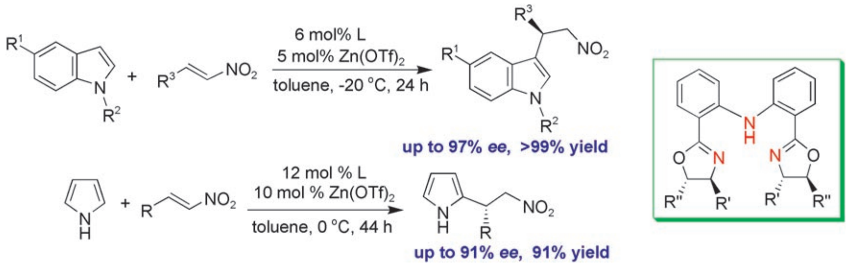
Asymmetric Alkylation

*H. Liu, S.-F. Lu, J. Xu, D.-M. Du**

Asymmetric Friedel–Crafts Alkylation of Electron-Rich N-Heterocycles with Nitroalkenes Catalyzed by Diphenylamine-Tethered Bis(oxazoline) and Bis(thiazoline) Zn^{II} Complexes

Chem. Asian J.
DOI: **10.1002/asia.200800071**



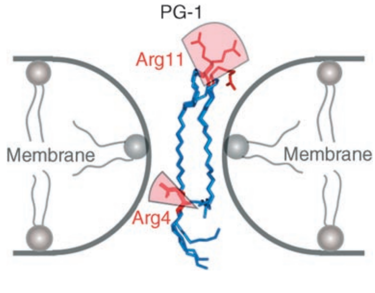
Tuning ligands for top performance: Complexes of diphenylamine-tethered bis(oxazoline) and bis(thiazoline) ligands with Zn(OTf)$_2$ were used successfully as catalysts in the asymmetric Friedel–Crafts alkylation of electron-rich N-heterocycles with nitroalkenes. Through tuning the substituents on the ligands, good to excellent enantioselectivities were achieved (up to 97 % *ee*). The origin of the enantioselectivity was investigated, and the control of enantioselectivity was achieved by fine-tuning of the ligands.

Protein Structure

*M. Tang, A. J. Waring, M. Hong**

Arginine Dynamics in a Membrane-Bound Cationic Beta-Hairpin Peptide from Solid-State NMR

ChemBioChem
DOI: **10.1002/cbic.200800005**



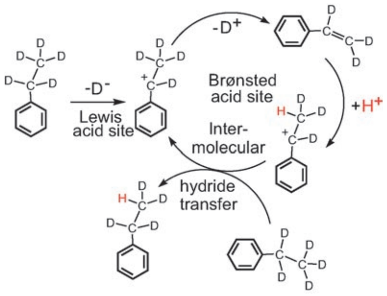
Dynamics and structure. The motion of the Arg residues in the antimicrobial peptide PG-1 was studied by using magic-angle spinning NMR spectroscopy. The dipolar couplings and chemical shift anisotropies of two Arg residues are averaged by motion to different extents. The β-turn Arg11 has larger motional amplitudes than the β-strand Arg4; this is consistent with the oligomeric structure and lipid interaction of this peptide in the membrane.

Zeolites

*J. Huang, Y. Jiang, V. R. R. Marthala, Y. S. Ooi, M. Hunger**

Regioselective H/D Exchange at the Side-Chain of Ethylbenzene on Dealuminated Zeolite H-Y Studied by In Situ MAS NMR–UV/Vis Spectroscopy

ChemPhysChem
DOI: **10.1002/cphc.200800065**



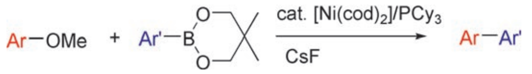
Regioselective H/D exchange at the side-chain methyl group of ethylbenzene on dealuminated zeolite H-Y and formation of carbenium ions are observed for the first time by the novel in situ pulsed-flow ^{1}H MAS NMR-UV/Vis technique. Hydride abstraction on Lewis acid sites lead to the formation carbenium ions which are protonated following Markovnikov's rule (see scheme).

Cross-Coupling Reactions

M. Tobisu, T. Shimasaki, N. Chatani**

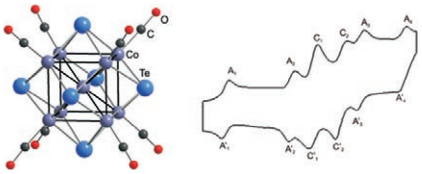
Nickel-Catalyzed Cross-Coupling of Aryl Methyl Ethers with Aryl Boronic Esters

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200801447**



To C−OMe and go: The title reaction, involving cleavage of a C−OMe bond, is demonstrated for the coupling of aryl methyl ethers on fused aromatic systems, such as naphthalene and phenanthrene, as well as anisoles containing electron-withdrawing groups with a wide range of boronic esters.

Cobalt Cluster Chemistry



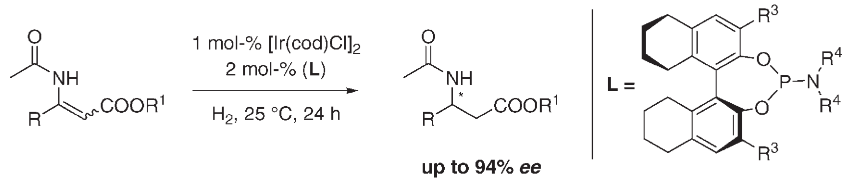
A series of cobalt-centered hexacapped clusters containg the $Co_9(\mu_4\text{-}Te)_6L_8$ core is described in which the metal electron count (MVE) ranges from 120 to 126 MVE. Structural, electrochemical (including the $[Cp^*{}_2Nb(CO)_2]^+$ cation) and theoretical investigations prove the remarkable electron-sponge behavior of this class of compounds.

M. Bencharif, O. Cador, H. Cattey,
A. Ebner, J.-F. Halet, S. Kahlal, W. Meier,
Y. Mugnier, J.-Y. Saillard, P. Schwarz,
F. Z. Trodi, J. Wachter, M. Zabel*

Electron-Sponge Behavior, Reactivity and Electronic Structures of Cobalt-Centered Cubic $Co_9Te_6(CO)_8$ Clusters

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200701350**

Iridium-Catalyzed Hydrogenation



The iridium-catalyzed asymmetric hydrogenation of various β-dehydroamino acids is presented. For transferring chirality easily accessible monodentate octahydrobinaphthol-based phosphoramidite ligands have been used. Good to excellent enantioselectivities and yields were obtained for the first time in the presence of monodentate ligands.

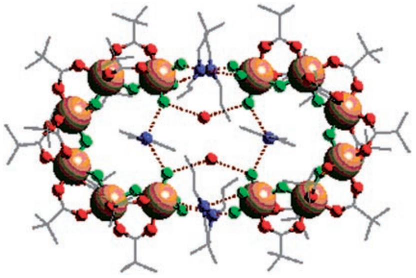
S. Enthaler, G. Erre, K. Junge, K. Schröder,
D. Addis, D. Michalik, M. Hapke,
*D. Redkin, M. Beller**

Iridium-Catalyzed Hydrogenation of β-Dehydroamino Acid Derivatives Using Monodentate Phosphoramidites

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200800241**

Chain Compounds

Magnetic horseshoes! The size and degree of aggregation of $\{Cr_n\}$ horseshoes can be controlled by choice of secondary amines used to template the formation of the suprastructures (an example is shown here). Magnetic, inelastic neutron scattering and electron paramagnetic resonance spectroscopic studies have been used to examine how well these finite chains can be described by spin-wave theory.

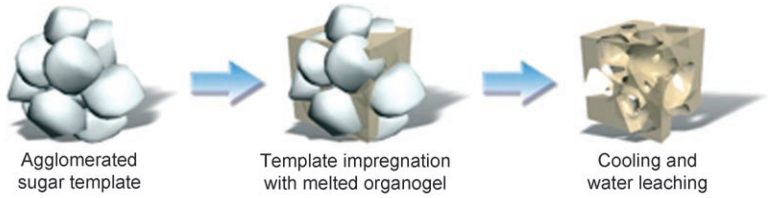


S. T. Ochsenbein, F. Tuna, M. Rancan,
R. S. G. Davies, C. A. Muryn,
O. Waldmann, R. Bircher, A. Sieber,
G. Carver, H. Mutka,
F. Fernandez-Alonso, A. Podlesnyak,
L. P. Engelhardt, G. A. Timco,
H. U. Güdel, R. E. P. Winpenny**

Studies of Finite Molecular Chains: Synthesis, Structural, Magnetic and Inelastic Neutron Scattering Studies of Hexa- and Heptanuclear Chromium Horseshoes

Chem. Eur. J.
DOI: **10.1002/chem.200800227**

Sustainable Materials



Sweet or savory? Controlled porosity has been introduced in a gelled soybean oil by employing a particulate leaching method with sugar and salt templates. The materials resulting from unmodified natural soybean oil show high porosity and important water-draining properties. These new biodegradable soft materials may be suitable for high-technology applications such as tissue engineering or pollutant scavenging.

L. Lukyanova, R. Castangia,
*S. Franceschi-Messant, E. Perez,**
I. Rico-Lattes

Soft Microporous Green Materials from Natural Soybean Oil

ChemSusChem
DOI: **10.1002/cssc.200800036**