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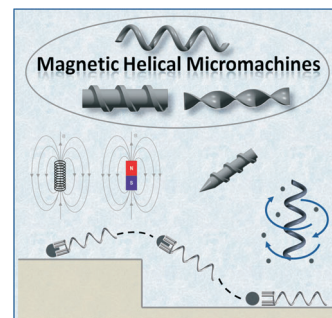


Helical Micromachines

K. E. Peyer, S. Tottori, F. Qiu, L. Zhang, B. J. Nelson*

Magnetic Helical Micromachines

Helices, screws or twists transform rotational motion into translations in soft tissue or fluidic environments. The actuation occurs wirelessly through low-strength rotating magnetic fields. These swimming micro-robots can be used for micro-object or microfluidic manipulation tasks or as transport platforms for targeted delivery in medical applications.



Chem. Eur. J.
DOI: 10.1002/chem.201203364

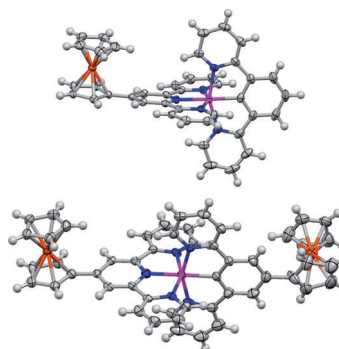


Mixed-Valent Compounds

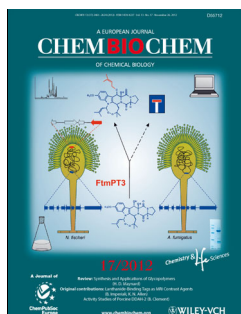
S.-H. Wu, J.-J. Shen, J. Yao, Y.-W. Zhong*

Asymmetric Mixed-Valence Complexes that Consist of Cyclometalated Ruthenium and Ferrocene: Synthesis, Characterization, and Electronic-Coupling Studies

Penny mix: Three bis-tridentate ferrocene-containing cyclometalated ruthenium complexes have been prepared and characterized, in which the ferrocene units are either substituted on the NNN ligand, on the NCN ligand, or on both sides. A combined experimental and computational study has shown that the electronic coupling between the iron and ruthenium sites is strongly dependent on the connection mode between the two redox-active centers.



Chem. Asian J.
DOI: 10.1002/asia.201200900

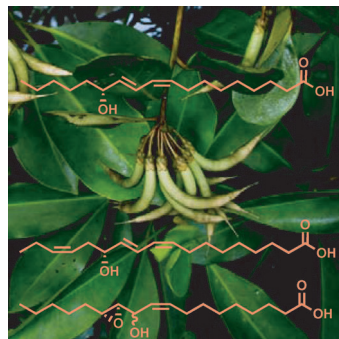


Fatty Acids

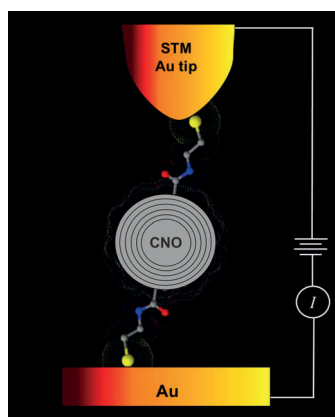
L. Ding, G. Peschel, C. Hertweck*

Biosynthesis of Archetypal Plant Self-Defensive Oxylipins by an Endophytic Fungus Residing in Mangrove Embryos

A tree's travel companion: A fungal endophyte (*Fusarium incarnatum*) isolated from a viviparous propagule (embryo) of a mangrove tree produces typical plant defense oxylipins. Stable-isotope labeling experiments revealed that the endophyte biosynthesizes coriolic acid, dihydrocoriolic acid, and an epoxy fatty acid derived from linoleic acid by a process involving Δ^5 -desaturation and 13-lipoxygenation.



ChemBioChem
DOI: 10.1002/cbic.201200544



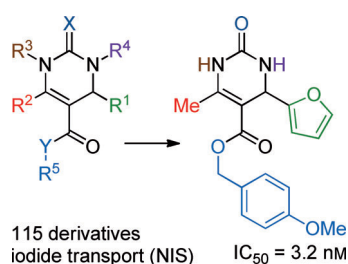
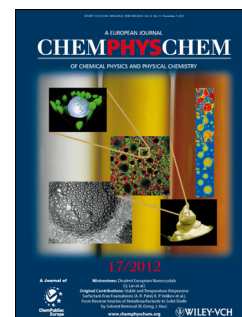
ChemPhysChem
DOI: 10.1002/cphc.201200624

Electron Transmission

S. Sek, J. Brezko, M. E. Plonska-Brzezinska,* A. Z. Wilczewska, L. Echegoyen*

STM-Based Molecular Junction of Carbon Nano-Onion

Get to know the onion: Conductance measurements for functionalized carbon nano-onions were conducted using an STM-based molecular junction approach (see picture). It was found that electron transmission through these systems occurs by a tunneling mechanism. The carbon-based core seems to provide a very efficient medium for electron transmission, with conductance values comparable to those of metallic nanowires.



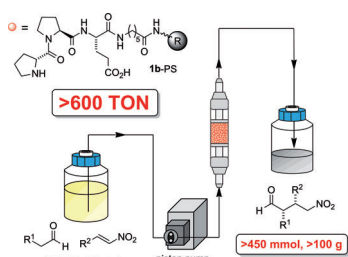
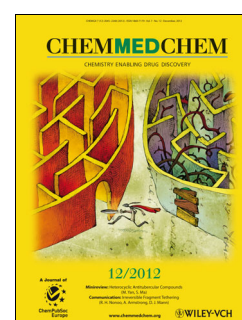
ChemMedChem
DOI: 10.1002/cmdc.201200417

Structure–Activity Relationships

P. Lacotte, C. Puente, Y. Ambroise*

Synthesis and Evaluation of 3,4-Dihydropyrimidin-2(1H)-ones as Sodium Iodide Symporter Inhibitors

Ain't NIS-behavin': The effect of structure modification at five key positions on the dihydropyrimidone core is reported against iodide transport in rat thyroid-derived cells. This work describes extensive structure–activity relationships and identifies the most potent inhibitor reported to date.



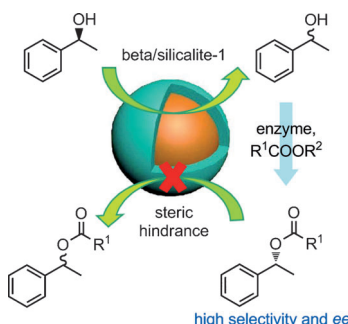
ChemSusChem
DOI: 10.1002/cssc.201200740

Enamine Catalysis

Y. Arakawa, H. Wennemers*

Enamine Catalysis in Flow with an Immobilized Peptidic Catalyst

Pep talk: An immobilized peptidic catalyst achieves more than 600 turnovers in a continuous-flow system, allowing the production of chiral γ -nitroaldehydes with excellent stereoselectivities on a scale of > 450 mmol (> 100 g). Such a high efficiency opens the way for more practical applications of enamine catalysis.



ChemCatChem
DOI: 10.1002/cctc.201200566

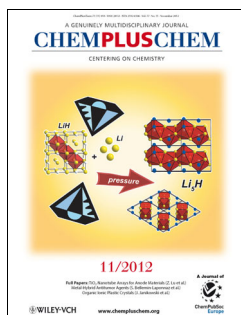
Core-Shell Catalysis

J. Wang, D.-M. Do, G.-K. Chuah, S. Jaenicke*

Core–Shell Composite as the Racemization Catalyst in the Dynamic Kinetic Resolution of Secondary Alcohols

Small is in: The dynamic kinetic resolution of secondary alcohols through enzyme-catalyzed transesterification is performed in a one-pot system. The key is a core–shell composite of Beta–Silicalite-1, in which the nanoporous shell suppresses external acidity and allows only small molecules to access the acid sites of the core Beta zeolite.



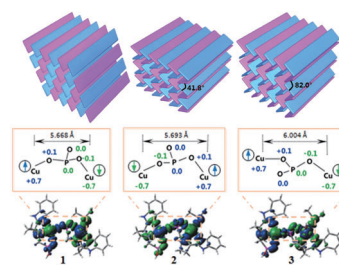


Supramolecular Isomerism

J. Huang, P.-Y. Liu, H. Zhu, S.-S. Bao, L.-M. Zheng,* J. Ma*

Supramolecular Isomerism of One-Dimensional Copper(II) Phosphonate and Its Influence on the Magnetic Properties

Chain gang: Isomeric chain compounds $[\text{Cu}(\text{pmbp})]\cdot 2.5 \text{H}_2\text{O}$ (1), $[\text{Cu}(\text{pmbp})]\cdot 2 \text{H}_2\text{O}$ (2), and $[\text{Cu}(\text{pmbp})(\text{H}_2\text{O})]\cdot x \text{H}_2\text{O}$ (3) (pmbp = 1-phosphonomethyl-2-benzimidazolpyrrolidine) show dominant antiferromagnetic interactions with coupling constants that vary significantly owing to slightly different packing structures (see figure).



ChemPlusChem
DOI: 10.1002/cplu.201200188

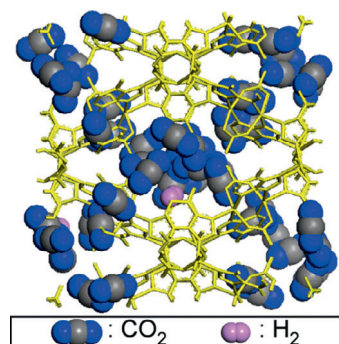


Metal-Biomolecule Frameworks

S. Pérez-Yáñez, G. Beobide,* O. Castillo, M. Fischer, F. Hoffmann, M. Fröba, J. Cepeda, A. Luque

Gas Adsorption Properties and Selectivity in Cu^{II} /Adeninato/Carboxylato Metal-Biomolecule Frameworks

The gas adsorption capacity of Cu^{II} /adeninato/carboxylato MBioFs was analyzed on the basis of experimental and simulation data. The selectivity towards CO_2/H_2 and CO/H_2 gas mixtures was studied by computing the Henry constants and the binary adsorption isotherms. The results show how the sorption features are controlled by modifying the chain length of the carboxylato ligand.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201201028

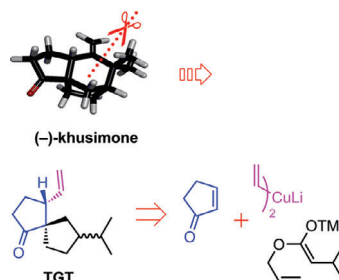


Fragrances

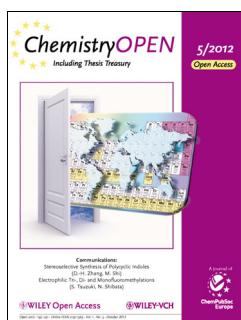
P. Kraft,* N. Denizot

Synthesis of a Spirocyclic Seco Structure of the Principal Vetiver Odorant Khusimone

Dissecting the bond between the methylene and the *gem*-dimethyl unit of khusimone leads to a spirocycle of almost identical shape, which was synthesized by 1,4-conjugate addition of a vinyl Gilman reagent, Mukaiyama aldol condensation of a bromo aldehyde prepared by Ireland-Claisen rearrangement of allyl isovalerate, and subsequent cyclization.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201201318

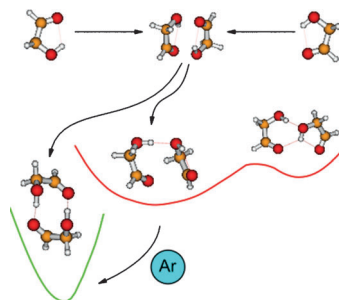


Carbohydrates

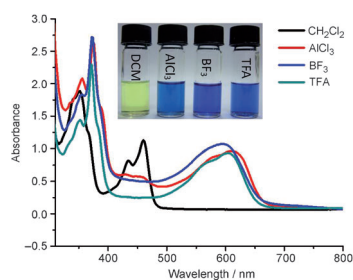
J. Altnöder, J. J. Lee, K. E. Otto, M. A. Suhm*

Molecular Recognition in Glycolaldehyde, the Simplest Sugar: Two Isolated Hydrogen Bonds Win Over One Cooperative Pair

Two-way communication: Cell communication often involves carbohydrate recognition. The simplest carbohydrate molecule already offers many ways to interact with a second one. Supersonic jet spectroscopy reveals the favorite communication channel based on equivalent hydrogen bonds, but on the corrugated potential energy landscape of glycolaldehyde dimer, the molecules may also get trapped in a meta-stable one-way communication mode, which is stabilized in hydroxyacetone.



ChemistryOpen
DOI: 10.1002/open.201200031



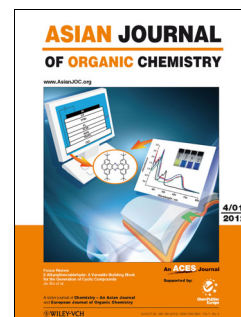
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201200120

Diazopentacene Analogue

G. Li, A. P. Abiyasa, J. Gao, Y. Divayana, W. Chen, Y. Zhao,
X. W. Sun,* Q. Zhang*

Synthesis and Properties of a Diazopentacene Analogue

Diazopentacene analogue 2,7,11,16-tetra-*tert*-butyldiphenanthro[4,5-*abc*:4',5'-*hij*]phenazine (BDPP) was synthesized and its optical and electrochemical properties assessed. The UV absorption of BDPP is sensitive to different Lewis and organic acids (see image). Testing of organic light-emitting diodes (OLEDs) that contain BDPP as the emitter indicates that BDPP might be a good candidate for enhancing the efficiency of OLEDs. TFA = trifluoroacetic acid.



ChemViews magazine
DOI: 10.1002/chemv.201200143

Commercializing Research

Vera Köster

Javier García-Martínez on the Commercialization of Research

How do you turn your research into a successful company? Javier García-Martínez, University of Alicante, Spain, shares with *ChemViews* magazine how he has commercialized a zeolite catalyst for oil refining, his passion and enthusiasm for chemistry, and how he finds time for each of his many roles including leader of a lab, founder of a company, and youngest member of the IUPAC Bureau.

