

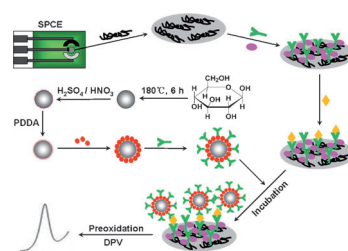


Screen-Printed Electrodes

Q. Xu, F. Yan, J. Lei,* C. Leng, H. Ju*

Disposable Electrochemical Immunosensor by Using Carbon Sphere/Gold Nanoparticle Composites as Labels for Signal Amplification

A convenient and low-cost immunosensor was designed by using a polyethylene glycol film modified screen-printed carbon electrode combined with self-synthesized carbon sphere/gold nanoparticle composite as an electrochemical label for signal amplification (see scheme). This efficient method provides potential application for clinical detection of protein markers.



Chem. Eur. J.
DOI: 10.1002/chem.201200171

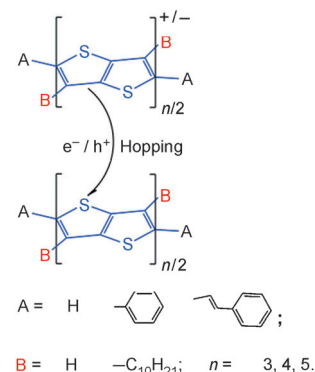


Organic Semiconductors

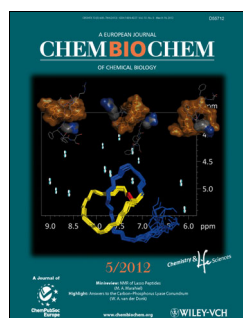
J.-D. Huang, S.-H. Wen, K.-L. Han*

First-Principles Investigation of the Electronic and Conducting Properties of Oligothiophenoacenes and their Derivatives

Strong as an Ox: Chemical oxidation of the thiophene ring of fused thiophenes and their derivatives could significantly improve their semiconductor properties, which suggests it may be a promising way to convert p-type semiconductors into ambipolar or n-type semiconductors.



Chem. Asian J.
DOI: 10.1002/asia.201100904

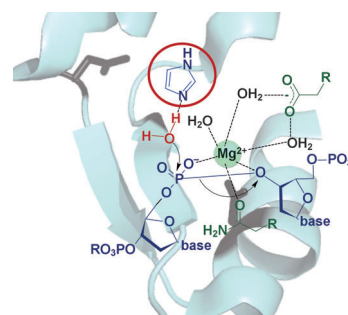


DNA Cleavage

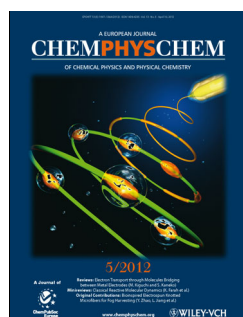
M. Midon, O. Gimadutdinov, G. Meiss, P. Friedhoff, A. Pingoud*

Chemical Rescue of Active Site Mutants of *S. pneumoniae* Surface Endonuclease EndA and Other Nucleases of the HNH Family by Imidazole

Nuclease activation: The HNH motif characterizes many nucleases, among them EndA from *Streptococcus pneumoniae*. One of the His residues is responsible for activating a water molecule for phosphodiester bond cleavage. Its replacement by other amino acids leads to inactive enzymes. However, subsequent addition of imidazole can rescue catalytic activity in vitro and in vivo.



ChemBioChem
DOI: 10.1002/cbic.201100775

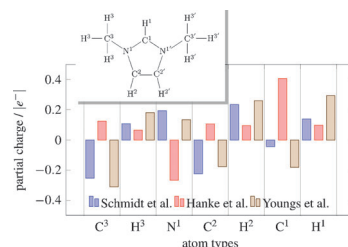


Force Fields

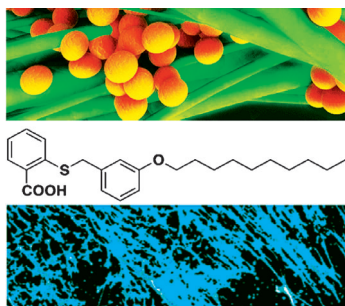
F. Dommert,* K. Wendler, R. Berger, L. Delle Site,* C. Holm*

Force Fields for Studying the Structure and Dynamics of Ionic Liquids: A Critical Review of Recent Developments

The state of the art of force-field parametrization for ionic liquids is reviewed and an overview of the advantages and disadvantages of the various available force fields is provided. Insight obtained from recent electronic density functional results into the parametrization of partial charges and on the influence of polarization effects in bulk ionic liquids is highlighted.



ChemPhysChem
DOI: 10.1002/cphc.201100997



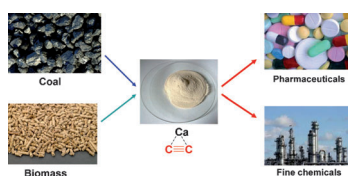
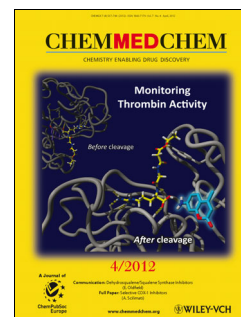
ChemMedChem

DOI: 10.1002/cmdc.201100589

Antibacterial Agents

F.-Y. Lin, Y. Zhang, M. Hensler, Y.-L. Liu, O. A. Chow, W. Zhu, K. Wang, R. Pang, W. Thienphrapa, V. Nizet, E. Oldfield*

Dual Dehydrosqualene/Squalene Synthase Inhibitors: Leads for Innate Immune System-Based Therapeutics

Double whammy! Small molecules that inhibit *Staphylococcus aureus* dehydrosqualene synthase (CrtM) or host squalene synthase (SQS) are of interest as novel, innate immunity-based therapeutics, blocking virulence or stimulating antibacterial neutrophil extracellular trap (NET) formation. The discovery of leads that do both represents a new route to treating staph infections.


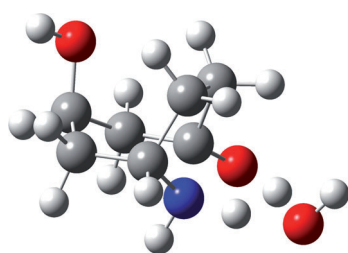
ChemSusChem

DOI: 10.1002/cssc.201100649

Renewable Resources

Z. Lin, D. Yu, Y. N. Sum, Y. Zhang*

Synthesis of Functional Acetylene Derivatives from Calcium Carbide

AHA Erlebnis: CaC_2 , used to produce acetylene until several decades ago, is re-emerging as a cheap, sustainable resource synthesized from coal and lignocellulosic biomass. We report efficient catalytic protocols for the synthesis of functional acetylene derivatives from CaC_2 through aldehyde, alkyne, and amine (AAA) as well as alkyne, haloalkane, and amine (AHA) couplings, and in addition demonstrate its use in click and Sonogashira chemistry, showing that calcium carbide is a sustainable and cost-efficient carbon source.


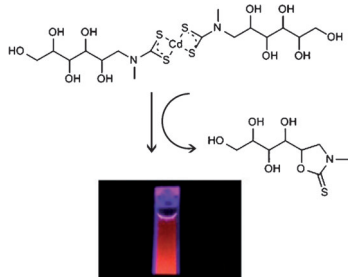
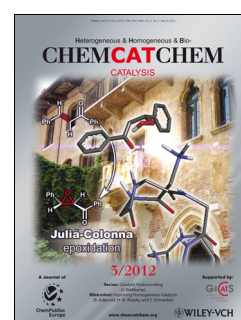
ChemCatChem

DOI: 10.1002/cctc.201100386

Biocatalysis

R. A. Kwiecień, K. Kosieradzka, J.-Y. L. Questel, J. Lebreton, A. Fournial, E. Gentil, M. Delaforge, P. Paneth, R. J. Robins*

Cytochrome P450 Monooxygenase-Catalyzed Ring Opening of the Bicyclic Amine, Nortropine: An Experimental and DFT Computational Study

Nortropine opens up: A reaction mechanism for the ring opening of the bicyclic amine, nortropine, is proposed on the basis of a combined experimental and DFT computational analysis of the associated ^2H and ^{15}N isotope effects. The metabolism by cytochrome P450 monooxygenase leads to a labile product, and the C–N bond cleavage involves a molecule of water.


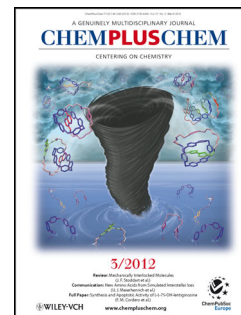
ChemPlusChem

DOI: 10.1002/cplu.201100076

Quantum Dots

M. Green,* L. Sandiford, K. M. Anderson, Y. Ma

Identifying the Decomposition Product of Single-Source Precursors: Towards Water-Soluble Quantum Dots

On the dot: A water-soluble single-source precursor has been used in the synthesis of CdS quantum dots passivated with a nucleotide in an aqueous one-pot reaction (see figure). The crystal structure of the decomposition product of a single-source precursor, 3-methyl-5-(1,2,3,4-tetra hydroxybutyl)oxazolidine-2-thione is also presented. A new decomposition mechanism is suggested that compliments existing routes.


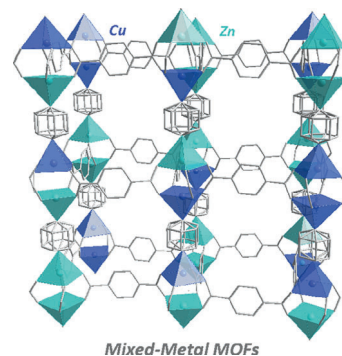


Mixed-Metal MOFs

O. Kozachuk, K. Khaletska, M. Halbherr, A. Bétard, M. Meilikhov, R. W. Seidel, B. Jee, A. Pöpl, R. A. Fischer*

Microporous Mixed-Metal Layer-Pillared $[Zn_{1-x}Cu_x(bdc)(dabco)_{0.5}]$ MOFs: Preparation and Characterization

The one-pot solvothermal reactions of mixtures of zinc and copper salts and H_2bdc and $dabco$ linkers have led to the formation of novel mixed-metal $[Zn_{1-x}Cu_x(bdc)(dabco)_{0.5}]$ MOFs. The prepared materials are isostructural with the known layer-pillared monometallic $[M(bdc)(dabco)_{0.5}]$ ($M = Zn$ or Cu) frameworks and exhibit permanent porosity.



Mixed-Metal MOFs

Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201101295

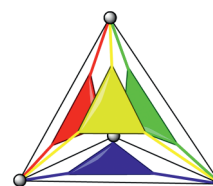


Cage Compounds

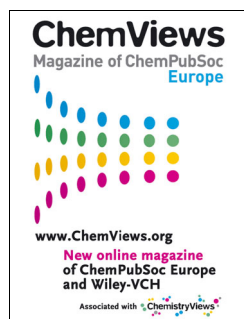
M. Albrecht,* Y. Shang, T. Rhyssen, J. Stubenrauch, H. D. F. Winkler, C. A. Schalley

Supramolecular $[M_4L_4]$ Tetrahedra Based on Triangular Acylhydrazone Catechol Ligands

Acylhydrazone-based triangular triscatechol ligands are prepared in facile reaction sequences. In the case of dihydroxybenzoic acid hydrazides, they form tetrahedral $[M_4L_4]$ container complexes in self-assembly processes with titanium(IV) and gallium(III) ions. The target compounds have been characterized by spectroscopic and spectrometric techniques and are stable in solution – even in water.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201101725



Hydrogen Bonding

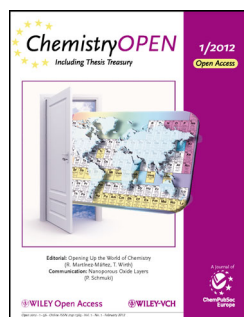
David Bradley

Google Water

Google PageRank is generally associated with surfing the web rather than with actual water. The algorithm that ranks search results has been applied to the hydrogen bonding network in water and is providing new insights into the way water molecules interact at the bulk level and the solvation of proteins.



ChemViews magazine
DOI: 10.1002/chemv.201200020

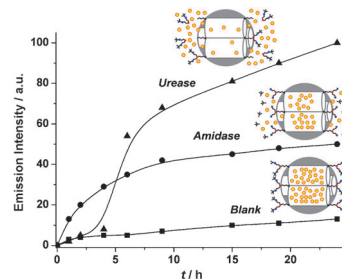


Drug Delivery

A. Agostini, L. Mondragón, C. Coll, E. Aznar, M. D. Marcos, R. Martínez-Máñez,* F. Sancenón, J. Soto, E. Pérez-Payá, P. Amorós

Dual Enzyme-Triggered Controlled Release on Capped Nanometric Silica Mesoporous Supports

Please release me: Mesoporous silica nanoparticles capped with bulky organic moieties containing amide and urea linkages were able to release their cargo upon addition of amidase and urease. Amidase induced an immediate, yet not complete, release of the cargo. On the other hand, urease allowed a near total cargo release that was delayed in time (see graph).



ChemistryOpen
DOI: 10.1002/open.201200003