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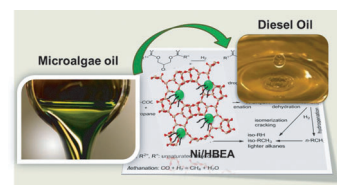


Biomass

W. Song, C. Zhao,* J. A. Lercher*

Importance of Size and Distribution of Ni Nanoparticles for the Hydrodeoxygenation of Microalgae Oil

The small matter of size: Nearly 5–8-fold enhancements of initial rates and improved recyclability have been achieved with Ni/HBEA catalysts, prepared by improved synthesis techniques, on the hydrodeoxygenation of stearic acid and microalgae oil. The average size and uniformity of Ni particles are crucial for maintaining the highly active and stable catalyst. The small metal sites facilitate high initial rates and the good uniformity ensures high catalyst stability (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201301005

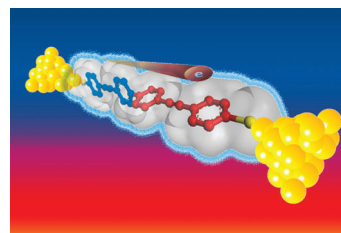


Molecular Electronics

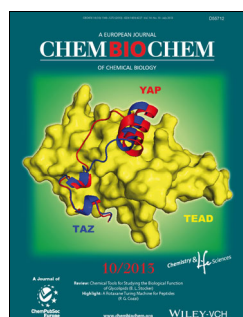
L.-J. Wang, A. Yong, K.-G. Zhou, L. Tan, J. Ye, G.-P. Wu, Z.-G. Xu, H.-L. Zhang*

Conformation-Controlled Electron Transport in Single-Molecule Junctions Containing Oligo(phenylene ethynylene) Derivatives

Control issues: We present the first investigation on the torsion-angle dependence of molecular junctions beyond a simple biphenyl system. Experimental and theoretical results suggest that the conductance of OPE molecular junctions are strongly affected by the coupling strength between the two phenyl-ethynyl-phenyl π systems, which can be tuned by controlling their intramolecular conformation.



Chem. Asian J.
DOI: 10.1002/asia.201300264

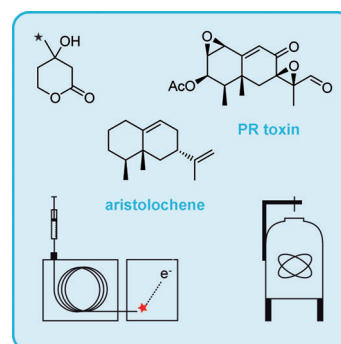


Terpenes

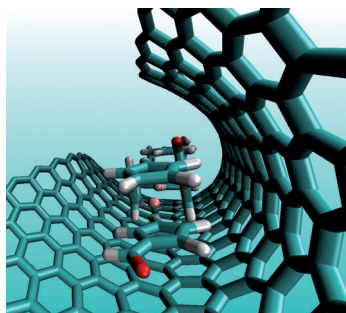
N. L. Brock, J. S. Dickschat*

PR Toxin Biosynthesis in *Penicillium roqueforti*

Complex bouquet: A recently developed method for trace analyses combining the advantages of GC-MS and ^{13}C NMR spectroscopy was applied to investigate the volatiles of *Penicillium roqueforti*. Besides the main compound, aristolochene, several side products of aristolochene synthase and downstream oxidation products en route to PR toxin were identified, giving insight into the biosynthetic pathway.



ChemBioChem
DOI: 10.1002/cbic.201300254



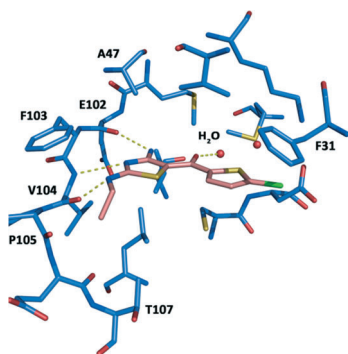
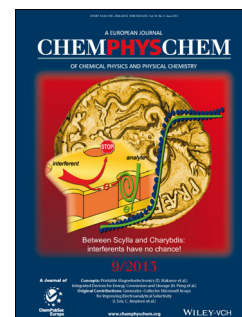
ChemPhysChem
DOI: 10.1002/cphc.201300337

Graphene

M. Calvaresi,* M. Quintana,* P. Rudolf, F. Zerbetto, M. Prato

Rolling up a Graphene Sheet

Rolling, rolling, rolling, rawhide!!! Graphene ribbons are produced, rolled up and sealed to form multi-walled nanotubes.



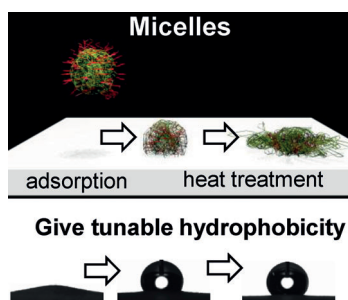
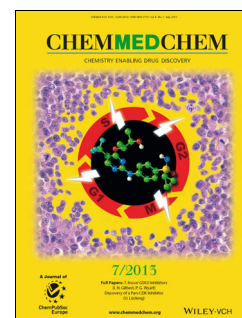
ChemMedChem
DOI: 10.1002/cmdc.201300072

Antiprotozoal Agents

A. Woodland, R. Grimaldi, T. Luksch, L. A. T. Cleghorn, K. K. Ojo, W. C. Van Voorhis, R. Brenk, J. A. Frearson, I. H. Gilbert,* P. G. Wyatt*

From On-Target to Off-Target Activity: Identification and Optimisation of *Trypanosoma brucei* GSK3 Inhibitors and Their Characterisation as Anti-*Trypanosoma brucei* Drug Discovery Lead Molecules

Powerful parasite fighters: From a screen of a focused kinase library against *Trypanosoma brucei* GSK3, we optimised a series of diaminothiazoles, identifying low-nanomolar inhibitors of *Tb*GSK3, which are potent in vitro inhibitors of *T. brucei* proliferation. These compounds have other molecular targets in addition to GSK3.



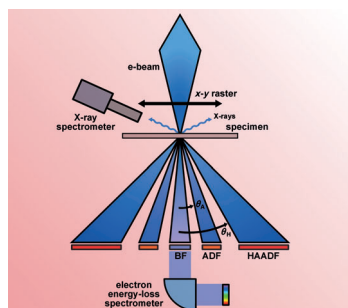
ChemSusChem
DOI: 10.1002/cssc.201300218

Fibers

N. Aarne, J. Laine, T. Hänninen, V. Rantanen, J. Seitsonen, J. Ruokolainen, E. Kontturi*

Controlled Hydrophobic Functionalization of Natural Fibers through Self-Assembly of Amphiphilic Diblock Copolymer Micelles

Rough and ready: A platform technology for the hydrophobization of natural fibers in water through amphiphilic block copolymer micelle adsorption onto fibers and subsequent heating. The natural roughening of the fibers upon drying facilitates hydrophobization, and heating reveals the hydrophobic core, which allows further hydrophobizing of the surface. Heat treatment tunes the effect of changes to the advancing water contact angles of 120° to 150°.



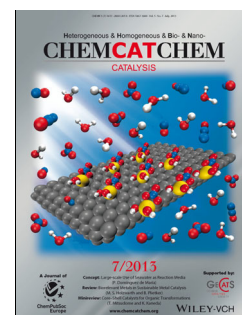
ChemCatChem
DOI: 10.1002/cctc.201200883

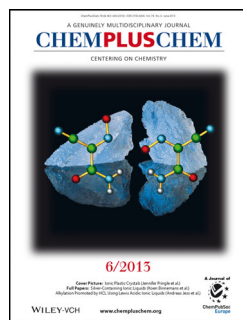
Turning Points

J. M. Thomas,* C. Ducati, R. Leary, P. A. Midgley

Some Turning Points in the Chemical Electron Microscopic Study of Heterogeneous Catalysts

Half a century, take a bow to the pavilion: Over the past 50 years or so, electron microscopy has become an invaluable technique for the study of solid catalysts. We recount some of the most important developments, including early high-resolution studies, insights obtained using aberration-corrected optics, recent advances in electron tomography, time-resolved electron microscopy, and precession electron diffraction.



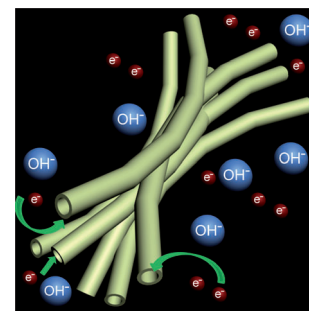


Materials of Supercapacitors

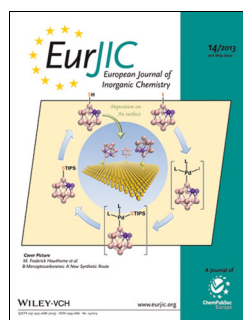
H. Pang,* C. Wei, Y. Ma, S. Zhao, G. Li, J. Zhang, J. Chen, S. Li*

Nickel Phosphite Superstructures Assembled by Nanotubes: Original Application for Effective Electrode Materials of Supercapacitors

The bigger the better: Nickel phosphite superstructures (see picture) assembled by nanotubes are successfully applied as electrochemical supercapacitors with good specific capacitances (1876 F g^{-1} at 0.625 A g^{-1}), good rate capabilities, and excellent cycling properties (95% of the initial specific capacitance at 6.25 A g^{-1} after 2000 cycles).



ChemPlusChem
DOI: 10.1002/cplu.201300015

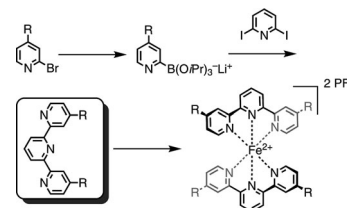


Homoleptic Iron(II) Complexes

G. D. Harzmann, M. Neuburger, M. Mayor*

4,4''-Disubstituted Terpyridines and Their Homoleptic Fe^{II} Complexes

A novel synthetic route to terpyridine ligands is reported. Pyridine building blocks are interlinked by Suzuki–Miyaura cross-coupling reactions. The potential of the method is demonstrated by assembling the 4,4''-disubstituted terpyridine ligands shown, which are subsequently converted into their homoleptic Fe^{II} complexes.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201300231

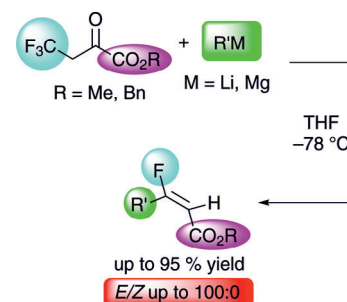


Monofluoroalkenes

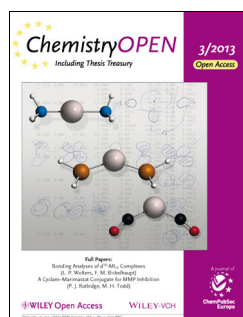
M. Lecea, A. Grassin, L. Ferreiro-Mederos, S. Choppin, A. Urbano, M. C. Carreño,* F. Colobert*

One-Step Stereoselective Synthesis of Trisubstituted Monofluoroalkenes from 3,3,3-Trifluoropropionates

(E)-Monofluoroalkenes were obtained in good yields and stereoselectivities by condensation of organolithium or Grignard reagents to methyl or benzyl 3,3,3-trifluoropropionate.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201300551

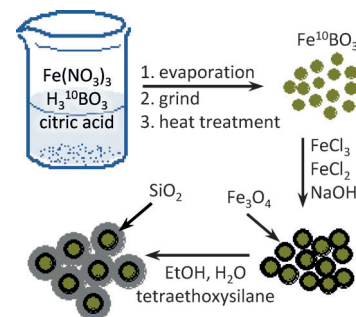


Drug Delivery

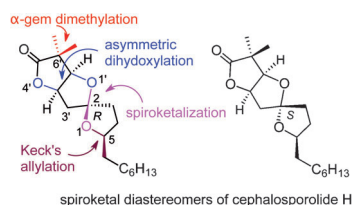
S. Gao, X. Liu, T. Xu, X. Ma, Z. Shen, A. Wu, Y. Zhu, N. S. Hosmane*

Synthesis and Characterization of $\text{Fe}^{10}\text{BO}_3/\text{Fe}_3\text{O}_4/\text{SiO}_2$ and $\text{GdFeO}_3/\text{Fe}_3\text{O}_4/\text{SiO}_2$: Nanocomposites of Biofunctional Materials

The sum of its parts: Nanocomposites of $\text{Fe}^{10}\text{BO}_3/\text{Fe}_3\text{O}_4/\text{SiO}_2$ and $\text{GdFeO}_3/\text{Fe}_3\text{O}_4/\text{SiO}_2$, synthesized by a gel combustion technique using citric acid as fuel and chelation, exhibited strong magnetic properties indicating that they might have potential applications in diagnostic analysis of cancer through use in neutron capture therapy.



ChemistryOpen
DOI: 10.1002/open.201300007



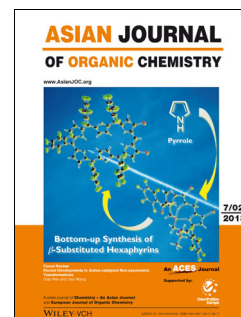
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201300067

Total Synthesis

R. A. Fernandes,* M. B. Halle

Total Synthesis of Both Spiroketal Diastereomers of the Reported Structure of Cephalosporolide H

Spiroketals: The syntheses of both spiroketal diastereomers of the reported structure of cephalosporolide H has been achieved by using Keck's allylation, cross metathesis, Sharpless asymmetric dihydroxylation, and spiroketalization as key steps.



ChemViews magazine
DOI: 10.1002/chemv.201300066

Origins of Life

David Bradley

Life on the Rocks

Did life originate from a comet's impact? Quantum molecular dynamics (MD) simulations reveal that various N-containing heterocycles, including precursors for amino acids, could form at the pressures and temperatures created by such an impact. The mechanism is independent of external conditions, raising the possibility that it might have occurred, or might yet occur, elsewhere in the universe.

