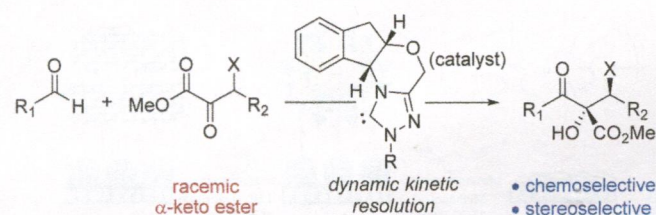


Structural and Mechanistic Insights into NDM-1 Catalyzed Hydrolysis of Cephalosporins

Han Feng, Jingjin Ding, Deyu Zhu, Xuehui Liu, Xueyong Xu, Ying Zhang, Shanshan Zang, Da-Cheng Wang,* and Wei Liu*

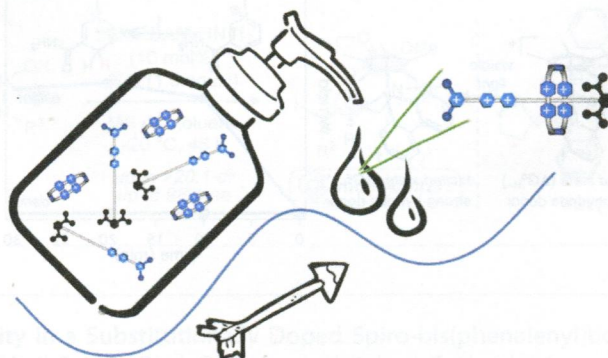
Dynamic Kinetic Asymmetric Cross-Benzoin Additions of β -Stereogenic α -Keto Esters

C. Guy Goodman and Jeffrey S. Johnson*



Energetically Demanding Transport in a Supramolecular Assembly

Chuyang Cheng, Paul R. McGonigal, Wei-Guang Liu, Hao Li, Nicolaas A. Vermeulen, Chenfeng Ke, Marco Frasconi, Charlotte L. Stern, William A. Goddard III, and J. Fraser Stoddart*

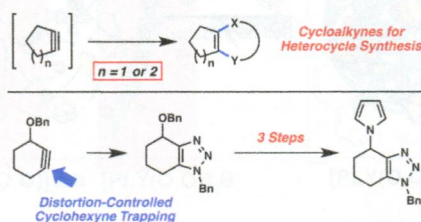


14706

dx.doi.org/10.1021/ja508635v

Cycloadditions of Cyclohexynes and Cyclopentyne

Jose M. Medina, Travis C. McMahon, Gonzalo Jiménez-Osés, K. N. Houk,* and Neil K. Garg*

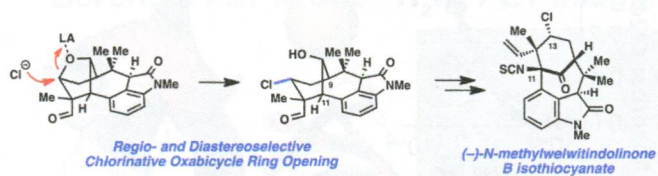


14710

dx.doi.org/10.1021/ja5087672

Total Synthesis of (–)-N-Methylwelwitindolinone B Isothiocyanate via a Chlorinative Oxabicyclic Ring-Opening Strategy

Nicholas A. Weires, Evan D. Styduhar, Emma L. Baker, and Neil K. Garg*

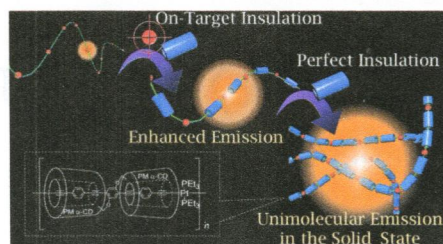


14714

dx.doi.org/10.1021/ja508636z

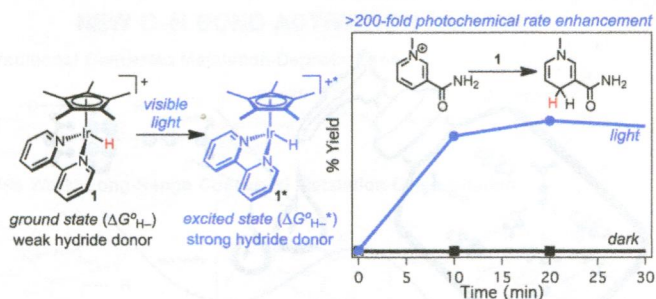
Enhancement of Phosphorescence and Unimolecular Behavior in the Solid State by Perfect Insulation of Platinum–Acetylide Polymers

Hiroshi Masai, Jun Terao,* Satoshi Makuta, Yasuhiro Tachibana,* Tetsuaki Fujihara, and Yasushi Tsuji



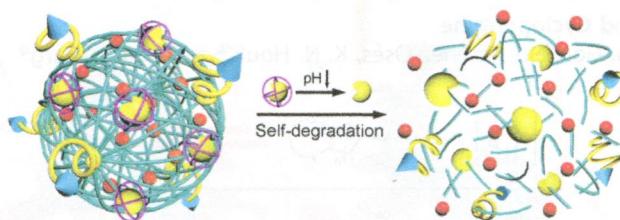
Photoswitchable Hydride Transfer from Iridium to 1-Methylnicotinamide Rationalized by Thermochemical Cycles

Seth M. Barrett, Catherine L. Pitman, Andrew G. Walden, and Alexander J. M. Miller*

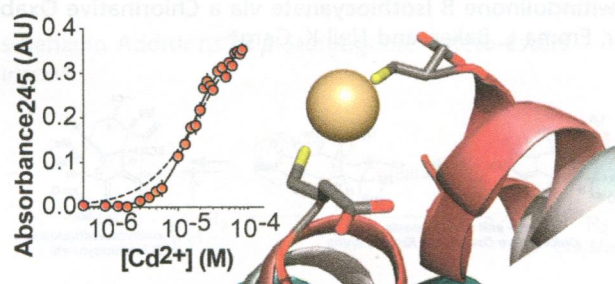


Cocoon-Like Self-Degradable DNA Nanoclew for Anticancer Drug Delivery

Wujin Sun, Tianyue Jiang, Yue Lu, Margaret Reiff, Ran Mo, and Zhen Gu*

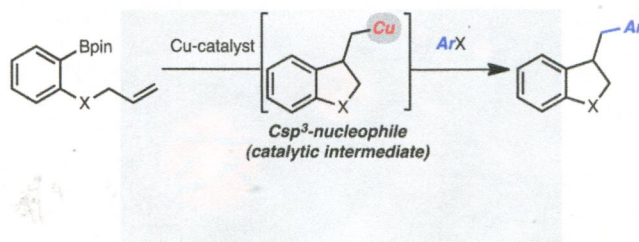
Positive Allostericity in Metal Ion Binding by a Cooperatively Folded β -Peptide Bundle

Jonathan P. Miller, Michael S. Melicher, and Alanna Schepartz*



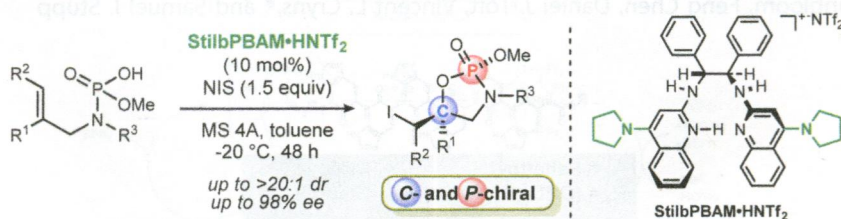
Diarylation of Alkenes by a Cu-Catalyzed Migratory Insertion/Cross-Coupling Cascade

Wei You and M. Kevin Brown*



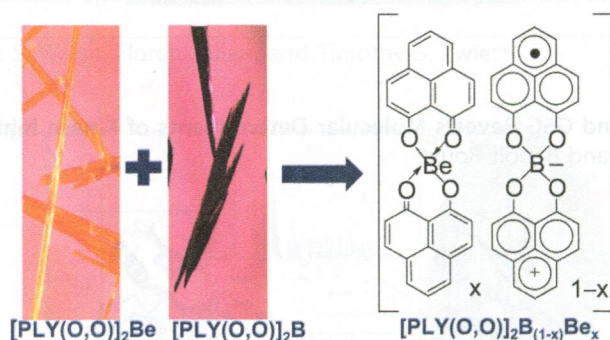
Brønsted Acid Catalyzed Phosphoramidic Acid Additions to Alkenes: Diastereo- and Enantioselective Halogenative Cyclizations for the Synthesis of C- and P-Chiral Phosphoramidates

Yasunori Toda, Maren Pink, and Jeffrey N. Johnston*



Enhanced Electrical Conductivity in a Substitutionally Doped Spiro-bis(phenalenyl)boron Radical Molecular Solid

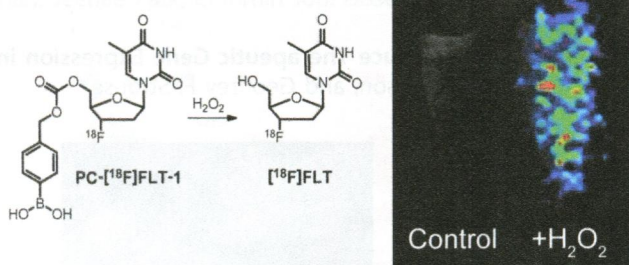
Sushanta K. Pal, Pradip Bag, Mikhail E. Itkis, Fook S. Tham, and Robert C. Haddon*



A Boronate-Caged [¹⁸F]FLT Probe for Hydrogen Peroxide Detection Using Positron Emission Tomography

Valerie Carroll, Brian W. Michel, Joseph Blecha, Henry VanBrocklin, Kayvan Keshari,* David Wilson,* and Christopher J. Chang*

Boronate FLT Probe H₂O₂ PET Imaging

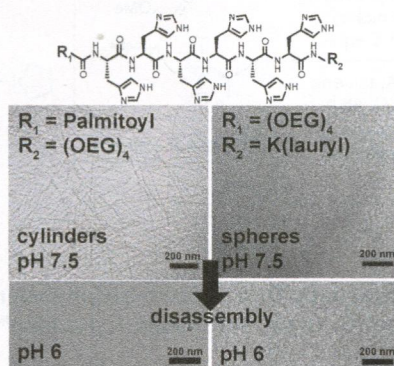


14746 **S**

dx.doi.org/10.1021/ja5042429

pH and Amphiphilic Structure Direct Supramolecular Behavior in Biofunctional Assemblies

Tyson J. Moyer, Joel A. Finbloom, Feng Chen, Daniel J. Toft, Vincent L. Cryns,* and Samuel I. Stupp

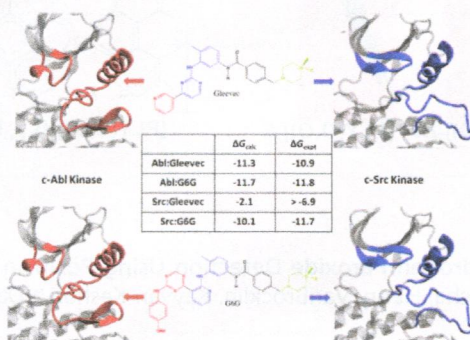


14753 **S**

dx.doi.org/10.1021/ja504146x

Computational Study of Gleevec and G6G Reveals Molecular Determinants of Kinase Inhibitor Selectivity

Yen-Lin Lin, Yilin Meng, Lei Huang, and Benoît Roux*

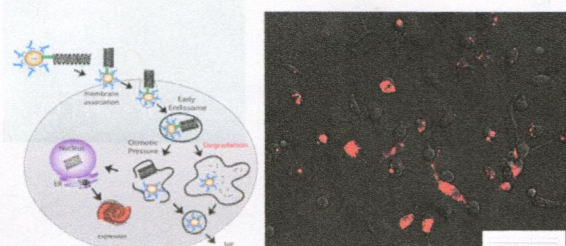


14763 **S**

dx.doi.org/10.1021/ja505190q

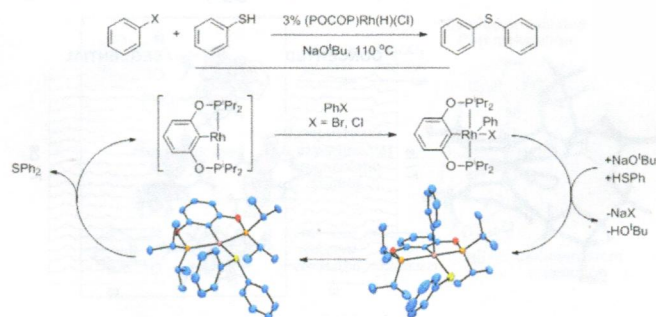
A Gold Nanoparticle Pentapeptide: Gene Fusion To Induce Therapeutic Gene Expression in Mesenchymal Stem Cells

Megan E. Muroski, Thomas J. Morgan Jr., Cathy W. Levenson, and Geoffrey F. Strouse*



A Well-Defined (POCOP)Rh Catalyst for the Coupling of Aryl Halides with Thiols

Samuel D. Timpa, Christopher J. Pell, and Oleg V. Ozerov*

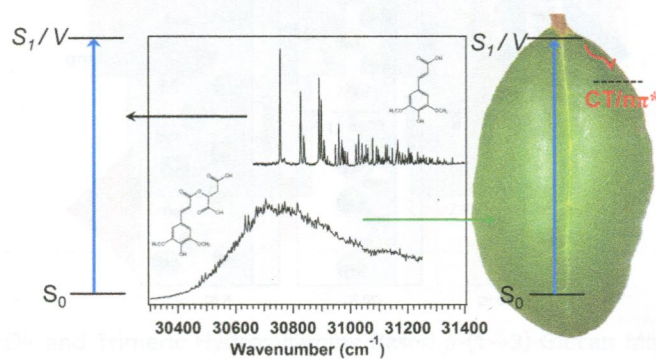


14780

dx.doi.org/10.1021/ja5059026

Plant Sunscreens in the UV-B: Ultraviolet Spectroscopy of Jet-Cooled Sinapoyl Malate, Sinapic Acid, and Sinapate Ester Derivatives

Jacob C. Dean, Ryoji Kusaka, Patrick S. Walsh, Florent Allais, and Timothy S. Zwier*

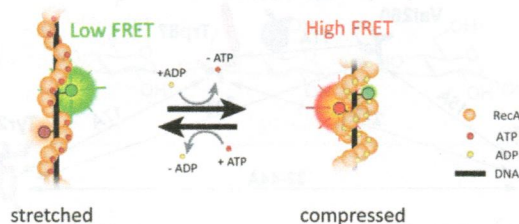


14796

dx.doi.org/10.1021/ja506363y

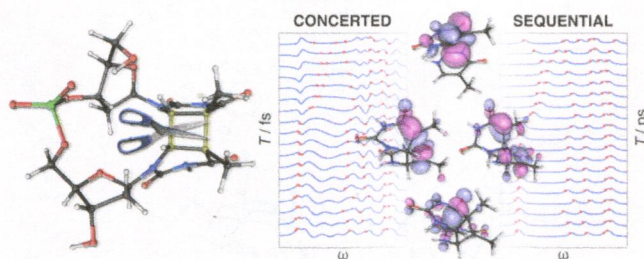
Cooperative Conformational Transitions Keep RecA Filament Active During ATPase Cycle

Sung Hyun Kim, Kaushik Ragunathan, Jeehae Park, Chirlmin Joo, Doseok Kim,* and Taekjip Ha*

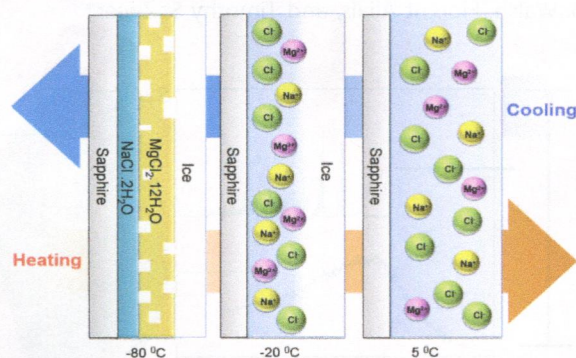


Femtosecond Stimulated Raman Spectroscopy of the Cyclobutane Thymine Dimer Repair Mechanism: A Computational Study

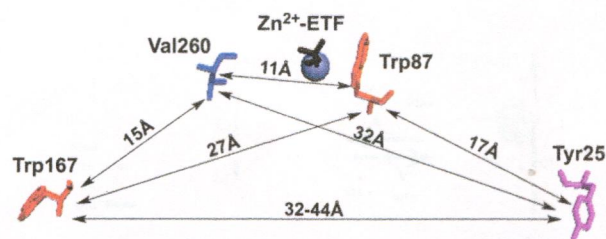
Hideo Ando, Benjamin P. Fingerhut, Konstantin E. Dorfman, Jason D. Biggs, and Shaul Mukamel*

**The Effect of a Solid Surface on the Segregation and Melting of Salt Hydrates**

Yu Zhang, Emmanuel Anim-Danso, and Ali Dhinojwala*

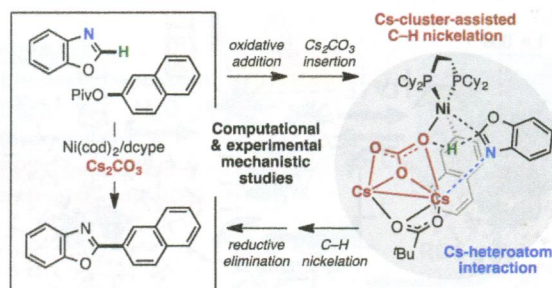
**Picosecond-Resolved Fluorescence Studies of Substrate and Cofactor-Binding Domain Mutants in a Thermophilic Alcohol Dehydrogenase Uncover an Extended Network of Communication**

Corey W. Meadows, Jonathan E. Tsang, and Judith P. Klinman*



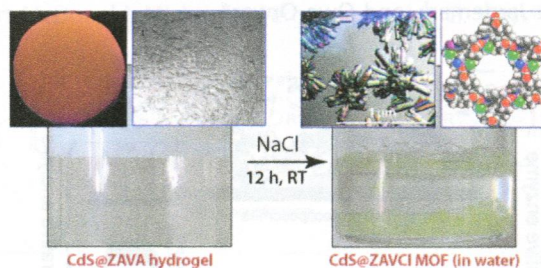
Key Mechanistic Features of Ni-Catalyzed C–H/C–O Biaryl Coupling of Azoles and Naphthalen-2-yl Pivalates

Huiying Xu, Kei Muto, Junichiro Yamaguchi, Cunyuan Zhao, Kenichiro Itami,* and Djamaladdin G. Musaev*

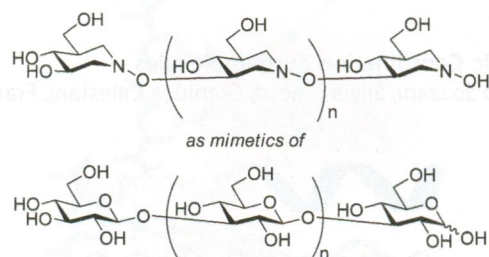


Photocatalytic Metal–Organic Framework from CdS Quantum Dot Incubated Luminescent Metallohydrogel

Subhadeep Saha, Gobinda Das, Jayshri Thote, and Rahul Banerjee*

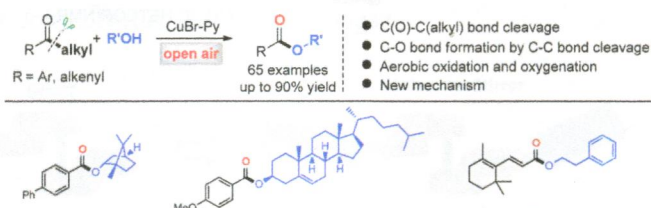
Synthesis and Evaluation of Di- and Trimeric Hydroxylamine-Based β -(1 \rightarrow 3)-Glucan Mimetics

Angélique Ferry, Gaëlle Malik, Xavier Guinchard, Václav Větvička, and David Crich*



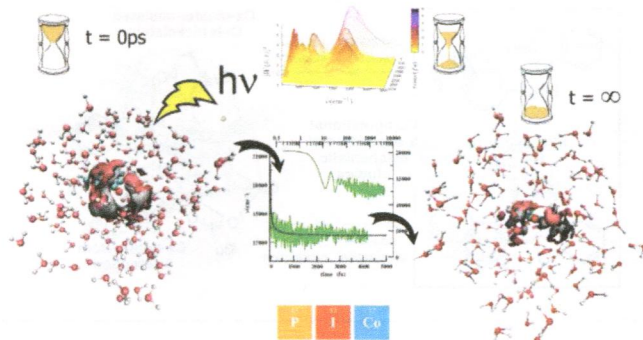
From Ketones to Esters by a Cu-Catalyzed Highly Selective C(CO)–C(alkyl) Bond Cleavage: Aerobic Oxidation and Oxygenation with Air

Xiaoqiang Huang, Xinyao Li, Miancheng Zou, Song Song, Conghui Tang, Yizhi Yuan, and Ning Jiao*

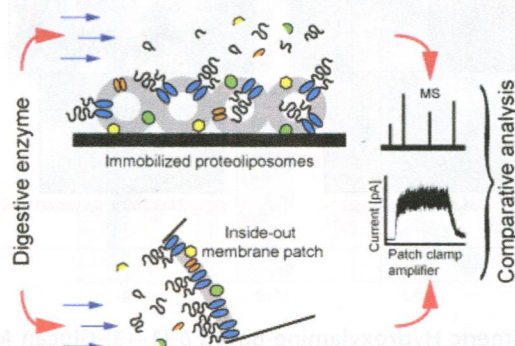


Understanding THz and IR Signals beneath Time-Resolved Fluorescence from Excited-State Ab Initio Dynamics

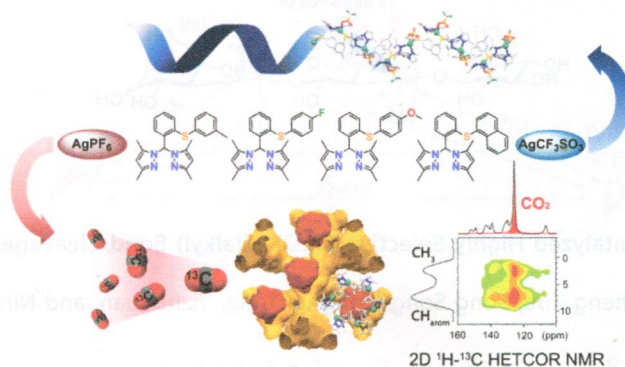
Alessio Petrone, Greta Donati, Pasquale Caruso, and Nadia Rega*

**Probing Structure and Function of Ion Channels Using Limited Proteolysis and Microfluidics**

Carolina L. Trkulja, Erik T. Jansson, Kent Jardemark, and Owe Orwar*

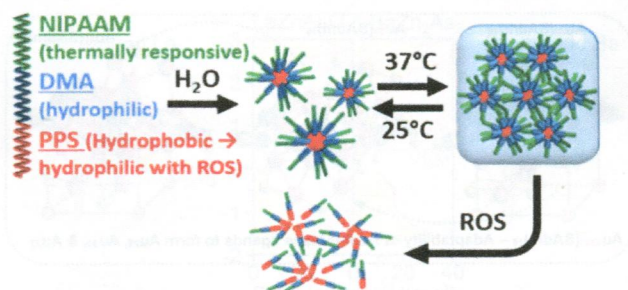
**Porous Molecular Crystals by Macrocyclic Coordination Supramolecules**

Irene Bassanetti, Angiolina Comotti,* Piero Sozzani, Silvia Bracco, Gianluca Calestani, Francesco Mezzadri, and Luciano Marchiò*



Cell Protective, ABC Triblock Polymer-Based Thermo-responsive Hydrogels with ROS-Triggered Degradation and Drug Release

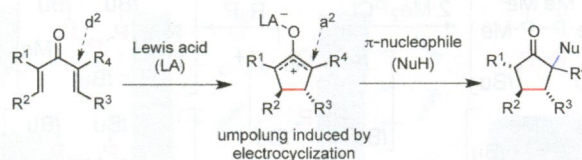
Mukesh K. Gupta, John R. Martin, Thomas A. Werfel, Tianwei Shen, Jonathan M. Page, and Craig L. Duvall*

14903 

dx.doi.org/10.1021/ja507638r

Experimental and Computational Studies on Interrupted Nazarov Reactions: Exploration of Umpolung Reactivity at the α -Carbon of Cyclopentanones

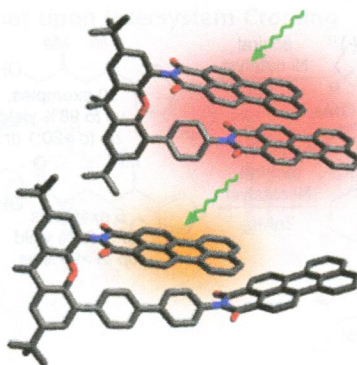
Yen-Ku Wu, Christine R. Dunbar, Robert McDonald, Michael J. Ferguson, and F. G. West*

14912 

dx.doi.org/10.1021/ja507653p

Energy Flow Dynamics within Cofacial and Slip-Stacked Perylene-3,4-dicarboximide Dimer Models of π -Aggregates

Rebecca J. Lindquist, Kelly M. Lefler, Kristen E. Brown, Scott M. Dyar, Eric A. Margulies, Ryan M. Young, and Michael R. Wasielewski*

14924  

dx.doi.org/10.1021/ja507711h

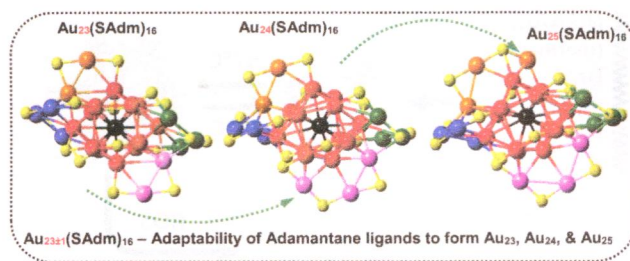
Molecular Stirrers in Action

Jiawen Chen, Jos C. M. Kistemaker, Jort Robertus, and Ben L. Feringa*



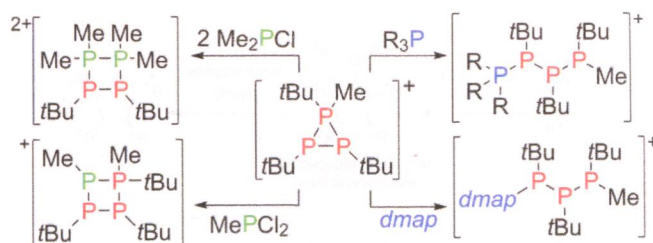
Au₂₄(SAdm)₁₆ Nanomolecules: X-ray Crystal Structure, Theoretical Analysis, Adaptability of Adamantane Ligands to Form Au₂₃(SAdm)₁₆ and Au₂₅(SAdm)₁₆, and Its Relation to Au₂₅(SR)₁₈

David Crasto, Giovanni Barcaro, Mauro Stener, Luca Sementa, Alessandro Fortunelli,* and Amala Dass*



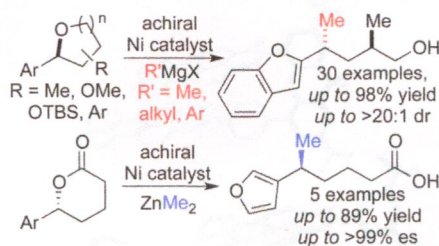
Diverse Reactivity of the *cyclo*-Diphosphinophosphonium Cation [(PtBu)₃Me]⁺: Parallels with Epoxides and New *catena*-Phosphorus Frameworks

Alasdair P. M. Robertson, C. Adam Dyker, Paul A. Gray, Brian O. Patrick, Andreas Decken, and Neil Burford*



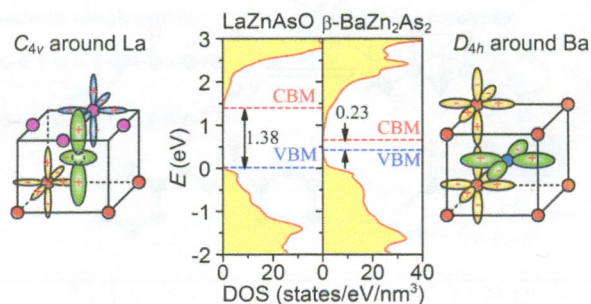
Stereospecific Cross-Coupling Reactions of Aryl-Substituted Tetrahydrofurans, Tetrahydropyrans, and Lactones

Emily J. Tollefson, David D. Dawson, Charlotte A. Osborne, and Elizabeth R. Jarvo*



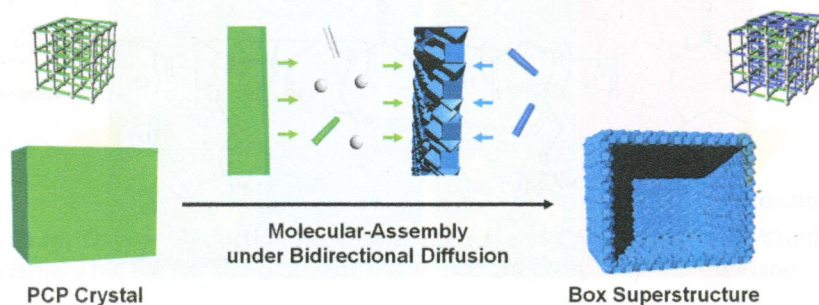
Narrow Bandgap in β -BaZn₂As₂ and Its Chemical Origins

Zewen Xiao, Hidenori Hiramatsu, Shigenori Ueda, Yoshitake Toda, Fan-Yong Ran, Jiangang Guo, Hechang Lei, Satoru Matsuishi, Hideo Hosono, and Toshio Kamiya*



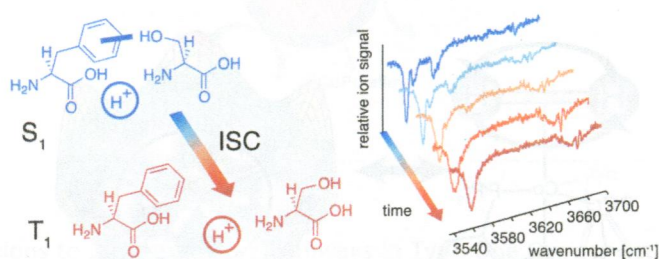
Diffusion-Coupled Molecular Assembly: Structuring of Coordination Polymers Across Multiple Length Scales

Kenji Hirai, Julien Reboul, Nobuhiro Morone, John E. Heuser, Shuhei Furukawa,* and Susumu Kitagawa*



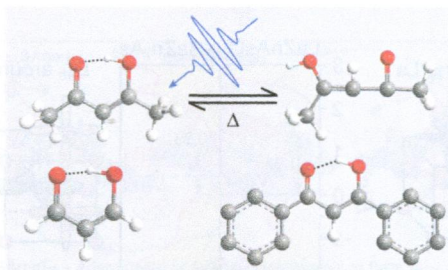
Structural Melting of an Amino Acid Dimer upon Intersystem Crossing

Ulrich J. Lorenz and Thomas R. Rizzo*



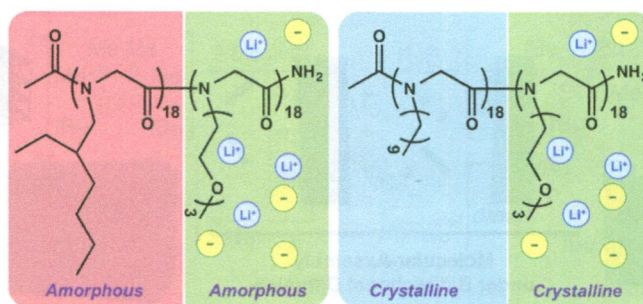
Ultrafast UV-Induced Photoisomerization of Intramolecularly H-Bonded Symmetric β -Diketones

Pramod Kumar Verma, Federico Koch, Andreas Steinbacher, Patrick Nuernberger, and Tobias Brixner*

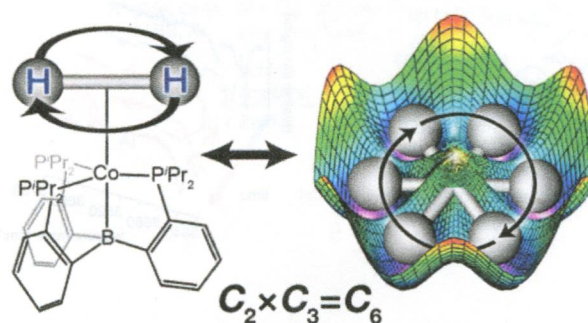


Morphology-Conductivity Relationship in Crystalline and Amorphous Sequence-Defined Peptoid Block Copolymer Electrolytes

Jing Sun, Xunxun Liao, Andrew M. Minor, Nitash P. Balsara,* and Ronald N. Zuckermann*

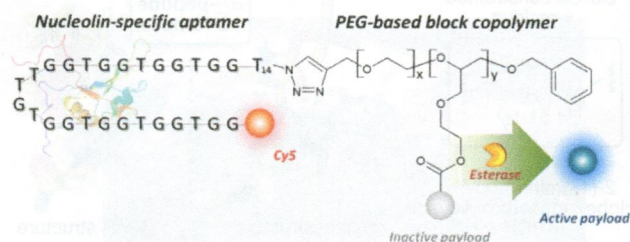
Free H₂ Rotation vs Jahn–Teller Constraints in the Nonclassical Trigonal (TPB)Co–H₂ Complex

William A. Gunderson, Daniel L. M. Suess, Henry Fong, Xiaoping Wang, Christina M. Hoffmann, George E. Cutsail III, Jonas C. Peters,* and Brian M. Hoffman*



Synthetic Aptamer-Polymer Hybrid Constructs for Programmed Drug Delivery into Specific Target Cells

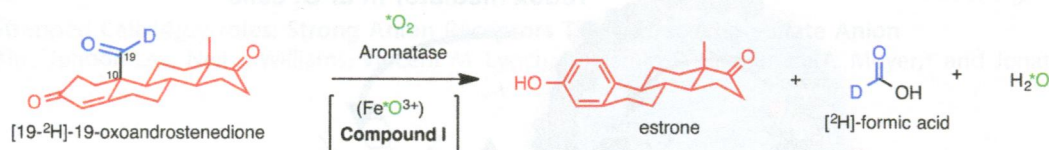
Seung Soo Oh, Bongjae F. Lee, Frank A. Leibfarth, Michael Eisenstein, Maxwell J. Robb, Nathaniel A. Lynd, Craig J. Hawker,* and H. Tom Soh*

15016  dx.doi.org/10.1021/ja508185d

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Mechanism of the Third Oxidative Step in the Conversion of Androgens to Estrogens by Cytochrome P450 19A1 Steroid Aromatase

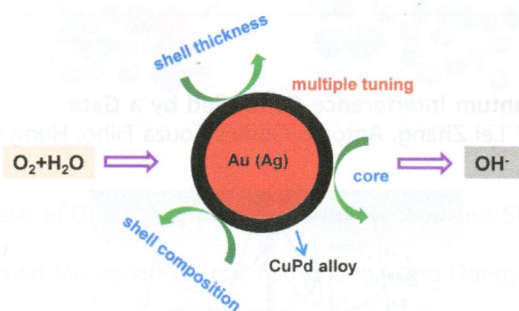
Francis K. Yoshimoto and F. Peter Guengerich*

15026  dx.doi.org/10.1021/ja508256g

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Nanocatalyst Superior to Pt for Oxygen Reduction Reactions: The Case of Core/Shell Ag(Au)/CuPd Nanoparticles

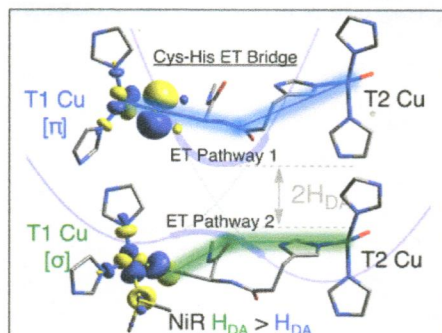
Shaojun Guo, Xu Zhang, Wenlei Zhu, Kai He, Dong Su, Adriana Mendoza-Garcia, Sally Fae Ho, Gang Lu,* and Shouheng Sun*

15034  dx.doi.org/10.1021/ja508361h

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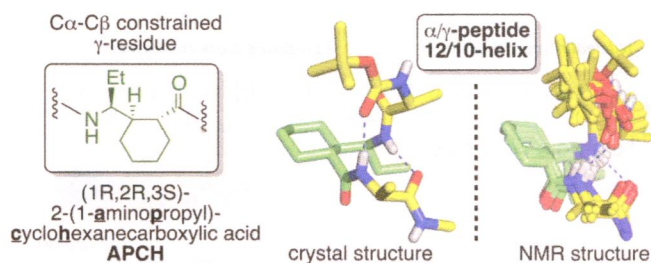
Anisotropic Covalency Contributions to Superexchange Pathways in Type One Copper Active Sites

Ryan G. Hadt, Serge I. Gorelsky, and Edward I. Solomon*

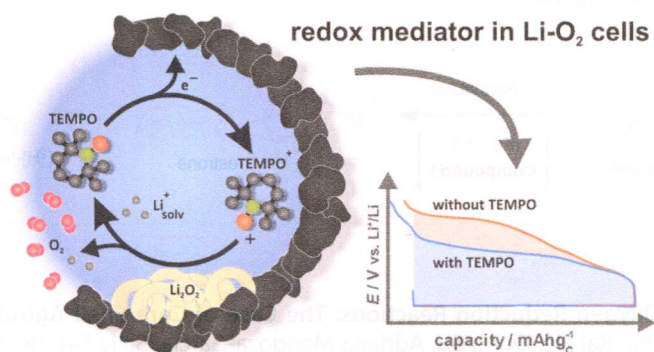


A γ -Amino Acid That Favors 12/10-Helical Secondary Structure in α/γ -Peptides

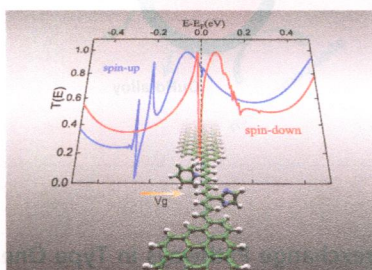
Michael W. Giuliano, Stacy J. Maynard, Aaron M. Almeida, Li Guo, Ilia A. Guzei, Lara C. Spencer, and Samuel H. Gellman*

**TEMPO: A Mobile Catalyst for Rechargeable Li-O₂ Batteries**

Benjamin J. Bergner, Adrian Schürmann, Klaus Peppler, Arnd Garsuch, and Jürgen Janek*

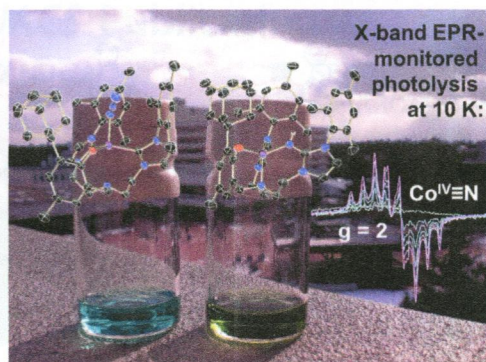
**Molecular Spintronics: Destructive Quantum Interference Controlled by a Gate**

Aldilene Saraiva-Souza,* Manuel Smeu,* Lei Zhang, Antonio Gomes Souza Filho, Hong Guo, and Mark A. Ratner



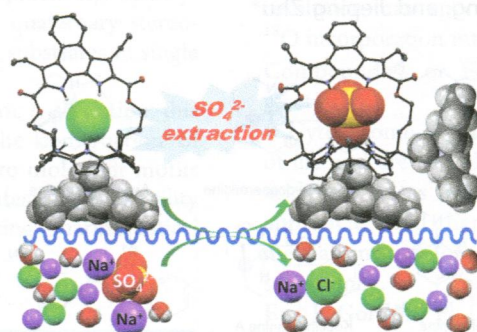
An Intermediate Cobalt(IV) Nitrido Complex and its N-Migratory Insertion Product

Eva M. Zolnhofer, Martina Käß, Marat M. Khusniyarov, Frank W. Heinemann, Laurent Maron, Maurice van Gastel, Eckhard Bill, and Karsten Meyer*



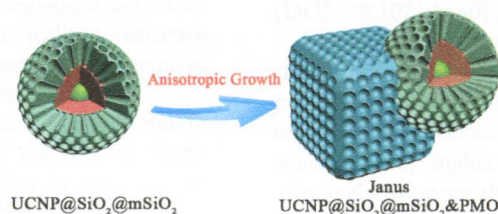
Bipyrrole-Strapped Calix[4]pyrroles: Strong Anion Receptors That Extract the Sulfate Anion

Sung Kuk Kim, Juhoon Lee, Neil J. Williams, Vincent M. Lynch, Benjamin P. Hay, Bruce A. Moyer,* and Jonathan L. Sessler*



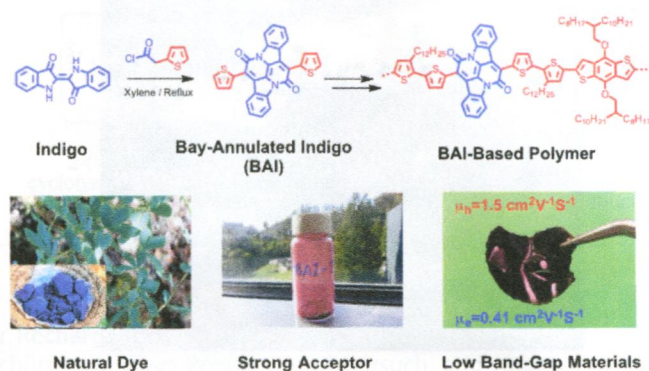
Anisotropic Growth-Induced Synthesis of Dual-Compartment Janus Mesoporous Silica Nanoparticles for Bimodal Triggered Drugs Delivery

Xiaomin Li, Lei Zhou, Yong Wei, Ahmed Mohamed El-Toni, Fan Zhang,* and Dongyuan Zhao*



New Form of an Old Natural Dye: Bay-Annulated Indigo (BAI) as an Excellent Electron Accepting Unit for High Performance Organic Semiconductors

Bo He, Andrew B. Pun, Danylo Zherebetsky, Yao Liu, Feng Liu, Liana M. Klivansky, Alexandra M. McGough, Benjamin A. Zhang, Kelvin Lo, Thomas P. Russell, Linwang Wang, and Yi Liu*

**Unified Strategy to Monoterpene Indole Alkaloids: Total Syntheses of (\pm)-Goniomitine, (\pm)-1,2-Dehydroaspidospermidine, (\pm)-Aspidospermidine, (\pm)-Vincadifformine, and (\pm)-Kopsihainanine A**

Olivier Wagnières, Zhengren Xu, Qian Wang, and Jieping Zhu*

