

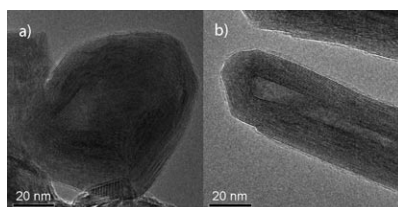
## Inorganic Fullerenes

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

Fullerene-like Mo(W)<sub>1-x</sub>Re<sub>x</sub>S<sub>2</sub>  
Nanoparticles

*Chem. Asian J.*

DOI: 10.1002/asia.200800083



**Less is more:** Inorganic fullerene-like (IF) Mo(W)<sub>1-x</sub>Re<sub>x</sub>S<sub>2</sub> nanoparticles, which contain up to 5 % Re doping in the MoS<sub>2</sub> host lattice, can be prepared by a gas-phase reaction with the respective metal halides and H<sub>2</sub>S. Interestingly, Re-doped MoS<sub>2</sub> nanotubes are also produced.

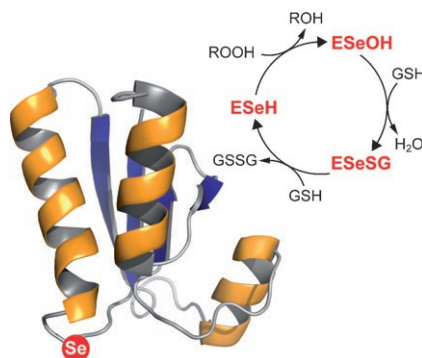
## Selenoenzymes

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

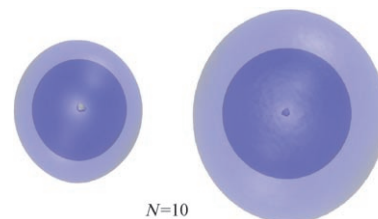
E. Coccia, F. Marinetti, E. Bodo,  
F. A. Gianturco\*

Chemical Solutions in a Quantum  
Solvent: Anionic Electrolytes in <sup>4</sup>He  
Nanodroplets

*ChemPhysChem*

DOI: 10.1002/cphc.200800132

**Bubble, bubble...:** Variational and diffusion Monte Carlo calculations are presented for anionic electrolytes of the form X<sup>-</sup>(He)<sub>N</sub> solvated in <sup>4</sup>He. 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<sup>-</sup> (left) and I<sup>-</sup> (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

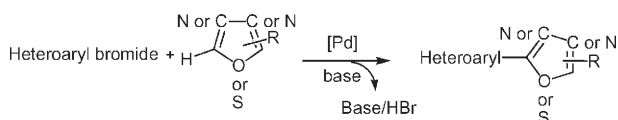
*ChemMedChem*

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

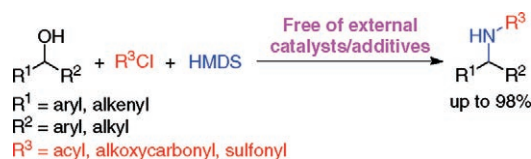
ation using heteroaryl bromides. A variety of heteroaromatics such as furans, thiophenes, thiazoles or oxazole derivatives have been employed.

### 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.

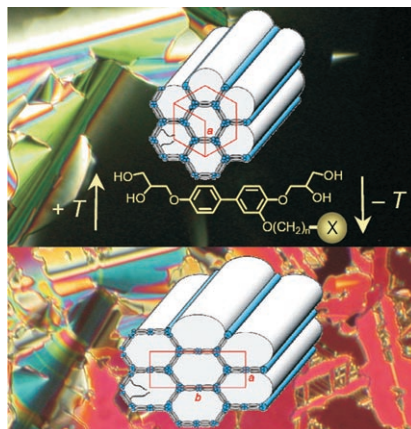
### Multicomponent Reactions

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 H<sub>2</sub> 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