

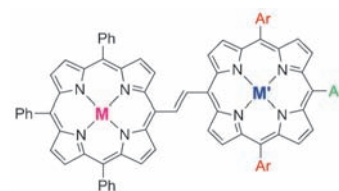


### Porphyrins

O. Locos, B. Bašić, J. C. McMurtrie, P. Jensen, D. P. Arnold\*

Homo- and Heteronuclear *meso,meso*-(*E*)-Ethene-1,2-diyl-Linked Diporphyrins: Preparation, X-Ray Crystal Structure, Electronic Absorption and Emission Spectra and Density Functional Theory Calculations

**Conjugated diporphyrins:** Homo- and heteronuclear *meso,meso*-(*E*)-ethene-1,2-diyl-linked diporphyrins ( $H_2$ , Ni, Zn and heterocombinations) have been prepared by the Suzuki coupling of porphyrinylboronates and iodovinylporphyrins. This route enables the first studies of this class of compounds possessing intrinsic polarity. Spectroscopic studies and theoretical calculations document the interplay of steric and electronic effects of the bridge on interporphyrin communication.



Chem. Eur. J.  
DOI: 10.1002/chem.201102995

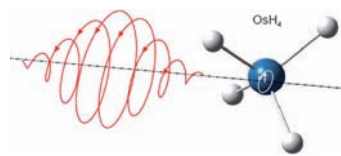


### Femtochemistry

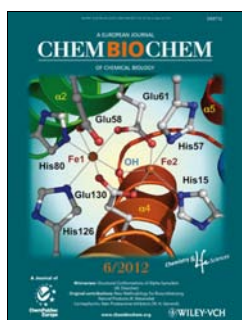
I. Barth,\* C. Bressler, S. Koseki, J. Manz\*

Strong Nuclear Ring Currents and Magnetic Fields in Pseudorotating  $OsH_4$  Molecules Induced by Circularly Polarized Laser Pulses

**Larger than ever before:** A huge nuclear ring current—1.53 e per fs—and as a consequence, a gigantic magnetic field—623 Tesla—may be induced by means of a circularly polarized laser pulse that is designed to drive the pseudorotation of the central nucleus of the tetrahedral  $OsH_4$  molecule.



Chem. Asian J.  
DOI: 10.1002/asia.201100776

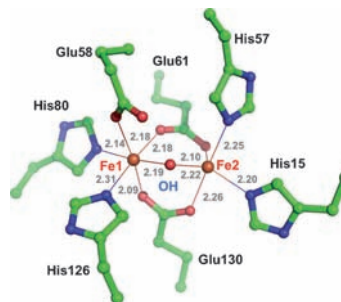


### Iron Homeostasis

C. Shu, M. W. Sung, M. D. Stewart, T. I. Igumenova, X. Tan,\* P. Li\*

The Structural Basis of Iron Sensing by the Human F-box Protein FBXL5

**Iron sensing:** The F-box and leucine-rich repeat containing protein FBXL5 is an iron sensor that regulates the ubiquitination of iron regulatory protein IRP2. Crystal structures of the iron-sensing hemerythrin (Hr)-like domain of human FBXL5 (FBXL5 Hr) were determined in oxidized and reduced states. These structures revealed the mechanisms of iron sensing by FBXL5.



ChemBioChem  
DOI: 10.1002/cbic.201200043

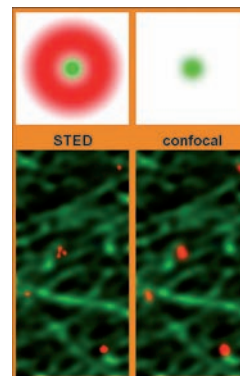


### STED Microscopy

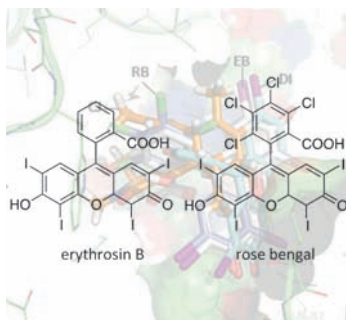
T. Müller, C. Schumann, A. Kraegeloh\*

STED Microscopy and its Applications: New Insights into Cellular Processes on the Nanoscale

**All things bright and beautiful:** Superresolution STED microscopy has become a versatile tool for the study of nanoscale objects (see picture), be it cellular components in life sciences or nanoparticles in the material sciences. This review provides insight into the working principle, the latest advances and developments and the applications of STED microscopy.



ChemPhysChem  
DOI: 10.1002/cphc.201100986

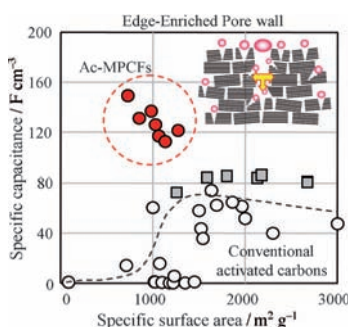


ChemMedChem  
DOI: 10.1002/cmdc.201100594

### Antimicrobial Agents

Y.-J. Huang, H. Wang, F.-B. Gao, M. Li, H. Yang, B. Wang,\* P. C. Tai\*  
Fluorescein Analogues Inhibit SecA ATPase: The First Sub-micromolar Inhibitor of Bacterial Protein Translocation

**Battling bugs!** As an essential component for bacterial growth, SecA is an ideal target for antimicrobial agents. Two fluorescein analogues rose bengal (RB) and erythrosin B (EB) were found to be potent inhibitors of SecA ATPase with  $IC_{50}$  values of 0.5 and 0.2  $\mu\text{M}$ , respectively. RB and EB also exhibit inhibitory effects on cell growth and in vitro protein translocation.



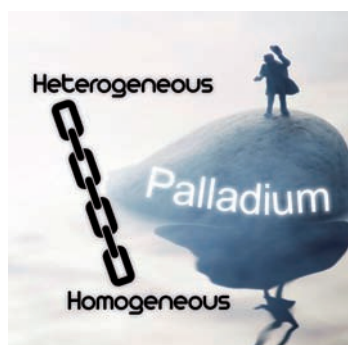
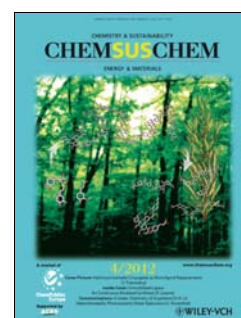
ChemSusChem  
DOI: 10.1002/cssc.201100511

### Supercapacitors

Y. J. Kim, C.-M. Yang, K. C. Park, K. Kaneko, Y. A. Kim,\* M. Noguchi, T. Fujino, S. Oyama, M. Endo

Edge-Enriched, Porous Carbon-Based, High Energy Density Supercapacitors for Hybrid Electric Vehicles

**Energy on edge:** The new concept "molten potassium hydroxide-induced drilling effect" is introduced to achieve a high volumetric capacitance. The porous carbons produced by using this concept are edge-enriched. Edge sites contribute considerably to the capacitance and allow entrance to intraparticle pores. Therefore, these carbons are highly suitable electrode materials for high energy density supercapacitors for use in hybrid electric vehicles.



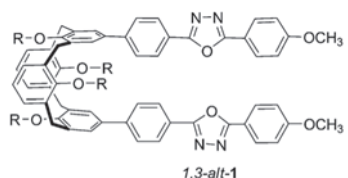
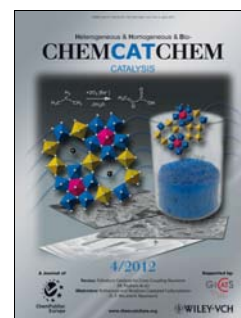
ChemCatChem  
DOI: 10.1002/cctc.201100422

### Cross-Coupling Reactions

M. Pagliaro,\* V. Pandarus, R. Ciriminna, F. Béland, P. Demma Carà

Heterogeneous versus Homogeneous Palladium Catalysts for Cross-Coupling Reactions

**Solid as a palladium rock:** Numerous immobilized-Pd-catalysts for crosscoupling reactions have been introduced in the last decade. Are the observed catalyzed reactions truly heterogeneous or are they homogeneous due to leached palladium? This account critically addresses the leaching issue by referring to some of the newly developed catalytic systems, aiming to evaluate them based on uniform criteria.



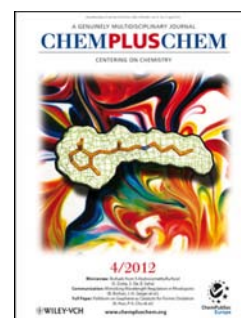
ChemPlusChem  
DOI: 10.1002/cplu.201200004

### Fluorescent Chemosensors

J. Han,\* F.-L. Wang, Y.-X. Liu, F.-Y. Zhang, J.-B. Meng, Z.-J. He

Calix[4]arene-Based 1,3,4-Oxadiazoles: Novel Fluorescent Chemosensors for Specific Recognition of  $\text{Cu}^{2+}$

**Responds only to  $\text{Cu}^{2+}$ !** Novel fluorescent chemosensors **1,3-alt-1** and **cone-1** have been synthesized. They consist of two 1,3,4-oxadiazole units on the upper rim of the calix[4]arene. Both sensors show specific recognition of  $\text{Cu}^{2+}$ , where the **1,3-alt-1** conformer displayed a better sensitivity for  $\text{Cu}^{2+}$  than **cone-1**.



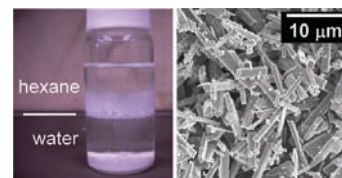


### Biphasic Sol–Gel Synthesis

M. Tanaka, S. Fujihara\*

Room-Temperature Sol–Gel Synthesis of Sodium Hexaniobate in an Immiscible Hexane–Water System and Its Conversion into  $\text{NaNbO}_3$

Rod-like sodium hexaniobate particles were synthesized by a one-pot sol–gel method at room temperature by using an immiscible hexane–water system. They could be converted into  $\text{NaNbO}_3$  by a heat treatment and a water dispersion treatment.



*Eur. J. Inorg. Chem.*  
DOI: 10.1002/ejic.201101329

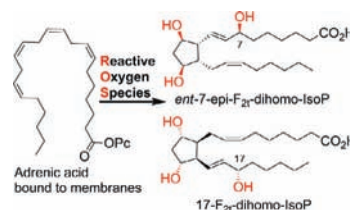


### Isoprostanes

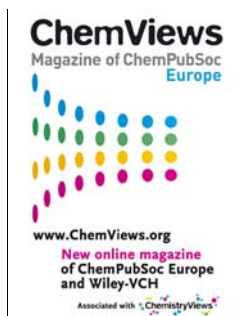
C. Oger, V. Bultel-Poncé, A. Guy, T. Durand, J.-M. Galano\*

Total Synthesis of Isoprostanes Derived from Adrenic Acid and EPA

Reactive oxygen species initiate the *in vivo* autoxidative conversion of phospholipid-bound polyunsaturated fatty-acids. Adrenic acid, the main constituent of myelin, the “white matter” of the brain, is known to be converted into  $\text{F}_2$ -dihomo-isoprostanes. We hereby present the total synthesis of the two main isomers present *in vivo* as well as one isomer derived from eicosapentaenoic acid.



*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.201200070



### Breakfast Chemistry

Klaus Roth

Boiled Eggs: Soft and Hard

Boiling the perfect breakfast egg is far from child's play. So many complex chemical processes must take place that the outcome cannot always be precisely predicted. The oological-chemical fundamentals of cooking eggs are examined to avoid – insofar as possible and with the aid of solid scientific information – both disappointment and family crises around the breakfast table.



*ChemViews magazine*  
DOI: 10.1002/chemv.201200018