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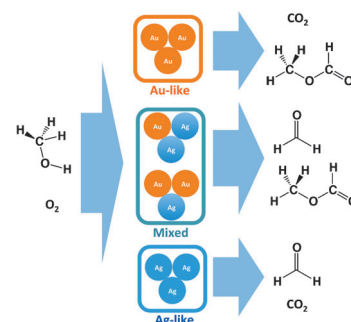


Bimetallic Catalysis

B. Xu, C. G. F. Siler, R. J. Madix, C. M. Friend*

Ag/Au Mixed Sites Promote Oxidative Coupling of Methanol on the Alloy Surface

Activation and promotion: Au/Au mixed sites promotes selective oxidation of methanol to formaldehyde and methyl formate without producing any CO₂ (see scheme).



Chem. Eur. J.
DOI: 10.1002/chem.201304837

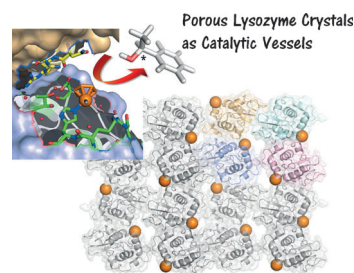


Biocatalysis

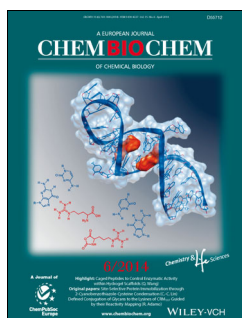
H. Tabe, S. Abe, T. Hikage, S. Kitagawa,* T. Ueno*

Porous Protein Crystals as Catalytic Vessels for Organometallic Complexes

The crystal maze: Porous lysozyme crystals have been engineered to form catalytic vessels by incorporating organometallic complexes. The stable coordination of Ru(benzene)Cl₂ into CL-HEWL crystals accelerated the catalytic activity. A different configuration of enantiomers was obtained from the two lattice structures of the HEWL crystal. This method represents a new approach for construction of bionanomaterials from porous protein crystals.



Chem. Asian J.
DOI: 10.1002/asia.201301347

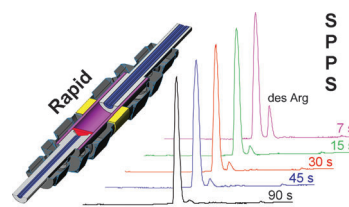


Peptide Synthesis

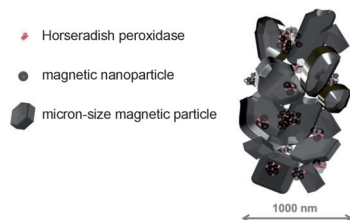
M. D. Simon, P. L. Heider, A. Adamo, A. A. Vinogradov, S. K. Mong, X. Li, T. Berger, R. L. Polcarpo, C. Zhang, Y. Zou, X. Liao, A. M. Spokoiny, K. F. Jensen, B. L. Pentelute*

Rapid Flow-Based Peptide Synthesis

Supercharged synthesis: Here we demonstrate a flow-based technology that uses low-cost components yet accelerates traditional Fmoc chemistry by an order of magnitude. Only 1.8 min per residue is required for chain assembly.



ChemBioChem
DOI: 10.1002/cbic.201300796



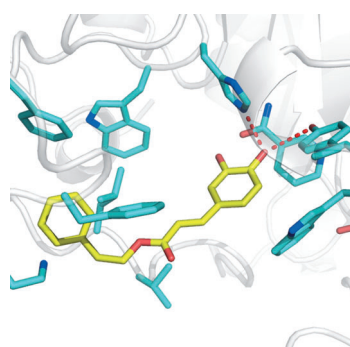
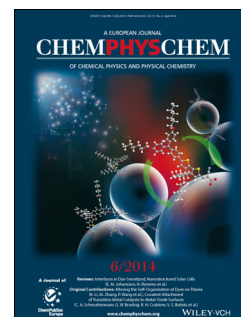
ChemPhysChem
DOI: 10.1002/cphc.201300808

Wastewater Remediation

X. Duan, S. C. Corgié, D. J. Aneshansley, P. Wang, L. P. Walker, E. P. Giannelis*

Hierarchical Hybrid Peroxidase Catalysts for Remediation of Phenol Wastewater

Supporting the clean-up: Horseradish peroxidase (HRP)–magnetic nanoparticles are demonstrated as hierarchical hybrid catalysts for the removal of phenol from water. The catalysts exhibit a three times higher activity than free HRP and in comparison are able to remove three times more phenol. Reusability is improved when the hybrids are supported on micron-scale magnetic particles, and can be retained with a specially designed magnetically driven reactor.



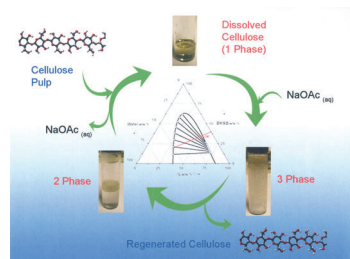
ChemMedChem
DOI: 10.1002/cmdc.201300455

Anticancer Drug Design

L. Zhang, H. Zhang, X. Zheng, Y. Zhao, S. Chen, Y. Chen, R. Zhang, Q. Li,* X. Hu*

Structural Basis for the Inhibition of AKR1B10 by Caffeic Acid Phenethyl Ester (CAPE)

A word to the wise: The crystal structure of caffeic acid phenethyl ester (CAPE), the major bioactive component of honeybee propolis, in complex with aldo-keto reductase family member 1B10 (AKR1B10) is reported. Preliminary results strongly suggest that the use of this crystal structure for future in silico campaigns could drastically improve the success rate in identifying inhibitors with selectivity for AKR1B10 over other highly related off-targets.



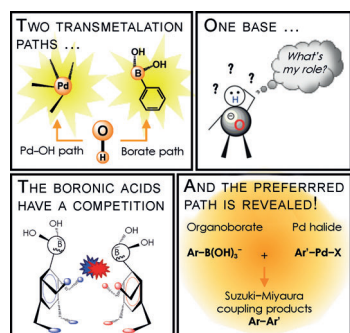
ChemSusChem
DOI: 10.1002/cssc.201301261

Biomass Processing

A. J. Holding, M. Heikkilä, I. Kilpeläinen,* A. W. T. King*

Amphiphilic and Phase-Separable Ionic Liquids for Biomass Processing

Solving the dissolving: Hydrophobic wood-biopolymer-solvating ionic liquids are developed that are phase separable from aqueous solutions as a means of recycling. These ionic liquids are excellent solvents for cellulose in the form of their DMSO electrolyte solutions but only dissolve lignin as the pure ionic liquids.



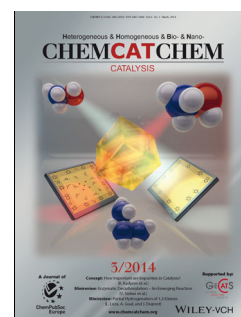
ChemCatChem
DOI: 10.1002/cctc.201301080

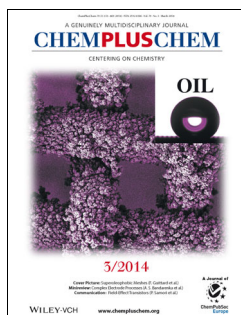
Cross Coupling

C. F. R. A. C. Lima,* A. S. M. C. Rodrigues, V. L. M. Silva, A. M. S. Silva, L. M. N. B. F. Santos*

Role of the Base and Control of Selectivity in the Suzuki–Miyaura Cross-Coupling Reaction

Follow the organoborate road: Competition Suzuki–Miyaura reactions between two boronic acids with different pK_a values reveal the link between acid–base chemistry and the reaction catalytic cycle. The results reveal that the borate path is the preferred route for transmetalation and thus confirm the role of the base in the reaction mechanism.



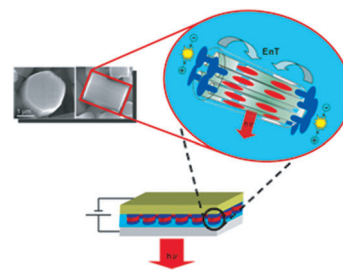


Zeolites

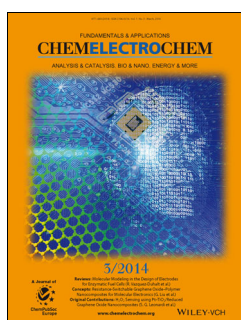
F. Cucinotta, A. Guenet, C. Bizzarri, W. Mróz, C. Botta, B. Milián-Medina, J. Gierschner,* L. De Cola*

Energy Transfer at the Zeolite L Boundaries: Towards Photo- and Electroresponsive Materials

Hybrid nanoarchitectures: Cationic iridium(III) complexes are used as stopper molecules for the channels of zeolite L. They act as effective donor units for transferring excitation energy to dye molecules entrapped in the zeolite channels. Hybrid light-emitting diodes can be fabricated with this material because the electrogenerated iridium excited state can sensitize the entrapped dyes (see picture).



ChemPlusChem
DOI: 10.1002/cplu.201300272

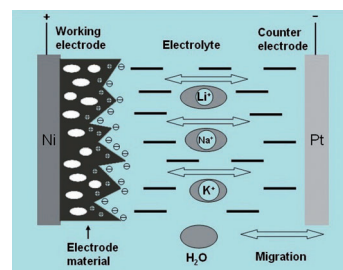


Sodium-ion Batteries

W. Song, X. Ji,* Y. Zhu, H. Zhu, F. Li, J. Chen, F. Lu, Y. Yao, C. E. Banks*

Aqueous Sodium-Ion Battery using a $\text{Na}_3\text{V}_2(\text{PO}_4)_3$ Electrode

Storage boxes: A NASICON-type $\text{Na}_3\text{V}_2(\text{PO}_4)_3$ cathode is investigated in an aqueous sodium-ion battery. The battery behaviors and capacitive properties are investigated by comparison in 1 M Li_2SO_4 , Na_2SO_4 , and K_2SO_4 electrolytes



ChemElectroChem
DOI: 10.1002/celc.201300248

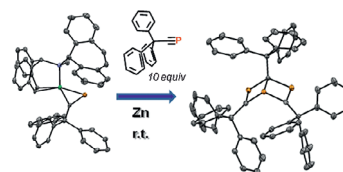


Amino Olefin Ni Complexes

M. Trincado,* A. J. Rosenthal, M. Vogt, H. Grützmacher*

η^2 -Coordination of a Phosphaalkyne to an Amino Olefin Nickel Complex and Regioselective Catalyzed Cyclooligomerization to Dewar 1,3,5-Triphosphaabenzene

A preorganized tridentate diolefin amine ligand coordinated to a nickel atom provides the required stability to the zero-valent metal center. The hemilability of the olefin binding sites allows side-on coordination of a phosphaalkyne and successive head-to-tail coupling of up to three molecules to afford a cyclic Dewar-1,3,5-phosphaalkyne with liberation of the heterocycle under a catalytic regime.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201301135

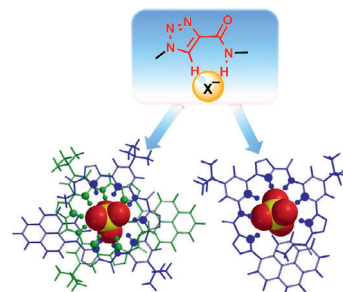


Tunable Anion Binding

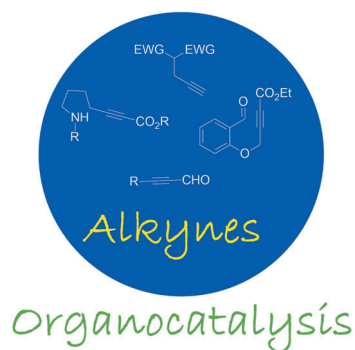
L. Cao, R. Jiang, Y. Zhu,* X. Wang, Y. Li,* Y. Li

Synthesis of 1,2,3-Triazole-4-carboxamide-Containing Foldamers for Sulfate Recognition

A series of triazolecarboxamide-containing foldamers were synthesized. By increasing the numbers of triazolecarboxamide units and modification of the terminal benzene ring, the binding stoichiometry and binding affinity can be controlled.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201301838



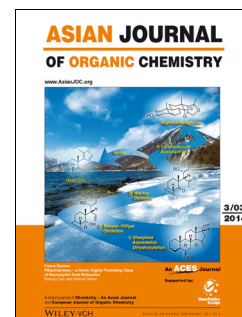
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201400021

Organocatalysis

R. Salvio,* M. Moliterno, M. Bella*

Alkynes in Organocatalysis

Three is better than two: Compared with alkenes, alkynes present a complementary synthetic utility, but the latter are still not as widely used as the former. This Review focuses on the usage of alkynes in asymmetric and non-asymmetric organocatalyzed reactions, with a brief overview on the emerging perspectives about applications in multicatalysis.



ChemViews magazine
DOI: 10.1002/chemv.201400017

Chemistry Education

V. Köster

Liliana Mammino: Research and Education in Sub-Saharan Africa

Professor Liliana Mammino, South Africa, discusses her role in the promotion of computational chemistry in Sub-Saharan Africa. She highlights the value of workshops and conferences to disseminate information and stimulate awareness. As a woman teaching chemistry in Africa, she also talks about how she has become a role model for the next generation of African chemists.

