

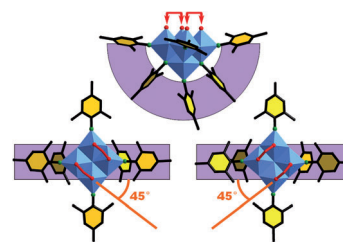


Polyoxometalates

J. Hao, J. Zhang, P. Yin, Z. Xiao, F. Xiao, Y. Wei*

Unprecedented Organoimido-Derivatised Lacunary Polyoxometalates

An organoimido-substituted monovacant hexamolybdate containing additional multidentate ligands and its phenylphosphonate derivative were both synthesized directly from an aromatic amine by using an *N,N*-dicyclohexylcarbodiimide (DCC) protocol. The inherent chirality of these compounds and their hydrophobic shells are pictured.



Chem. Eur. J.
DOI: 10.1002/chem.201103830

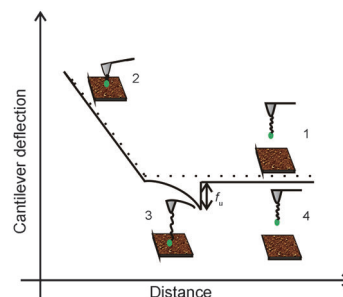


Molecular Recognition

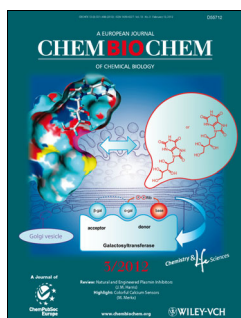
H. Qiao, D. Krajcikova, C. Liu, Y. Li, H. Wang,* I. Barak, J. Tang*

The Interactions of Spore-Coat Morphogenetic Proteins Studied by Single-Molecule Recognition Force Spectroscopy

Spontaneous spores: Spore-coat morphogenetic proteins are chemically bound to an AFM tip and silicon substrate, respectively, through a flexible cross-linker, and by using single-molecule recognition force spectroscopy (SMRFS) the piconewton forces and a series of dynamic kinetic data related to spore-coat morphogenetic proteins are obtained (see picture).



Chem. Asian J.
DOI: 10.1002/asia.201100795

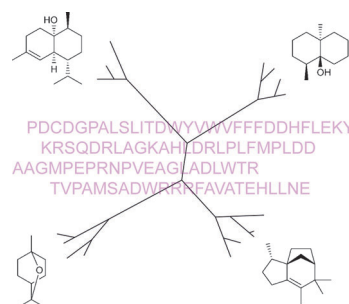


Terpenoids

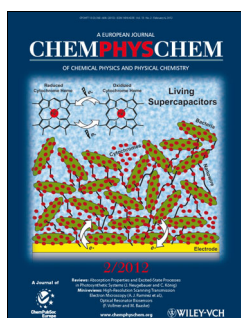
C. A. Citron, J. Gleitzmann, G. Laurenzano, R. Pukall, J. S. Dickschat*

Terpenoids are Widespread in Actinomycetes: A Correlation of Secondary Metabolism and Genome Data

The volatiles from 35 bacteria with sequenced genomes, most of them actinomycetes, have been analysed. In the genomes of 34 species, one or several sesquiterpene cyclase homologues were encoded. The diversity of volatile terpenes emitted by these strains was correlated to the available genetic information, giving interesting new insights into bacterial terpene biosynthesis.



ChemBioChem
DOI: 10.1002/cbic.201100641

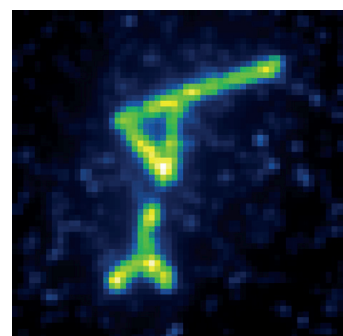


Single Molecules

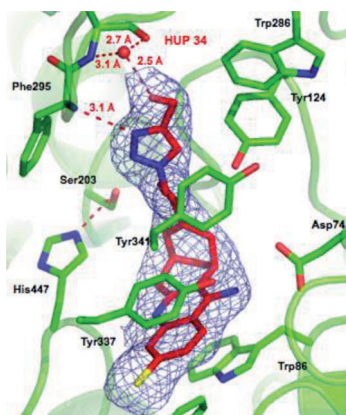
M. Strackharn, S. W. Stahl, P. M. D. Severin, T. Nicolaus, H. E. Gaub*

Peptide–Antibody Complex as Handle for Single-Molecule Cut & Paste

Molecule-by-molecule arrangement of proteins, for example, in enzymatic networks of predefined composition and proximity, is a major goal that may be accomplished by the single-molecule cut-and-paste technique (SMC&P). For this purpose, co-expressed anchors and handles as protein tags should be employed. As a first step in this direction, the authors develop an SMC&P design which exploits an antibody–peptide complex as a molecular handle.



ChemPhysChem
DOI: 10.1002/cphc.201100765



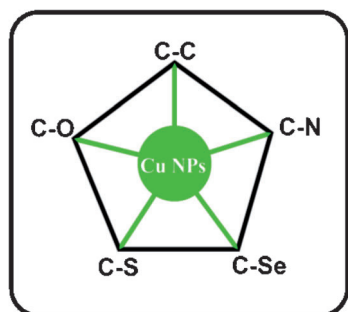
ChemMedChem
DOI: 10.1002/cmdc.201100438

Molecular Modeling

C. Ronco, E. Carletti, J.-P. Colletier, M. Weik, F. Nachon, L. Jean, P.-Y. Renard*

Huprine Derivatives as Sub-Nanomolar Human Acetylcholinesterase Inhibitors: From Rational Design to Validation by X-ray Crystallography

This complete study—from rational design to validation by X-ray crystallography—allowed us to discover two sub-nanomolar hAChE inhibitors (430 and 530 pM) grafted with an easily derivatized linker directed toward the AChE peripheral site. The crystal structure of mouse AChE in complex with compound **4** was solved and confirms the favorable position of the triazole in the active site gorge, paving the way for a new class of bifunctional ligands.



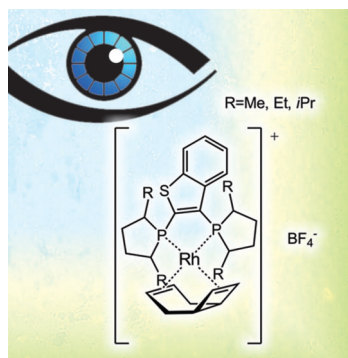
ChemSusChem
DOI: 10.1002/cssc.201100348

Nanocatalysis

B. C. Ranu,* R. Dey, T. Chatterjee, S. Ahammed

Copper Nanoparticle-Catalyzed Carbon–Carbon and Carbon–Heteroatom Bond Formation with a Greener Perspective

An appraisal of copper: This review highlights the general features of nanoparticles as catalyst with particular reference to copper and the recent developments in the copper(0) nanoparticle-catalyzed bond formations and related reactions. The mechanisms of the reactions have been outlined and discussed with respect to the active catalytic species and possible intermediates. The scope, limitations, and green aspects of the reactions are also highlighted.



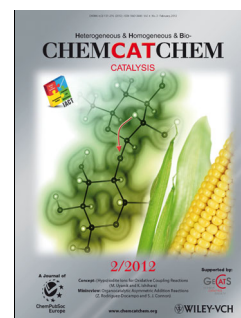
ChemCatChem
DOI: 10.1002/cctc.201100277

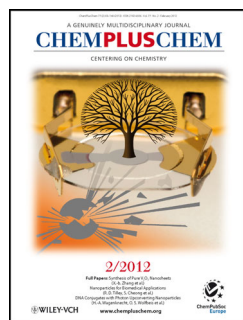
Hydrogenation

C. Fischer, S. Schulz, H.-J. Drexler, C. Selle, M. Lotz, M. Sawall, K. Neymeyr, D. Heller*

The Influence of Substituents in Diphosphine Ligands on the Hydrogenation Activity and Selectivity of the Corresponding Rhodium Complexes as Exemplified by ButiPhane

Buti in the eye of the beholder: The influence of substituents in ButiPhane ligands on the hydrogenation activity and selectivity of the corresponding rhodium complexes has been quantitatively assessed. In the hydrogenation of a series of prochiral olefins, improved selectivities were obtained by increasing the steric bulk of the substituents on the phospholane ring of the chiral ligand.



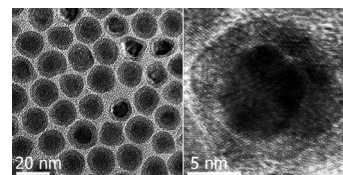


Imaging Agents

S. Cheong,* P. Ferguson, I. F. Hermans, G. N. L. Jameson,
S. Prabakar, D. A. J. Herman, R. D. Tilley*

Synthesis and Stability of Highly Crystalline and Stable Iron/Iron
Oxide Core/Shell Nanoparticles for Biomedical Applications

Strike while the iron is hot: Stable core/shell nanoparticles of single-crystal iron core are shown to produce much greater contrast enhancement in magnetic resonance imaging of cells, compared to that produced by pure iron oxides without increase in cytotoxicity (see TEM image of iron/iron oxide nanoparticles).



ChemPlusChem
DOI: 10.1002/cplu.201100074

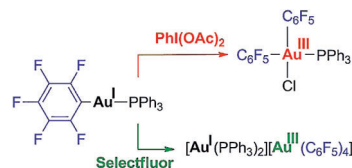


Gold Chemistry

M. Hofer, C. Nevado*

Unexpected Outcomes of the Oxidation of
(Pentafluorophenyl)triphenylphosphanegold(I)

We have studied the oxidation of electron deficient $[\text{Au}(\text{C}_6\text{F}_5)(\text{PPh}_3)]$ in the presence of $\text{PhI}(\text{Cl})_2$, $\text{PhI}(\text{OAc})_2$, and Selectfluor. *cis*- $[\text{Au}(\text{C}_6\text{F}_5)_2\text{Cl}(\text{PPh}_3)]$ was obtained in the reaction with $\text{PhI}(\text{OAc})_2$, which points towards the oxidation of the starting complex to gold(III) followed by gold(I)/gold(III) transmetalation or a ligand exchange pathway.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201100956

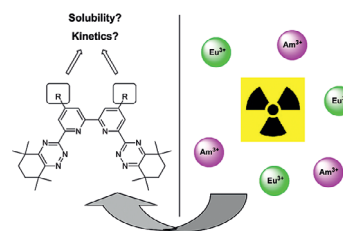


Actinide Partitioning

F. W. Lewis,* L. M. Harwood,* M. J. Hudson, P. Distler, J. John,
K. Stamberg, A. Núñez, H. Galán, A. G. Espartero

Synthesis and Evaluation of Lipophilic BTBP Ligands for An/Ln
Separation in Nuclear Waste Treatment: The Effect of Alkyl
Substitution on Extraction Properties and Implications for Ligand
Design

Four lipophilic alkyl-substituted 6,6'-bis(1,2,4-triazin-3-yl)-2,2'-bipyridine (BTBP) ligands have been synthesized and the effects of the additional alkyl substitution on their extraction properties in nuclear waste treatment have been studied by $\text{Am}^{\text{III}}/\text{Eu}^{\text{III}}$ solvent extraction experiments and lanthanide NMR spectroscopic titrations.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201101576



Communicating Sciences

David Bradley

Renewable Hype

Too many members of the general public do not have a clear understanding of energy issues and are being duped into accepting plausible-sounding but ultimately impractical solutions to mitigating energy and environmental concerns regarding fuel supply and climate change.



ChemViews magazine
DOI: 10.1002/chemv.201200006