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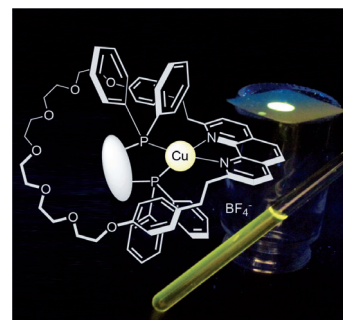


Macrocyclic Ligands

M. Mohankumar, M. Holler, J.-F. Nierengarten,* J.-P. Sauvage*

Preparation of Copper(I) Pseudo-rotaxanes from Bis-phosphine Ligands

Macrocyclic makes the difference: Heteroleptic complexes prepared from a macrocyclic 1,10-phenanthroline derivative (see figure) and various bis-phosphine ligands (PP) are significantly stabilized when compared with analogous systems obtained from a non-cyclic 1,10-phenanthroline ligand. The resulting copper(I)-complexed pseudo-rotaxanes are strongly luminescent.



Chem. Eur. J.
DOI: 10.1002/chem.201202170

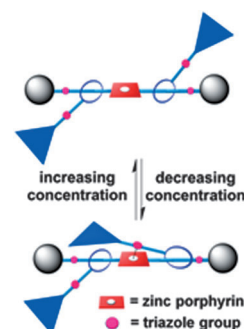


Porphyrins

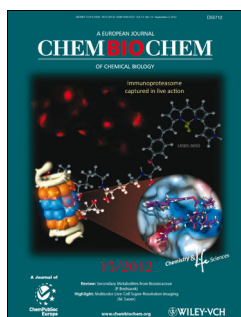
X.-Y. Wang, J.-M. Han, J. Pei*

Energy Transfer and Concentration-Dependent Conformational Modulation: A Porphyrin-Containing [3]Rotaxane

It's a ringer: A porphyrin-containing [3]rotaxane was synthesized that exhibited energy transfer from the wheel to the porphyrin unit on the axis. Additionally, the conformation could be modulated by changing concentration. This concentration-dependent conformational change is reversible in CH_2Cl_2 but was inhibited in THF.



Chem. Asian J.
DOI: 10.1002/asia.201200443

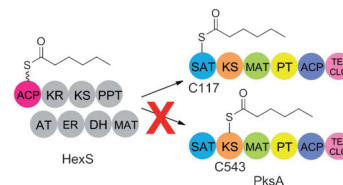


Fatty Acids

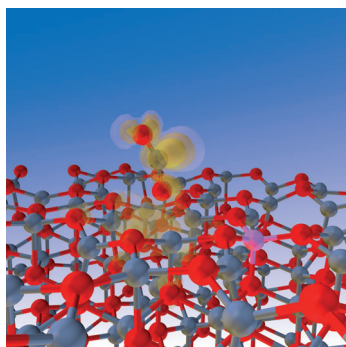
J. Foulke-Abel, C. A. Townsend*

Demonstration of Starter Unit Interprotein Transfer from a Fatty Acid Synthase to a Multidomain, Nonreducing Polyketide Synthase

The pathway for substrate transacylation between a fungal type I fatty acid synthase (FAS) and a nonreducing polyketide synthase (NR-PKS) was determined by in vitro reconstitution of dissected domains. System kinetics were influenced by domain dissections, and the FAS phosphopantetheinyl transferase (PPT) monodomain exhibited coenzyme A selectivity for the post-translational activation of the FAS acyl carrier protein (ACP).



ChemBioChem
DOI: 10.1002/cbic.201200267



ChemPhysChem

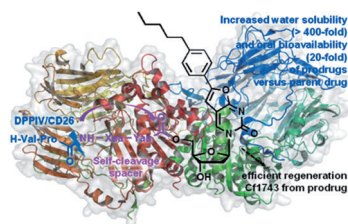
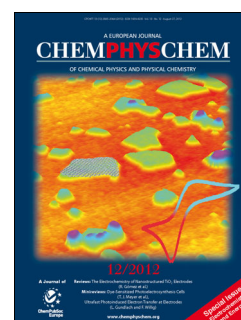
DOI: 10.1002/cphc.201200517

Chemisorption

G. Dutta, A. A. Sokol,* C. R. A. Catlow, T. W. Keal, P. Sherwood

Activation of Carbon Dioxide over Zinc Oxide by Localised Electrons

The unique mechanism of activation of carbon dioxide over zinc oxide is unravelled using advanced quantum mechanical methods. The key process is the CO₂ chemisorption catalysed by a highly localized electron carrier trapped at a vacant oxygen interstitial surface site. At the top of the reaction barrier CO₂ pulls the electron from the vacancy and thus becomes active (see picture).



ChemMedChem

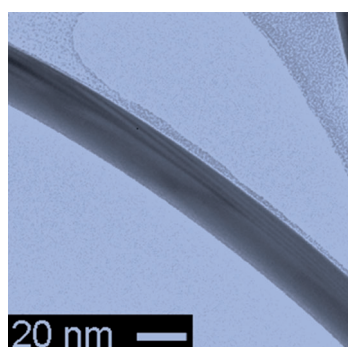
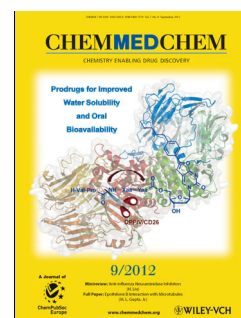
DOI: 10.1002/cmdc.201200295

Prodrugs

A. Diez-Torrubia, S. Cabrera, I. De Meester, M.-J. Camarasa, J. Balzarini, S. Velázquez*

Dipeptidyl Peptidase IV-Activated Prodrugs of Anti-Varicella Zoster Virus Bicyclic Nucleoside Analogues Containing Different Self-Cleavage Spacer Systems

Better solubility and oral bioavailability! We describe a new type of water-soluble prodrug of anti-varicella zoster virus bicyclic nucleosides based on the cyclization self-cleavage spacers that efficiently release the parent nucleoside upon hydrolysis by DPPIV/CD26. A marked increase in transport through Caco-2 monolayers and in vivo oral bioavailability is reported.



ChemSusChem

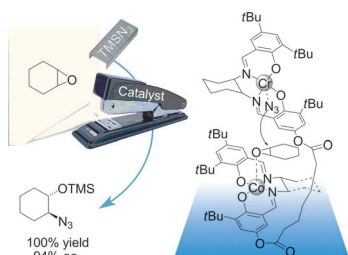
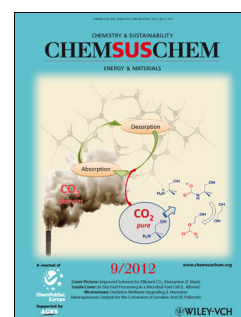
DOI: 10.1002/cssc.201100684

Fuel Cells

S. M. Alia, K. Duong, T. Liu, K. Jensen, Y. Yan*

Supportless Silver Nanowires as Oxygen Reduction Reaction Catalysts for Hydroxide-Exchange Membrane Fuel Cells

Down to the wire: Silver nanowires (AgNWs) are studied as oxygen reduction reaction (ORR) catalysts for hydroxide exchange membrane fuel cells (HEMFCs). The 25 nm AgNWs (see picture) have a specific ORR activity 5.3 times greater than that of 2.4 nm Ag nanoparticles (AgNPs). Therefore, AgNWs are clearly the future of HEMFC catalyst development.



ChemCatChem

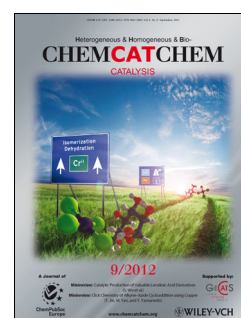
DOI: 10.1002/cctc.201200018

Chromium Catalysis

D.-Y. Ma, Z.-Y. Xiao, J. Etxabe, K. Wärnmark*

Pseudo-C₂-Symmetric Bimetallic Bissalen Catalysts for Efficient and Enantioselective Ring-Opening of meso-Epoxides

Stapler catalysts: Hetero- and homobimetallic bissalen complexes based on Jacobsen's bissalen ligand motif are used as catalysts in the asymmetric ring-opening of mesoepoxides by TMSN₃. The former are the first examples of pseudo-C₂-symmetric complexes, owing to the presence of two different metal ions. They afford ring-opened products with the highest ee values to date in excellent yields. A proposed activation mode of the catalyst, used neat at loadings as low as 0.01 mol% at RT, is shown.



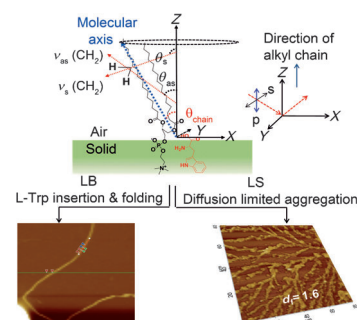


Structure-Directing L-Tryptophan

N. K. Sarangi, A. Patnaik*

Structure-Directing L-Tryptophan for Supported DPPC Helices and Fractals: An Alkyl-Chain Tilt-Angle Dependence

Helix control: Supported 1D lipid helices of dipalmitoylphosphatidylcholine from interfacial and trans-membrane L-tryptophan interactions are reported. A diversity of interactions such as insertion, folding, dipole reorientation, steric interactions and molecular tilt dependence are invoked (see figure). Molecular dynamics simulations succinctly corroborate the induction of helicity into a nonhelical lipid, implying that trans-membrane tryptophans support such segmental interactions.



ChemPlusChem
DOI: 10.1002/cplu.201200075

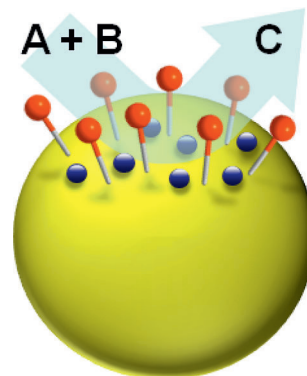


Bifunctional Heterogeneous Catalysts

P. Barbaro,* F. Liguori, N. Linares, C. M. Marrodan

Heterogeneous Bifunctional Metal/Acid Catalysts for Selective Chemical Processes

Heterogeneous bifunctional catalysts containing metal and acid sites have great potential for the development of greener production processes, particularly for the preparation of fine chemicals. This review highlights the recent advancements and the most representative examples in the field.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201200529

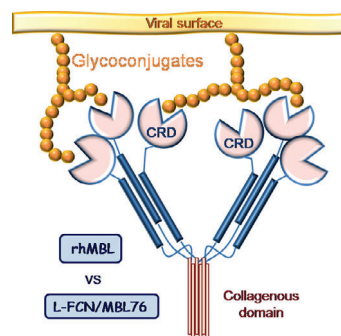


Lectin-Ligand Interactions

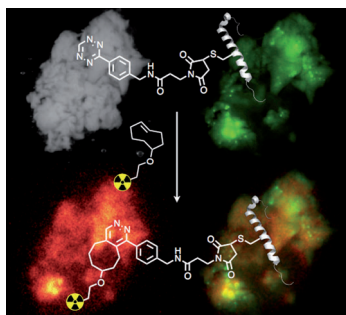
R. Marchetti, R. Lanzetta, I. C. Michelow, A. Molinaro, A. Silipo*

Structural Study of Binding of α -Mannosides to Mannan-Binding Lectins

We have used an NMR-based approach to study, at atomic level, the mannose-binding activities both of recombinant human MBL (rhMBL) and of the chimeric molecule L-FCN/MBL76, in order to find new therapeutic strategies against *N*-glycosylated viruses.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201200697



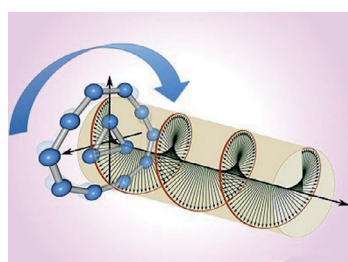
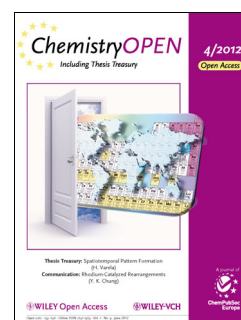
ChemistryOpen
DOI: 10.1002/open.201200014

Imaging Agents

E. J. Keliher, T. Reiner, G. M. Thurber, R. Upadhyay, R. Weissleder*

Efficient ^{18}F -Labeling of Synthetic Exendin-4 Analogues for Imaging Beta Cells

Clicked in place: Based on the *trans*-cyclooctene/tetrazine cycloaddition, we labeled an exendin-4 derivative with ^{18}F . The resulting PET tracer accumulated in both pancreatic beta cells as well as in different murine xenografts of insulinomas, and uptake could be inhibited by unlabeled exendin-4. Based on pharmacokinetic modeling, the plasma clearance and tracer uptake data obtained from these experiments were used to extrapolate our findings to humans for clinical translation.



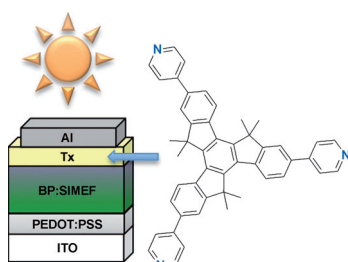
ChemViews magazine
DOI: 10.1002/chemv.201200081

Boron Clusters

David Bradley

Shedding Light on a Molecular Engine

Shining circularly polarized infrared light on a $[\text{B}_{13}]^+$ cluster makes an inner ring of atoms turn within an outer ring of atoms like the piston in a rotary internal combustion, or Wankel, engine. David Bradley, UK, explores how this discovery by A. N. Alexandrova, USA, and colleagues could revolutionize molecular-scale motors.



Asian J. Org. Chem.
DOI: 10.1002/ajoc.201200021

Solar Cells

H. Tsuji,* Y. Ota, S. Furukawa, C. Mitsui, Y. Sato, E. Nakamura*

Tripyridyltruxenes: Thermally Stable Cathode Buffer Materials for Organic Thin-Film Solar Cells

Pyridine performs: 3,8,13-Tripyridyltruxenes are thermally stable cathode buffer materials in organic thin-film solar cells. This class of truxene derivatives provides a high power-conversion efficiency of up to 4.41 %. In contrast, the use of the analogous 3,8,13-triphenyltruxene resulted in poor performance of the solar cells.

