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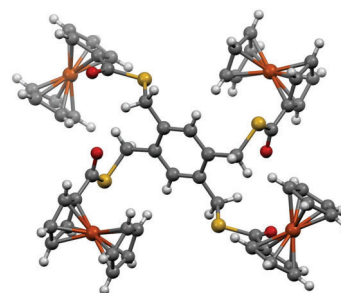


Molecular Frameworks

M. A. Fard, B. Khalili Najafabadi, M. Hesari, M. S. Workentin, J. F. Corrigan*

New Polydentate Trimethylsilyl Chalcogenide Reagents for the Assembly of Polyferrocenyl Architectures

Bond after bond: A series of polychalcogenotrimethylsilane complexes $\text{Ar}(\text{CH}_2\text{ESiMe}_3)_n$ ($\text{Ar} = \text{aryl}$; $\text{E} = \text{S}, \text{Se}$; $n = 2, 3$, and 4) have been prepared that incorporate a large number of reactive $-\text{ESiMe}_3$ moieties onto an organic molecular framework (see figure). They are shown to be convenient reagents for the preparation of the polyferrocenylseleno- and thioesters from ferrocenoyl chloride.



Chem. Eur. J.
DOI: 10.1002/chem.201400185

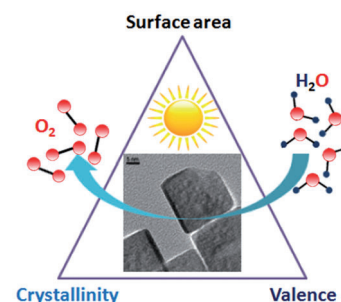


Photochemistry

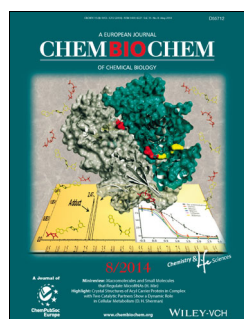
H. Liu, G. R. Patzke*

Visible-Light-Driven Water Oxidation with Nanoscale Co_3O_4 : New Optimization Strategies

Study history, study history: Visible-light-driven Co_3O_4 spinel water oxidation catalysts (WOCs) were hydrothermally prepared and investigated with respect to the influence of preparative history on the catalytic activity. We present a counterintuitive design trend: crystallinity and valence states are more important for WOC performance than surface area. New “top down” and “bottom up” strategies for Co_3O_4 WOC optimization are proposed.



Chem. Asian J.
DOI: 10.1002/asia.201400140

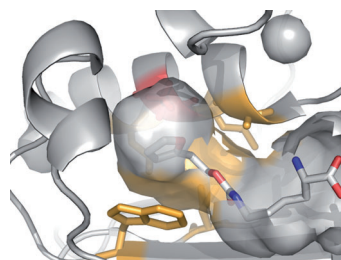


Protein Engineering

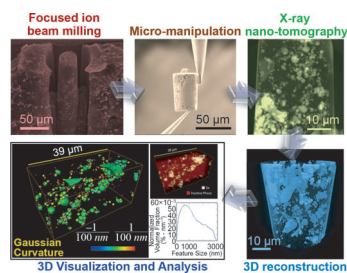
M. J. Schmidt, A. Weber, M. Pott, W. Welte, D. Summerer*

Structural Basis of Furan–Amino Acid Recognition by a Polyspecific Aminoacyl-tRNA-Synthetase and its Genetic Encoding in Human Cells

Photo opportunity: We report the genetic encoding of a furan-based, photo-crosslinking amino acid in human cells by a mutant pyrrolysyl-tRNA synthetase (PylRS) with broad polyspecificity. Crystal structures of this enzyme reveal the mode of furan amino acid recognition and the basis of polyspecificity, thus providing a promising starting point for engineering PylRS mutants with increased substrate scope.



ChemBioChem
DOI: 10.1002/cbic.201402006

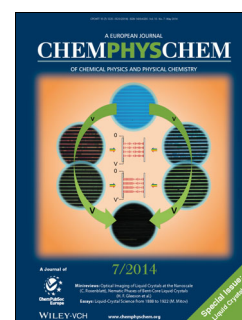


Nanotomography

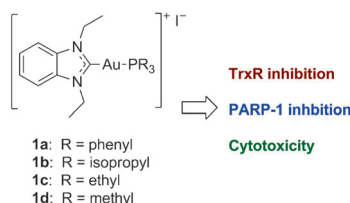
Y.-c. K. Chen-Wiegart, F. E. Camino, J. Wang*

Sample Preparation of Energy Materials for X-ray Nanotomography with Micromanipulation

It's all in the prep: Novel sample preparation for X-ray nanotomography by using focused-ion-beam (FIB) and micromanipulation ensures high-quality data. The proposed procedure resolves the issues that cause the view of the sample base to be blocked after FIB milling and during the lift-out process. This method enables the broad application of X-ray nanotomography in microstructure studies.



ChemPhysChem
DOI: 10.1002/cphc.201400023



Metals in Medicine

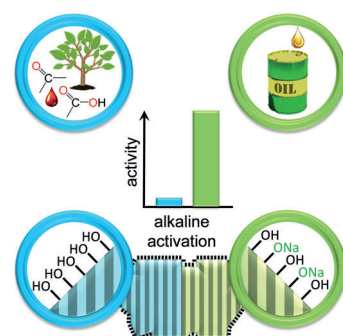
R. Rubbiani, L. Salassa, A. de Almeida, A. Casini, I. Ott*

Cytotoxic Gold(I) N-heterocyclic Carbene Complexes with Phosphane Ligands as Potent Enzyme Inhibitors

Gold renaissance! Gold(I) N-heterocyclic carbene complexes with phosphane ligands effectively inhibit the the seleno-enzyme thioredoxin reductase (TrxR) and the zinc-finger enzyme poly(ADP-ribose) polymerase 1 (PARP-1) and trigger potent cytotoxicity in cancer cells.



ChemMedChem
DOI: 10.1002/cmdc.201400056

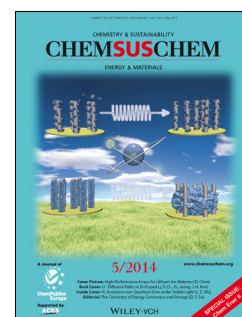


Bio-Oils

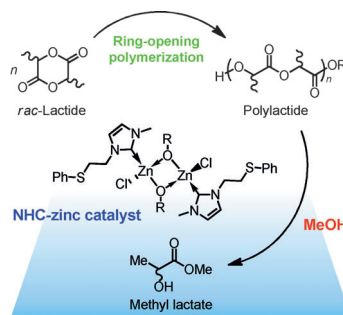
T. C. Keller, E. G. Rodrigues, J. Pérez-Ramírez*

Generation of Basic Centers in High-Silica Zeolites and their Application in Gas-Phase Upgrading of Bio-Oil

Creating new basic sites: Through activation treatments in alkaline media, basic sites with high activity, stability, and selectivity are generated in high-silica FAU, BEA, and MFI zeolites, which enable the efficient deoxygenation of pyrolysis oil by condensation reactions. Intermediate bio-oil upgrading is key for the sustainable and profitable production of advanced biofuels.



ChemSusChem
DOI: 10.1002/cssc.201301382

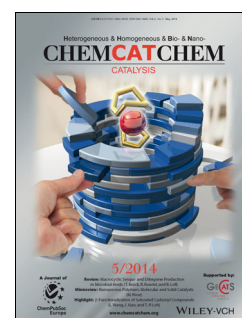


N Heterocyclic Carbene

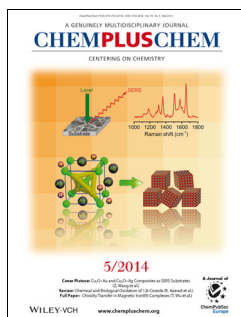
C. Flíedel, D. Vila-Viçosa, M. J. Calhorda,* S. Dagorne,* T. Avilés*

Dinuclear Zinc–N-Heterocyclic Carbene Complexes for Either the Controlled Ring-Opening Polymerization of Lactide or the Controlled Degradation of Poly(lactide) Under Mild Conditions

Mild thing: Simple dinuclear zinc–N-heterocyclic carbene (NHC) alkyl/alkoxide complexes mediate, under mild conditions, either the ring-opening polymerization of lactide (in an effective and controlled manner) for the production of chain length-controlled poly(lactide) or, in the presence of an alcohol source such as MeOH, the controlled depolymerization of poly(lactide) through extensive transesterification reactions.



ChemCatChem
DOI: 10.1002/cctc.201301015

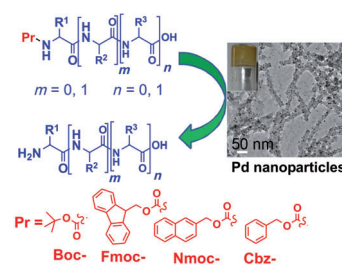


Self-Assembly

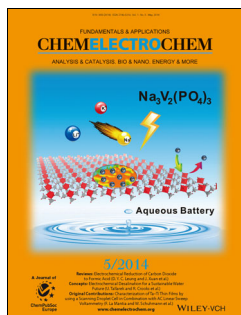
I. Maity, M. K. Manna, D. B. Rasale, A. K. Das*

Peptide-Nanofiber-Supported Palladium Nanoparticles as an Efficient Catalyst for the Removal of N-Terminus Protecting Groups

Supporting role: Peptide nanofibers have been used as a template for the in situ generation of palladium nanoparticles. Peptide-nanofiber-supported palladium nanoparticles show efficient catalytic activity towards deprotection of N-terminus amino acids and peptides under mild conditions (see figure).



ChemPlusChem
DOI: 10.1002/cplu.201300348

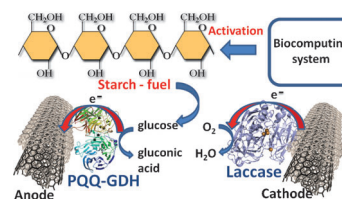


Biofuel Cells

S. Mailloux, K. MacVittie, M. Privman, N. Guz, E. Katz*

Starch-Powered Biofuel Cell Activated by Logically Processed Biomolecular Signals

Switchable biofuel cell: Logically processed biomolecular signals trigger conversion of starch to glucose, which is utilized in a biofuel cell.



ChemElectroChem
DOI: 10.1002/celec.201400009

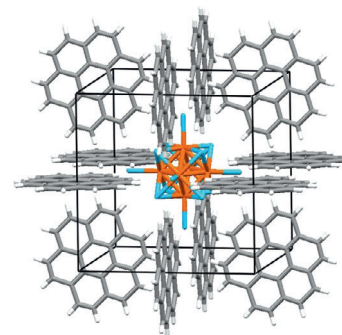


Isotropic 3D π -Conductors

Y. Yoshida,* M. Maesato, Y. Kumagai, M. Mizuno, K. Isomura, H. Kishida, M. Izumi, Y. Kubozono, A. Otsuka, H. Yamochi, G. Saito, K. Kirakci, S. Cordier, C. Perrin

Isotropic Three-Dimensional Molecular Conductor Based on the Coronene Radical Cation

The first coronene cation radical salt was electrochemically obtained by combining coronene with a highly-symmetric $\text{Mo}_6\text{Cl}_4^{2-}$ cluster unit. The salt has a cubic structure with $Pm3m$ symmetry, and merohedrally disordered coronenes undergo an in-plane flipping rotation. The randomly charge-disproportionated coronenes form an isotropic three-dimensional π -conducting network.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201400119

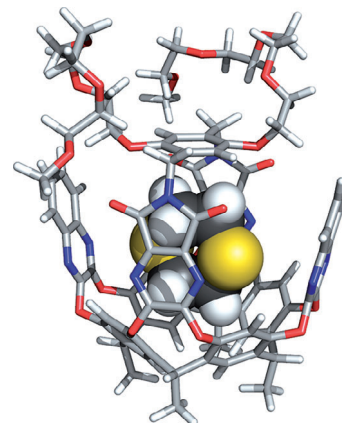


Host-Guest Chemistry

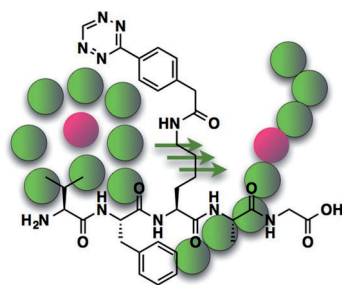
D. Fankhauser, D. Kolarski, W. R. Grüning, F. Diederich*

Resorcin[4]arene-Based Molecular Baskets and Water-Soluble Container Molecules: Synthesis and ^1H NMR Host-Guest Complexation Studies

^1H NMR binding studies of novel resorcin[4]arene-based molecular baskets and water-soluble container molecules have been performed with small molecular guests. Sequences of complexation strength for structurally similar heteroalicyclic guests differ in organic and aqueous media. Guest inclusion rigidifies the water-soluble hosts and rotation of the capping bridge slows, revealing planar chirality.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201402140



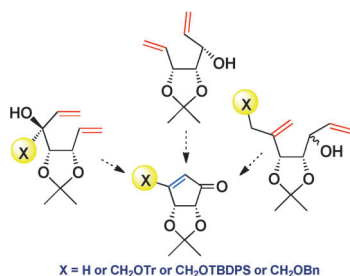
ChemistryOpen
DOI: 10.1002/open.201402000

Peptide Synthesis

B. M. Zeglis, F. Emmetiere, N. Pillarsetty, R. Weissleder, J. S. Lewis,*
T. Reiner*

Building Blocks for the Construction of Bioorthogonally Reactive Peptides via Solid-Phase Peptide Synthesis

The earlier, the better! We report a novel synthesis of tetrazine-functionalized artificial amino acids, the creation of a model tetrazine-containing pentapeptide using solid-phase peptide synthesis, and the facile and rapid bioorthogonal radiolabeling of this peptide using a ^{89}Zr -desferrioxamine-labeled *trans*-cyclooctene.



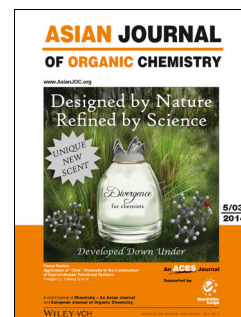
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201402032

Nucleosides

Varughese A. Mulamootil, A. Nayak, L. S. Jeong*

Recent Advances in the Synthesis of Carbocyclic Nucleosides via Ring-Closing Metathesis

R.C.M.: The structure and biological activity of five-membered carbocyclic nucleosides have motivated chemists over the last several decades to synthesize these compounds. Ring-closing metathesis (RCM) has evolved as an effective tool for making these deceptively simple molecules. The impact of RCM culminated in several strategies for the synthesis of nucleoside analogues from carbohydrates or chiral auxiliaries. Bn = benzyl; TBDPS = *tert*-butyldiphenylsilyl; Tr = trityl.



ChemViews magazine
DOI: 10.1002/chemv.201400036

Carbonate Looping

E. Zimmermann, V. Köster

Carbonate Looping

Carbonate looping technology has been identified as one of the most promising approaches to capture CO_2 from power plants at a reasonable cost. In a short video, Professor Bernd Eppe, Technical University Darmstadt, Germany, discusses this technology, shows a pilot plant that can be run for more than 1000 hours, and demonstrates how it works with the aid of a model.

