

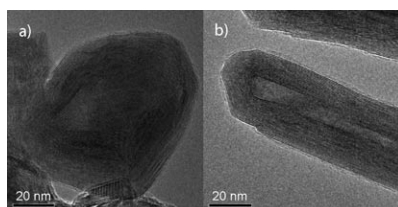
Inorganic Fullerenes

F. L. Deepak, R. Popovitz-Biro,
Y. Feldman, H. Cohen, A. Enyashin,
G. Seifert, R. Tenne*

Fullerene-like Mo(W)_{1-x}Re_xS₂
Nanoparticles

Chem. Asian J.

DOI: 10.1002/asia.200800083



Less is more: Inorganic fullerene-like (IF) Mo(W)_{1-x}Re_xS₂ nanoparticles, which contain up to 5 % Re doping in the MoS₂ host lattice, can be prepared by a gas-phase reaction with the respective metal halides and H₂S. Interestingly, Re-doped MoS₂ nanotubes are also produced.

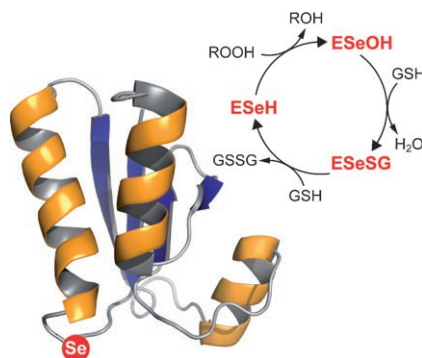
Selenoenzymes

G. Casi, G. Roelfes, D. Hilvert*

Selenoglutaredoxin as a Glutathione
Peroxidase Mimic

ChemBioChem

DOI: 10.1002/cbic.200700745



Total synthesis and characterization of selenoglutaredoxin: A glutaredoxin variant that contains an active-site selenocysteine was prepared by native chemical ligation. The artificial selenoenzyme is a surprisingly poor peroxidase, but it efficiently catalyzes the reduction of mixed glutathionyl disulfides.

Anionic Electrolytes

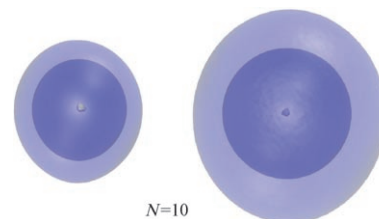
E. Coccia, F. Marinetti, E. Bodo,
F. A. Gianturco*

Chemical Solutions in a Quantum
Solvent: Anionic Electrolytes in ⁴He
Nanodroplets

ChemPhysChem

DOI: 10.1002/cphc.200800132

Bubble, bubble...: Variational and diffusion Monte Carlo calculations are presented for anionic electrolytes of the form X⁻(He)_N solvated in ⁴He. The solvent adatoms surrounding the anions have liquid-like quantum features. The halogen anions remain solvated within bubbles empty of solvent of species-dependent size. See figure for 3D representations of the He density around F⁻ (left) and I⁻ (right).



Rational Design

F.-Q. Ji, C.-W. Niu, C.-N. Chen,
Q. Chen, G.-F. Yang,* Z. Xi,*
C.-G. Zhan*

Computational Design and Discovery of
Conformationally Flexible Inhibitors of
Acetohydroxyacid Synthase to Overcome
Drug Resistance Associated with the
W586L Mutation

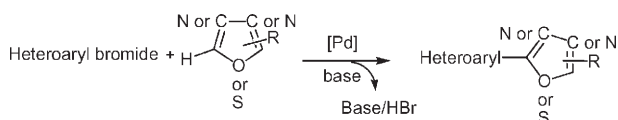
ChemMedChem

DOI: 10.1002/cmdc.200800103



Rational design: A series of 2-aroxy-1,2,4-triazolo[1,5-c]pyrimidine derivatives were computationally designed (see scheme) and synthesized as conforma-

tionally flexible AHAS inhibitors. These compounds could find use as new leads for combating drug resistance.



Bi- or polydentate ligands based on heterocycles can be easily prepared via palladium-catalysed C–H bond activation of heteroaromatics followed by heteroaryl

ation using heteroaryl bromides. A variety of heteroaromatics such as furans, thiophenes, thiazoles or oxazole derivatives have been employed.

Homogeneous Catalysis

F. Derridj, A. L. Gottumukkala, S. Djebbar, H. Doucet*

Palladium-Catalysed Direct C–H Activation/Arylation of Heteroaromatics: An Environmentally Attractive Access to Bi- or Polydentate Ligands

Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.200800143



A novel by-product-catalyzed three-component synthesis of amine derivatives from readily available benzylic and allylic alcohols, acyl chlorides (chloroformates or sulfonyl chlorides), and hexamethyldi-

silazane (HMDS) has been developed. By-product TMSCl and its decomposition into HCl are responsible for promoting the three-component reaction.

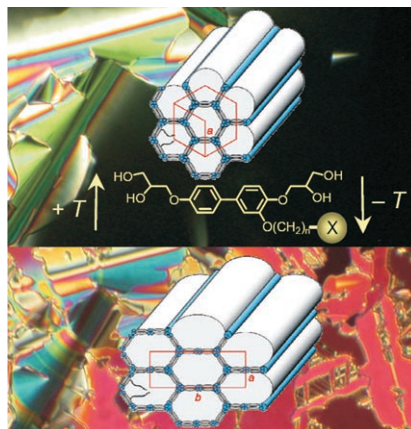
Multicomponent Reactions

H.-H. Li, D.-J. Dong, S.-K. Tian*

Three-Component Synthesis of Amine Derivatives Using Benzylic and Allylic Alcohols as *N*-Alkylating Agents in the Absence of External Catalysts and Additives

Eur. J. Org. Chem.
DOI: 10.1002/ejoc.200800465

Ordered fluids: Complex fluid superstructures were obtained through self-assembly of polyphilic molecules. A variety of different polygonal cylinder structures was observed, which were replaced by lamellar phases and a noncylinder hexagonal columnar phase as either molecular structure or temperature was changed (see graphic).



Liquid Crystals

M. Prehm, C. Enders, M. Y. Anzahaee, B. Glettner, U. Baumeister, C. Tschierske*

Distinct Columnar and Lamellar Liquid Crystalline Phases Formed by New Bolaamphiphiles with Linear and Branched Lateral Hydrocarbon Chains

Chem. Eur. J.
DOI: 10.1002/chem.200800141



Breaking down is usually hard to do...

The direct conversion of lignin into alkanes and methanol was carried out in a two-step process (hydrogenolysis and hydrogenation) involving initial treatment of white birch wood sawdust with H₂ in dioxane/water/phosphoric acid using Rh/C as the catalyst. The resulting monomers and dimers obtained by selective C–O hydrogenolysis were then hydrogenated in near-critical water employing Pd/C as the catalyst.

Lignin Degradation

N. Yan, C. Zhao, P. J. Dyson, C. Wang, L.-t. Liu, Y. Kou*

Selective Degradation of Wood Lignin over Noble-Metal Catalysts in a Two-Step Process

ChemSusChem
DOI: 10.1002/cssc.200800080