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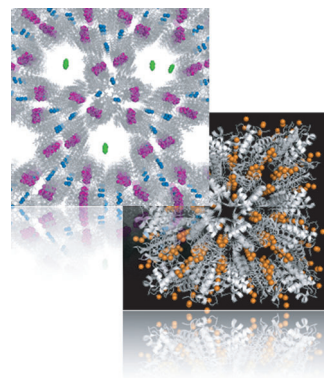


Porous Protein Crystals

T. Ueno*

Porous Protein Crystals as Reaction Vessels

Porous protein crystals have the potential to be new porous materials due to their ability to provide unique chemical environments with amino acid residues periodically exposed on the surface of the solvent channels in the crystal lattice (see figure). This feature enables accumulation of exogenous compounds in specific arrangements facilitated by metal coordination interactions and/or chemical modifications.



Chem. Eur. J.
DOI: 10.1002/chem.201300250

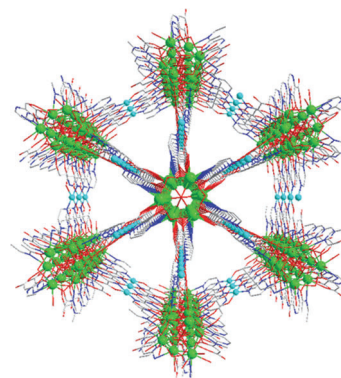


Metal–Organic Frameworks

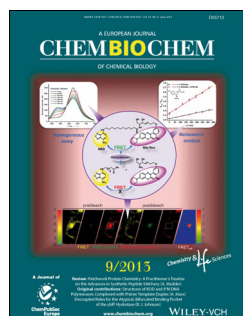
Y. Bing, N. Xu, W. Shi,* K. Liu, P. Cheng*

Two Lanthanide(III)–Copper(II) Organic Frameworks Based on $\{OLn_6\}$ Clusters that Exhibited a Large Magnetocaloric Effect and Slow Relaxation of the Magnetization

Penny Ln: Two lanthanide(III)–copper(II) organic frameworks based on $\{OLn_6\}$ clusters were synthesized. Isotropic **Gd–Cu** showed a large magnetocaloric effect while anisotropic **Dy–Cu** exhibited slow relaxation of the magnetization at low temperatures.



Chem. Asian J.
DOI: 10.1002/asia.201300250

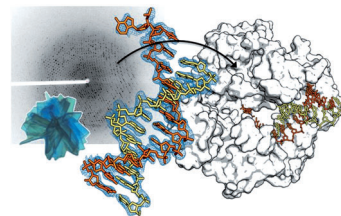


DNA Replication

K. Bergen, K. Betz, W. Welte, K. Diederichs, A. Marx*

Structures of KOD and 9°N DNA Polymerases Complexed with Primer Template Duplex

Replicate it: Structures of KOD and 9°N DNA polymerases, two enzymes that are widely used to replicate DNA with highly modified nucleotides, were solved at high resolution in complex with primer/template duplex. The data elucidate substrate interaction of the two enzymes and pave the way for further optimisation of the enzymes and substrates.



ChemBioChem
DOI: 10.1002/cbic.201300175



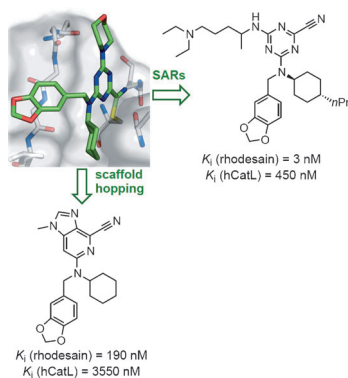
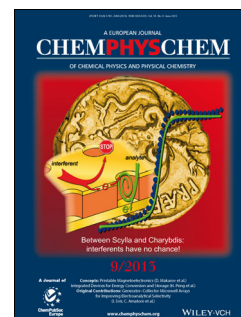
ChemPhysChem
DOI: 10.1002/cphc.201300172

Sensors

R. Gifford*

Continuous Glucose Monitoring: 40 Years, What We've Learned and What's Next

How sweet it is: Continuous glucose monitoring (CGM) is demonstrating the benefit it provides for millions with diabetes, and the information obtained from these systems reveals the impact of glucose variation on patient health. The various methods available for CGM are discussed, as is their impact on the quality of life of patients using these devices. Future possibilities and developments in this area are also surveyed.



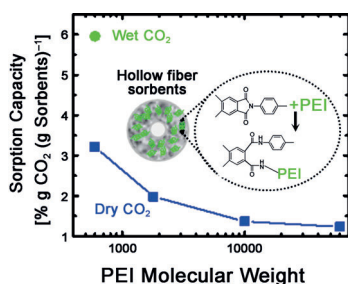
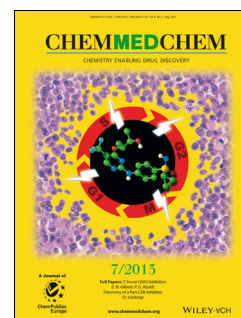
ChemMedChem
DOI: 10.1002/cmdc.201300112

Antiprotozoal Agents

V. Ehmke, E. Winkler, D. W. Banner,* W. Haap, W. B. Schweizer, M. Rottmann, M. Kaiser, C. Freymond, T. Schirmeister,* F. Diederich*

Optimization of Triazine Nitriles as Rhodesain Inhibitors: Structure–Activity Relationships, Bioisosteric Imidazopyridine Nitriles, and X-ray Crystal Structure Analysis with Human Cathepsin L

Out of the HAT: SAR studies on rhodesain inhibitors deciphered the binding preferences, giving K_i values in the single-digit nanomolar range. A bioisosteric imidazopyridine scaffold led to lower electrophilicity of the nitrile headgroup, resulting in reduced off-target effects. X-ray crystal structures of hCatL in complex with a triazine nitrile inhibitor and in the apo form shed light on the binding mode and hydration state of the active site.



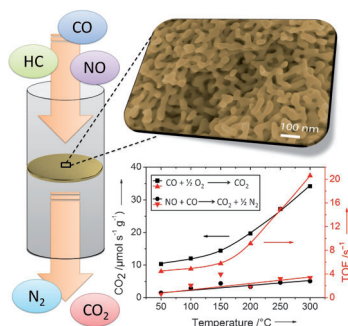
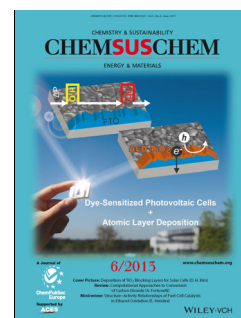
ChemSusChem
DOI: 10.1002/cssc.201300172

Carbon Dioxide Capture

F. S. Li, W. Qiu, R. P. Lively, J. S. Lee, A. A. Rowanghi, W. J. Koros*

Polyethyleneimine-Functionalized Polyamide Imide (Torlon) Hollow-Fiber Sorbents for Post-Combustion CO₂ Capture

Sucked in! Polyethyleneimine (PEI)-functionalized polymeric hollow-fiber sorbents for post-combustion carbon dioxide capture are described. Different molecular weight PEIs are studied as functional groups on polyamide imide (PAI) hollow fibers. For equivalent PEI concentrations, PAI functionalized with lower molecular weight PEI exhibit higher CO₂ capacities (see picture).



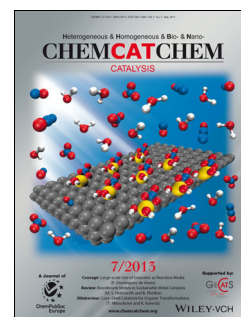
ChemCatChem
DOI: 10.1002/cctc.201200759

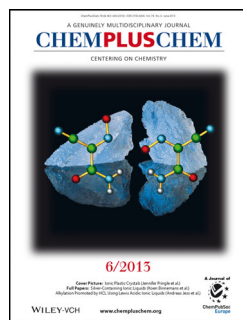
Gold Catalysis

A. Wichmann, A. Wittstock,* K. Frank, M. M. Biener, B. Neumann, L. Mädler, J. Biener, A. Rosenauer, M. Bäumer*

Maximizing Activity and Stability by Turning Gold Catalysis Upside Down: Oxide Particles on Nanoporous Gold

Gold goes upside down: A highly active and stable gold catalyst is generated by the deposition of metal oxide particles on a monolithic, high-surface area gold support. The catalyst combines exceptional activity for CO oxidation and NO reduction at low temperatures and unprecedented stability at several hundred degrees Celsius. This novel catalyst design opens up applications such as in exhaust gas control.



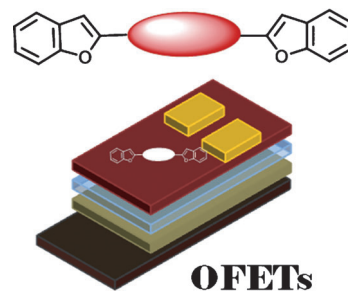


Molecular Electronics

C. Mallet, Y. Didane, T. Watanabe, N. Yoshimoto, M. Allain, C. Vidolot-Ackermann,* P. Frère*

Electronic Properties and Field-Effect Transistors of Oligomers End-Capped with Benzofuran Moieties

If the cap fits: A series of three oligomers bearing furan, thiophene, or bithiophene units end-capped by benzofuran moieties have been synthesized and studied with respect to their structural, optical, electrochemical, and electrical properties (see figure). Thin films are used as p-type semiconducting layers in organic field-effect transistors (OFETs).



ChemPlusChem
DOI: 10.1002/cplu.201300037

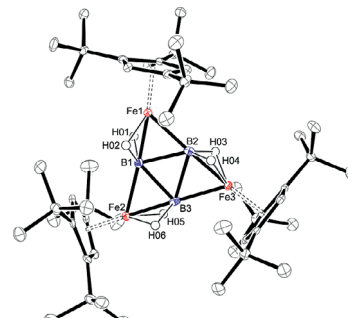


Half-Sandwich Complexes

M. Maekawa, C. G. Daniliuc, P. G. Jones, J. Hohenberger, J. Sutter, K. Meyer, M. D. Walter*

Synthesis of $[\text{Cp}'\text{Fe}(\eta^3\text{-BH}_4)]$ and Its Conversion to $[\text{Cp}'\text{FeBH}_2]_3$

Diamagnetic $[\text{Cp}'\text{Fe}(\eta^3\text{-BH}_4)]$ can be converted cleanly to the trimeric $[\text{Cp}'\text{FeBH}_2]_3$ and H_2 at ambient temperature. DFT computations were used to rationalize the bonding in these molecules.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201300168

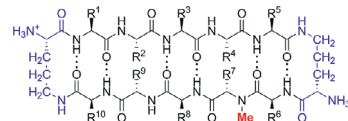


Macrocyclic β -Sheets

R. Spencer, K. H. Chen, G. Manuel, J. S. Nowick*

Recipe for β -Sheets: Foldamers Containing Amyloidogenic Peptide Sequences

Recipe for β -Sheets: Combine one *N*-methyl-amino acid, two δ -linked ornithine turn units, and nine α -amino acids by solid-phase peptide synthesis. Cyclize in solution, deprotect, and purify by RP-HPLC. Confirm folding by ^1H NMR ROESY and magnetic anisotropy studies. Serve to laboratories interested in studying and inhibiting amyloid aggregation or studying β -sheet assembly.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201300221

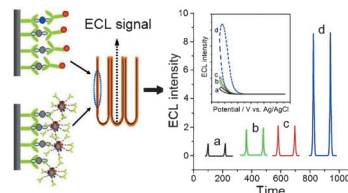


Antigen Detection

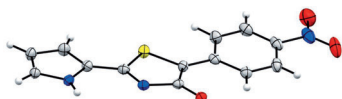
Z.-D. Gao, Q.-L. Zhuang, Y.-Y. Song,* K. Lee, P. Schmuki*

Signal Amplification Strategy Based on TiO_2 -Nanotube Layers and Nanobeads Carrying Quantum Dots for Electrochemiluminescent Immunosensors

Glowing sandwich! Self-organized TiO_2 -nanotube layers can be used for immunoassay-type sensing. TiO_2 nanoparticles coated with CdTe quantum dots are used as signal amplification elements. We show that this, in combination with the advantages of a TiO_2 -nanotube electrode, leads to an outstanding detection limit in electrochemiluminescent techniques.



ChemistryOpen
DOI: 10.1002/open.201300003



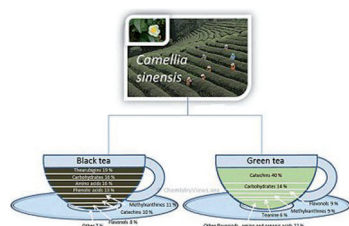
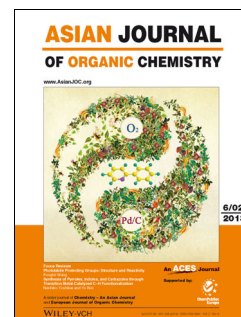
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201300085

Solvatochromism

A. Schade, R. Menzel, H. Görls, S. Spange,* R. Beekert*

Negative Solvatochromism of an Anionic Thiazole-Based Dye

Keep it small, flat, and easy: The synthesis of an unconventional strong solvatochromic dye is presented. The solvatochromic and NMR behavior of the anionic chromophore was characterized and the compound might be used as a sensor. The thiazol-4-olate donor group is derived from the oxyluciferin of fireflies and strongly influences the electronic properties of the dye.



ChemViews magazine
DOI: 10.1002/chemv.201300048

Food Chemistry

ChemViews

Just Your Cup of Tea

Tea is the most widely consumed beverage in the world. As the Clever Picture shows, polyphenols including catechins and their polymeric counterparts, theaflavins and thearubigins, are responsible for the flavor of tea. The ratios of polyphenols differ in black and green teas despite the teas coming from the same plant.

