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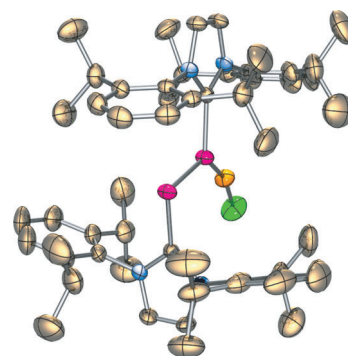


Computational Chemistry

M. Chen, Y. Wang, Y. Xie, P. Wei, R. J. Gilliard, Jr., N. A. Schwartz, H. F. Schaefer, III, P. v. R. Schleyer, G. H. Robinson*

Dynamic Complexation of Copper(I) Chloride by Carbene-Stabilized Disilicon

Disilicon ligand: Reaction of N-heterocyclic-carbene-stabilized disilicon with CuCl gave a carbene-stabilized disilicon–copper(I) chloride complex (see figure). The nature of the structure and bonding in this complex has been investigated by experimental, spectroscopic, and computational methods. The dynamic complexation behavior of the compound was explored by variable-temperature NMR experiments.



Chem. Eur. J.
DOI: 10.1002/chem.201403095

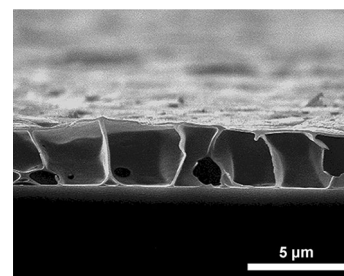


Macroporous Films

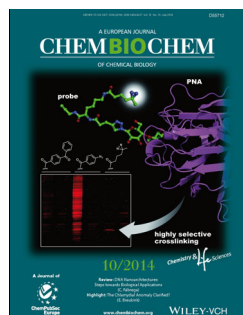
X. Chen, J. Sun*

Fabrication of Macroporous Films with Closed Honeycomb-Like Pores from Exponentially Growing Layer-by-Layer Assembled Polyelectrolyte Multilayers

You never stop learning about film: Post-treatment of micrometer-thick poly(acrylic acid)/poly(allylamine hydrochloride) films with highly interpenetrated film structures produces macroporous films with closed honeycomb-like pores of several micrometers. These macroporous films can be conveniently released from substrates to produce free-standing films with satisfactory mechanical stability.



Chem. Asian J.
DOI: 10.1002/asia.201402054

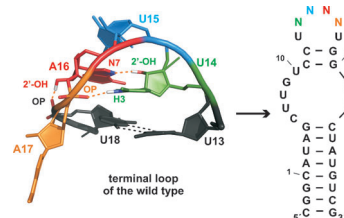


Riboswitches

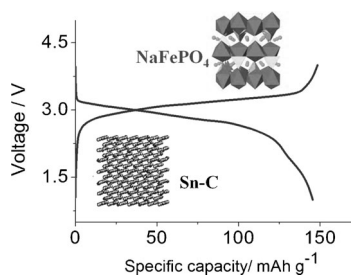
J. E. Weigand, S. R. Gottstein-Schmidtke, S. Demolli, F. Groher, E. Duchardt-Ferner, J. Wöhnert, B. Suess*

Sequence Elements Distal to the Ligand Binding Pocket Modulate the Efficiency of a Synthetic Riboswitch

The structure–function relationship of a U-turn motif in the terminal loop of a synthetic neomycin riboswitch has been investigated. The analysis revealed those nucleobases required to optimize riboswitch function at every single position. A detailed comparison of functional and inactive mutants revealed a relationship between aptamer dynamics and regulation efficiency.



ChemBioChem
DOI: 10.1002/cbic.201402067



ChemPhysChem

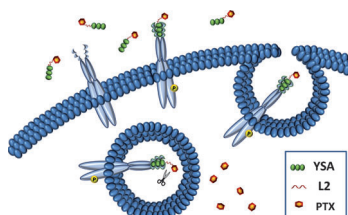
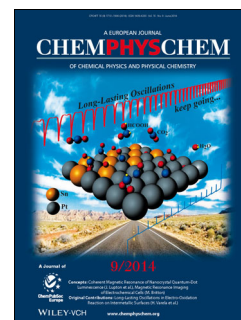
DOI: 10.1002/cphc.201400088

Batteries

I. Hasa, J. Hassoun,* Y.-K. Sun, B. Scrosati*

Sodium-Ion Battery based on an Electrochemically Converted NaFePO₄ Cathode and Nanostructured Tin–Carbon Anode

Matching sodium olivine and tin: An electrochemically converted NaFePO₄ olivine cathode and a nanostructured Sn–C anode are combined in an efficient, sodium-ion battery, characterized by a capacity of 150 mAh g^{−1}, a voltage of 3 V and, consequently, a practical energy density estimated to be of the order of 150 Wh kg^{−1}



ChemMedChem

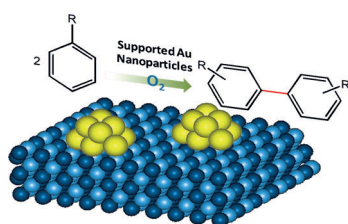
DOI: 10.1002/cmdc.201400067

Drug Discovery

E. Barile, S. Wang, S. K. Das, R. Noberini, R. Dahl, J. L. Stebbins, E. B. Pasquale, P. B. Fisher, M. Pellecchia*

Design, Synthesis and Bioevaluation of an EphA2 Receptor-Based Targeted Delivery System

Ready, aim, fire! We investigated the chemical determinants responsible for the stability and degradation in plasma of an EphA2-based targeted delivery system that is constituted by receptor-targeting peptides conjugated with paclitaxel. We demonstrate that our agents are both long-lived in plasma and markedly decrease tumor size in a prostate cancer xenograft model.



ChemSusChem

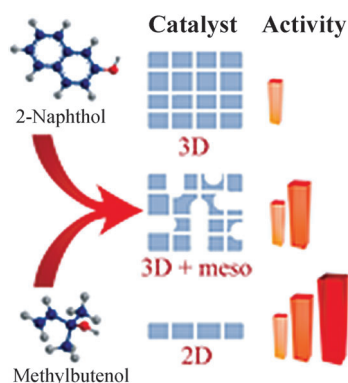
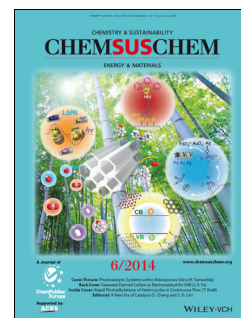
DOI: 10.1002/cssc.201402061

Synthesis Efficiency

P. Serna,* A. Corma*

Towards a Zero-Waste Oxidative Coupling of Nonactivated Aromatics by Supported Gold Nanoparticles

No more waste: Supported gold nanoparticles catalyze the coupling of unactivated arenes in O₂ without the typical need of iodine oxidants, acids, bases, or additional metal salts in solution to result in a zero-waste synthetic process. This is in contrast to other catalysts that can perform for only a few turnovers and produce large quantities of waste.



ChemCatChem

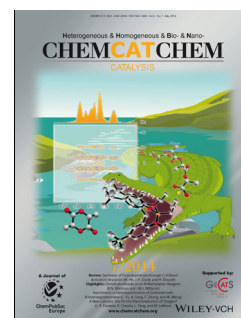
DOI: 10.1002/cctc.201402007

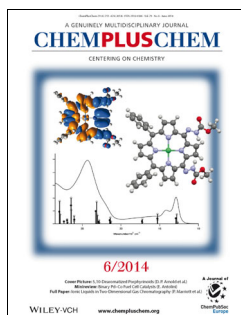
Zeolites

M. V. Opanasenko, M. V. Shamzhy, C. Jo, R. Ryoo, J. Čejka*

Annulation of Phenols: Catalytic Behavior of Conventional and 2D Zeolites

Ideal for bulky substrates: Catalytic behavior of hierarchical MFI zeolites was investigated in annulation reaction of phenols differing in size with methylbutanol and compared with that of medium and large-pore zeolites MFI and BEA.



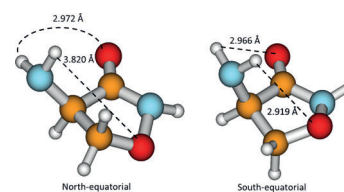


Conformation Analysis

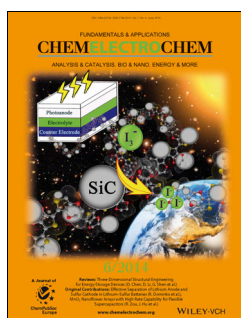
C. Fraschetti, A. Filippi, S. Borocci, V. Steinmetz, M. Speranza*

Isomerism of Cycloserine and Its Protonated Form

Pucker up: The gas-phase isomerism of cycloserine and its protonated forms was investigated computationally and experimentally by IR multiphoton dissociation spectroscopy. The isomers of cycloserine show pronounced ring puckering, which generates rich conformational landscapes (see figure). The relative stability of the various isomers responds to a balance between attractive and repulsive interactions among the functional groups of the molecule.



ChemPlusChem
DOI: 10.1002/cplu.201400006

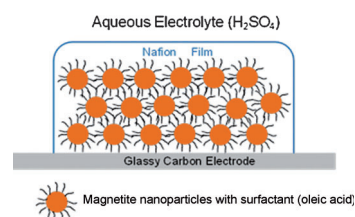


Modified Electrodes

K. Murugappan, D. S. Silvester,* D. Chaudhary, D. W. M. Arrigan*

Electrochemical Characterization of an Oleyl-coated Magnetite Nanoparticle-Modified Electrode

Magical magnetite: The electrochemical behavior of oleyl-coated Fe_3O_4 nanoparticles synthesized by chemical co-precipitation is investigated. The modified electrodes exhibit electrochemical behavior in acidic media but not in alkaline media. The results open up new prospects for future mechanistic and analytical studies of magnetite nanoparticles.



ChemElectroChem
DOI: 10.1002/celc.201402012

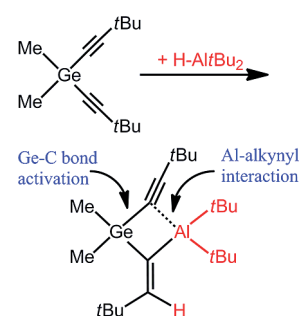


Hydrometallation

W. Uhl,* S. Pelties, M. Rohling, J. Tannert

Alkenyl-Alkynylgermanes Functionalised by Lewis Acids: Intramolecular Aluminium- and Gallium-Alkyne Interactions and Potential Ge-C Bond Activation

Bond activation by intramolecular interactions of alkynyl carbon with highly Lewis acidic aluminium atoms was observed for functionalised alkenyl-alkynylgermanes. Such mixed germanium-aluminum or -gallium compounds were obtained by hydrometallation of dialkynylgermanes and are promising candidates for secondary reactions such as cyclisation or insertion.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201402132

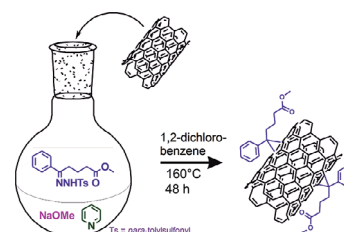


Functionalized Nanotubes

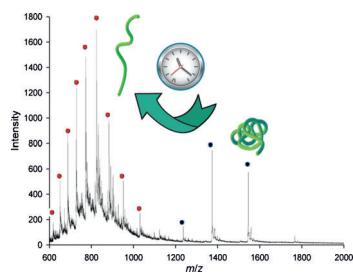
Z. Syrgiannis, C. Hadad, M. Prato*

Cyclopropanation Reactions of Carbon Nanotubes

A new class of functionalized carbon nanotubes synthesized on the basis of in situ deprotected tosylhydrazones and the formation of cyclopropanated products is reported. A different product is obtained with different types of tosylhydrazones. This new class of functionalized carbon nanotubes is analogous to PC60BM materials and can find future use in plastic solar cells or flexible electronics.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201402311



ChemistryOpen

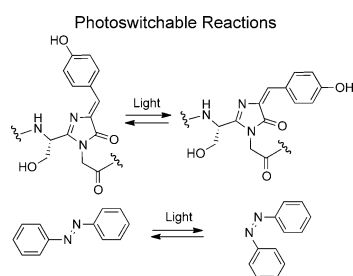
DOI: 10.1002/open.201402002

Protein Folding

N. Zinck, A.-K. Stark, D. J. Wilson, M. Sharon*

An Improved Rapid Mixing Device for Time-Resolved Electrospray Mass Spectrometry Measurements

In the flow! The development of an improved continuous-flow mixing apparatus for real-time electrospray mass spectrometry measurements is described. The performance of the device is demonstrated by monitoring the unfolding reaction of cytochrome C, yielding improved signal-to-noise ratio and reduced experimental repeat errors.



Asian J. Org. Chem.

DOI: 10.1002/ajoc.201402054

Photochemistry

J. Lee*

Light-Controlled Chemical Reactions and Their Applications in Biological Systems

This Focus Review describes recent efforts in developing light-controlled switchable compounds and their applications in biological systems. In particular, photoisomerization reactions of azobenzene as well as synthetic green fluorescent protein chromophores are discussed.



ChemViews magazine

DOI: 10.1002/chemv.201400041

Sustainable Chemistry

V. Koester

T. Kläusli on Platform Chemicals from Renewables

5-Hydroxymethylfurfural (5-HMF) is a renewable platform chemical that could replace fossil-derived alternatives and has applications in the development of innovative new materials. T. M. Kläusli from AVA Biochem, Switzerland, the first company to industrially produce 5-HMF from biomass, spoke to ChemViews Magazine about the future of sustainable platform chemicals.

