



### Metallofullerenes

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Full Exploration of the Diels–Alder Cycloaddition on Metallofullerenes  $M_3N@C_{80}$  ( $M = Sc, Lu, Gd$ ): The  $D_{5h}$  versus  $I_h$  Isomer and the Influence of the Metal Cluster

**On the attack:** An investigation of the exohedral reactivity of the most important and abundant endohedral metallofullerene,  $Sc_3N@I_h-C_{80}$ , its  $D_{5h}$  counterpart  $Sc_3N@D_{5h}-C_{80}$ , and lutetium- and gadolinium-based  $M_3N@I_h/D_{5h}-C_{80}$  ( $M = Sc, Lu, Gd$ ) is provided. The thermodynamics and kinetics of the Diels–Alder cycloaddition of *s-cis*-1,3-butadiene on all the bonds of the  $I_h$ - and  $D_{5h}$ - $C_{80}$  cages (see figure) and their endohedral derivatives are analyzed.



Chem. Eur. J.  
DOI: 10.1002/chem.201200940

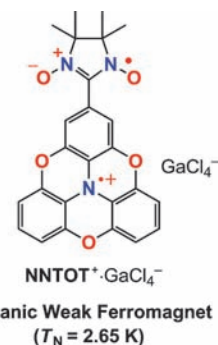


### Radicals

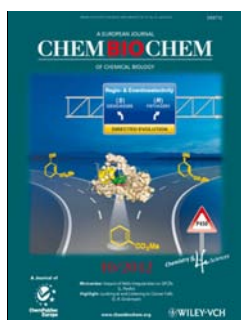
M. Kuratsu, S. Suzuki, M. Kozaki, D. Shiomi, K. Sato, T. Takui, T. Kanzawa, Y. Hosokoshi, X.-Z. Lan, Y. Miyazaki,\* A. Inaba, K. Okada\*

(Nitronyl Nitroxide)-Substituted Trioxyltriphenylamine Radical Cation Tetrachlorogallate Salt: A 2p-Electron-Based Weak Ferromagnet Composed of a Triplet Diradical Cation

**A light magnet:** An organic stable triplet diradical cation with a diamagnetic tetrachlorogallate anion ( $NNTOT^+ \cdot GaCl_4^-$ , see picture) was prepared and its magnetic properties were investigated by the measurements of magnetic susceptibilities and heat capacity. The compound exhibited a magnetic phase transition at  $T_N = 2.65$  K from a short-range-ordered antiferromagnetic chain to a 3D weak ferromagnet.



Chem. Asian J.  
DOI: 10.1002/asia.201200084

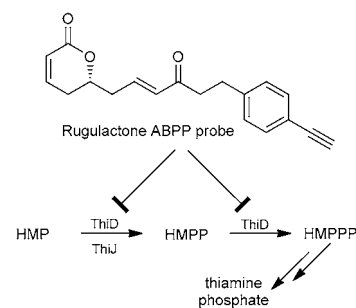


### Proteomics

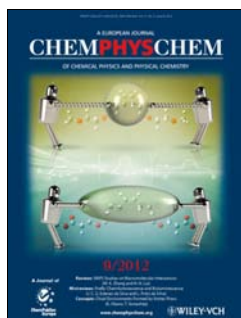
M. B. Nodwell, H. Menz, S. F. Kirsch, S. A. Sieber\*

Rugulactone and its Analogues Exert Antibacterial Effects through Multiple Mechanisms Including Inhibition of Thiamine Biosynthesis

**Target acquisition:** Rugulactone, a plant natural product isolated in 2009, has been reported to display interesting biological properties, but its protein targets in biological systems have not been examined. We have applied activity-based protein profiling to examine the targets of rugulactone in bacteria and have found that inhibition of thiamine biosynthesis contributes to its antibacterial activity.



ChemBioChem  
DOI: 10.1002/cbic.201200265

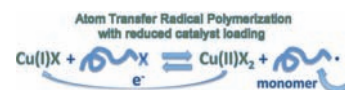


### Polymerization

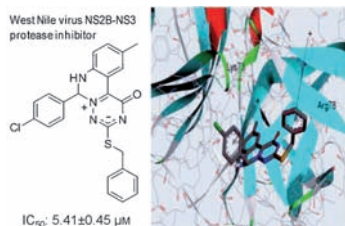
Q. Lou, D. A. Shipp\*

Recent Developments in Atom Transfer Radical Polymerization (ATRP): Methods to Reduce Metal Catalyst Concentrations

**Less is better:** Atom transfer radical polymerization (ATRP) is examined in terms of recent developments in activators regenerated by electron transfer (ARGET) ATRP and electrochemically mediated ATRP (eATRP), techniques that significantly reduce metal catalyst concentrations.



ChemPhysChem  
DOI: 10.1002/cphc.201200166



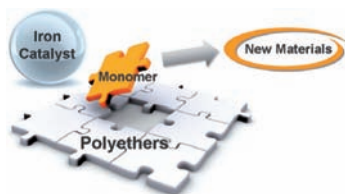
ChemMedChem  
DOI: 10.1002/cmdc.201200136

### Antiviral Agents

S. Samanta, T. Cui, Y. Lam\*

Discovery, Synthesis, and in vitro Evaluation of West Nile Virus Protease Inhibitors Based on the 9,10-Dihydro-3*H*,4*aH*-1,3,9,10a-tetraazaphenanthren-4-one Scaffold

**Running cofactor interference:** In vitro assays with West Nile virus (WNV) NS2B–NS3 protease resulted in the discovery of 9,10-dihydro-3*H*,4*aH*-1,3,9,10a-tetraazaphenanthren-4-ones as a new class of inhibitors of this enzyme. Optimization of the lead compound led to an uncompetitive WNV NS2B–NS3 inhibitor with an IC<sub>50</sub> value of 5.41 ± 0.45 μM.



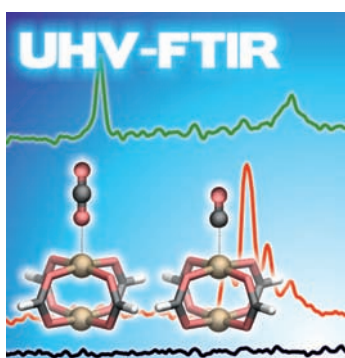
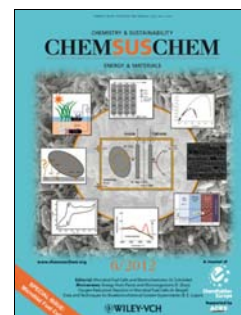
ChemSusChem  
DOI: 10.1002/cssc.201200125

### Iron Catalysis

S. Enthaler,\* M. Weidauer

Low-Temperature Iron-Catalyzed Depolymerization of Polyethers

**Iron will:** The iron-catalyzed depolymerization of a range of polyethers is studied. The products of the depolymerization reactions are chloroesters, which can be used as starting materials for new polymers. In the presence of simple iron salts extraordinary catalyst activities and selectivities are feasible at low temperature.



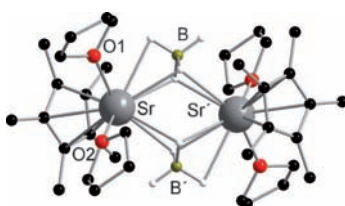
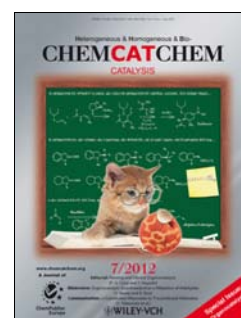
ChemCatChem  
DOI: 10.1002/cctc.201200164

### CO Oxidation

H. Noei, S. Amirjalayer, M. Müller, X. Zhang, R. Schmid, M. Muhler, R. A. Fischer,\* Y. Wang\*

Low-Temperature CO Oxidation over Cu-Based Metal–Organic Frameworks Monitored by using FTIR Spectroscopy

**The CO that loved Cu:** Our high-quality UHV-FTIRS data demonstrate the high reactivity of Cu-MOFs (HKUST-1 and MOF-14) toward CO oxidation at low temperature (105 K). The reaction occurs on both intrinsic Cu<sup>2+</sup> coordinatively unsaturated metal ion sites and minority Cu<sup>δ+</sup> defect sites in the framework.



ChemPlusChem  
DOI: 10.1002/cplu.201200052

### Strontium Complexes

S. Marks, M. Kuzdrowska, P. W. Roesky,\* L. Annunziata, S. M. Guillaume,\* L. Maron\*

Organometallic Strontium Borohydrides: Synthesis, X-ray Structures, Catalytic Polymerization of ε-Caprolactone, and Density Functional Calculations

**The first organometallic** strontium–borohydride complexes [(η<sup>5</sup>-C<sub>5</sub>Me<sub>5</sub>)Sr(BH<sub>4</sub>)(thf)<sub>2</sub>]<sub>2</sub> (see structure), [(Me<sub>3</sub>SiNPPPh<sub>2</sub>)<sub>2</sub>CH]Sr(BH<sub>4</sub>)(thf)<sub>2</sub>, and [Sr(BH<sub>4</sub>)<sub>2</sub>(thf)<sub>2</sub>] have been isolated. Polyesters with the highest molar mass prepared from a molecular alkaline earth metal were obtained from these complexes in the controlled ring-opening polymerization of ε-caprolactone (PCL). α,ω-Dihydroxytelechelic PCLs were obtained, in agreement with density functional calculations.



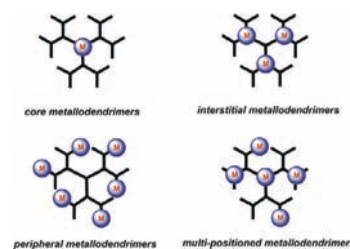


## Metallodendrimers

P. Govender, B. Therrien, G. S. Smith\*

Bio-Metallodendrimers – Emerging Strategies in Metal-Based Drug Design

The use of metallodendrimers is fast becoming an attractive strategy in the design of a new class of metal-based biomolecules. This review surveys illustrative examples of these multivalent biologically active molecules as metal-based drugs and as agents for biosensing, photo-thermal and photodynamic therapy.



*Eur. J. Inorg. Chem.*  
DOI: 10.1002/ejic.201200161

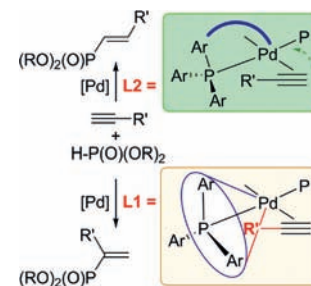


## Ligand Design

V. P. Ananikov,\* J. V. Ivanova, L. L. Khemchyan, I. P. Beletskaya\*

Unusual Control of Reaction Selectivity through a Subtle Change in the Ligand: Proof of Concept and Application in Pd-Catalyzed C–P Bond Formation

The steric effect of phosphane ligands upon coordination to a metal center can be controlled by switching between unrestricted and restricted rotation modes. The efficiency of this concept was demonstrated in a study on the mechanisms of Pd-catalyzed hydrophosphorylation of alkynes, which was explored by using ESI-MS and NMR spectroscopy.



*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.201200342

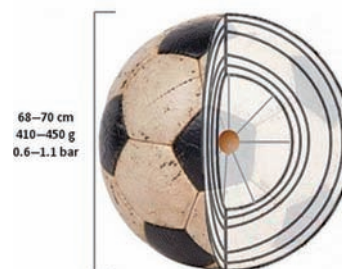


## Sport Science

ChemViews

The Science of Football

Improve your knowledge of the science involved in football in time for the 2012 UEFA European Football Championship. The ChemViews magazine takes a pictorial look at the ways in which science and chemistry contribute to the sport. Including the latest in sportswear and the many layers and materials involved in the construction of a soccer ball.



*ChemViews magazine*  
DOI: 10.1002/chemv.201200063

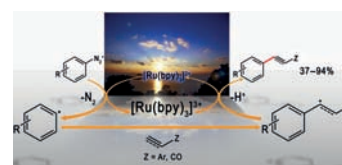


## Photocatalytic Arylation

P. Schroll, D. P. Hari, B. König\*

Photocatalytic Arylation of Alkenes, Alkynes and Enones with Diazonium Salts

**Teaching old dogs new tricks:** Visible light photoredox catalysis improves the classic Meerwein arylation protocol significantly and allows the light-controlled arylation of alkenes, alkynes and enones by diazonium salts.



*ChemistryOpen*  
DOI: 10.1002/open.201200011