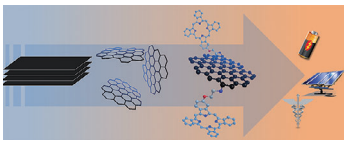
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Exfoliated Graphene

S. P. Economopoulos,* N. Tagmatarchis*

Chemical Functionalization of Exfoliated Graphene

The key for graphene's widespread adoption is its facile and cost-effective mass production. For material scientists, it is also important to chemically modify it, thus enriching its properties. A summary of the most widely-used exfoliation and covalent functionalization methods on the road from graphite flakes to graphene hybrid materials is presented (see figure).



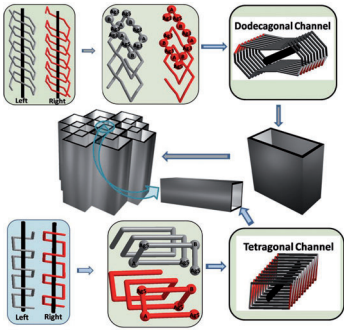
Chem. Eur. J.
DOI: **10.1002/chem.201302358**

Polyoxometalates

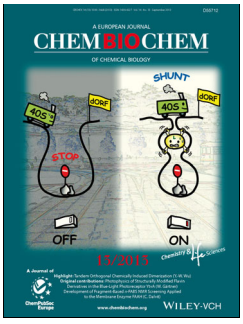
J. Sha, M. Li, J. Sun, P. Yan,* G. Li, L. Zhang

Two Unusual 3D POM-Ag Frameworks with Tetragonal and Dodecagonal Helical Channels

Silver surfer: Two new hybrid compounds with tetragonal and dodecagonal helical channels in the polyoxometalate (POM)-Ag frameworks are reported, representing the first example of helical channels constructed by POMs and metal ions.



Chem. Asian J.
DOI: **10.1002/asia.201300548**

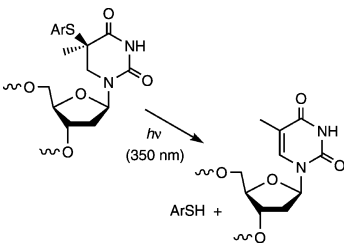


Modified Oligonucleotides

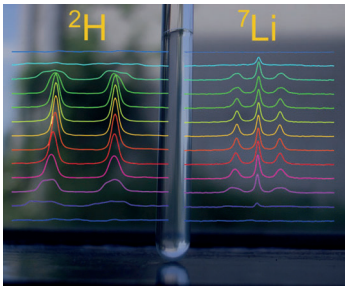
J. M. N. San Pedro, M. M. Greenberg*

Photochemical Control of DNA Structure through Radical Disproportionation

Photochemical masking of thymidine: A dihydropyrimidine that disrupts DNA structure was converted to thymidine upon photolysis through a radical pair mechanism. This rapid chemical transformation provides a useful tool for photochemically controlled DNA structure and function.



ChemBioChem
DOI: **10.1002/cbic.201300369**



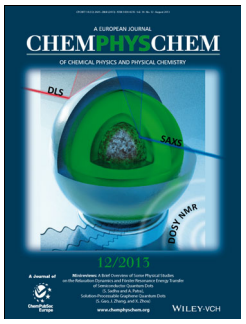
NMR Spectroscopy

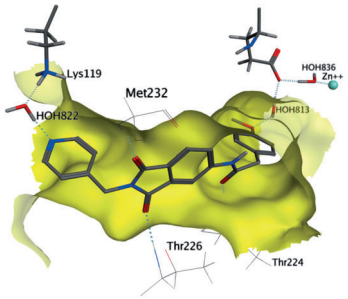
A.-C. Pöppler, S. Frischkorn, D. Stalke, M. John*

Toluene and Lithium Amide Diffusion into Polystyrene: A Slice-Selective NMR-Spectroscopic Study

A piece of cake: Slice-selective excitation (SSE) of nuclear spins provides spatially resolved NMR spectra that can be used to follow the unidirectional swelling of cross-linked polystyrene. In addition to concentration profiles for the solvent and solute, the method yields ^{2}H and ^{7}Li quadrupolar splitting profiles that can be used to assess and improve the sample homogeneity for anisotropic NMR measurements.

ChemPhysChem
DOI: **10.1002/cphc.201300609**





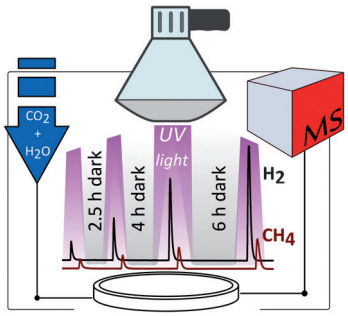
Structure-Based Drug Design

T. Fischer, R. Riedl*

Strategic Targeting of Multiple Water-Mediated Interactions: A Concise and Rational Structure-Based Design Approach to Potent and Selective MMP-13 Inhibitors

Water in the architecture of life: Potent and selective matrix metalloproteinase-13 (MMP-13) inhibitors were rationally designed by targeting multiple water-mediated interactions between the target protein and small-molecule inhibitors. This structure-based design concept offers tremendous opportunities for the discovery of unique small molecules with tailored biological activity.

ChemMedChem
DOI: **10.1002/cmdc.201300278**



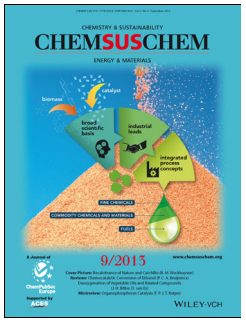
Carbon Dioxide Reduction

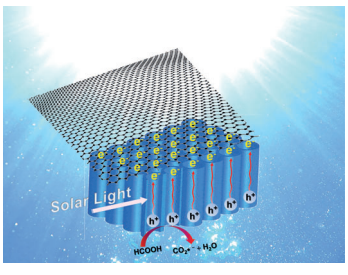
A. Bazzo, A. Urakawa*

Origin of Photocatalytic Activity in Continuous Gas Phase CO_2 Reduction over Pt/TiO_2

Always look on the dark side of life! Two distinct activities, steady-state and transient, in the continuous photocatalytic reduction of humidified gaseous CO_2 to CH_4 and H_2 over Pt/TiO_2 under UV irradiation are identified, by monitoring the product concentrations with the time-resolution of seconds by means of mass spectrometry. Reactivation of the transient activity occurs under dark conditions. The reactivation mechanism is explained by performing an in situ diffuse reflectance infrared Fourier transform spectroscopy study.

ChemSusChem
DOI: **10.1002/cssc.201300307**





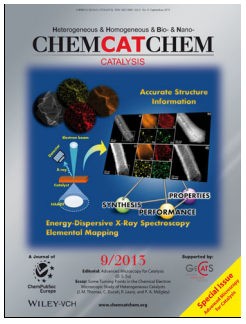
Photocatalysis

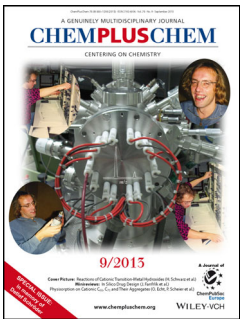
J.-H. Yun, Y. H. Ng,* R. J. Wong, R. Amal*

Reduced Graphene Oxide: Control of Water Miscibility, Conductivity, and Defects by Photocatalysis

A graphitic water baby: A TiO_2-based photocatalytic reaction is demonstrated to synthesize water highly conductive pure reduced graphene oxide sheets with conductivity comparable to that of bulk graphite. Controlling water miscibility and conductivity of reduced graphene oxide are of great importance for various aqueous-solution based applications.

ChemCatChem
DOI: **10.1002/cctc.201300419**



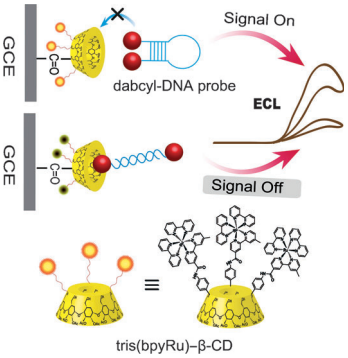


DNA Sensors

H. Chen, X. Wang, Y. Qi, S. Zheng, Q. Chen, P. He,* F. Zhang, F. Yang, J. Tang,* Y. Fang

A Tris(bipyridine)ruthenium(II)–β-Cyclodextrin Derivative: Synthesis, Luminescent Properties, and Application in Electrochemiluminescence DNA Sensors

Miraculous metallocyclodextrin: A new polynuclear metallocyclodextrin complex, tris(bpyRu)–β-CD (bpy = bipyridine), was successfully synthesized. This complex possesses molecular-recognition functions and unique luminescent properties. A tris(bpyRu)–β-CD film was fabricated and utilized in a electrochemiluminescence (ECL) DNA sensor based on its molecular-recognition and luminescence characteristics (see scheme).



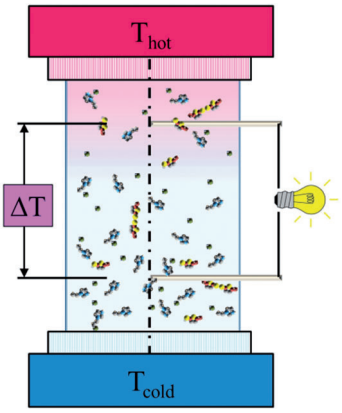
ChemPlusChem
DOI: **10.1002/cplu.201300071**

Thermocells

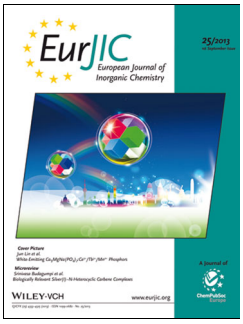
V. Zinovyeva, S. Nakamae, M. Bonetti, M. Roger*

Enhanced Thermoelectric Power in Ionic Liquids

A thiolate/disulfide organic redox couple shows remarkable stability in a thermogalvanic cell with a 1-ethyl-3-methylimidazolium tetrafluoroborate/acetonitrile binary mixture. The thermopower depends strongly on concentrations of both the ionic liquid and the redox couple. These parameters can be used to enhance the thermopower and the thermoelectric efficiency of ionic-liquid thermocells.



ChemElectroChem
DOI: **10.1002/celc.201300074**

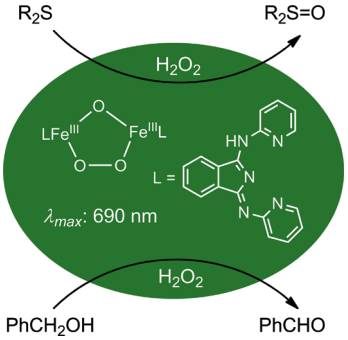


Non-Heme Iron Complexes

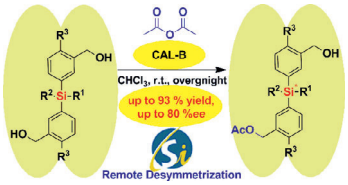
J. S. Pap, M. A. Cranswick, É. Balogh-Hergovich, G. Baráth, M. Giorgi, G. T. Rohde, J. Kaizer,* G. Speier, L. Que Jr.*

An Iron(II)[1,3-bis(2′-pyridylimino)isoindoline] Complex as a Catalyst for Substrate Oxidation with H_2O_2 – Evidence for a Transient Peroxidodiiron(III) Species

A monoiron(II) complex of 1,3-bis(2′-pyridylimino)isoindoline reacts with H_2O_2 to form a green diiron(III) peroxido intermediate, which may serve as the precursor to the active oxidant in thioanisole and benzyl alcohol oxidation.



Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201300162**



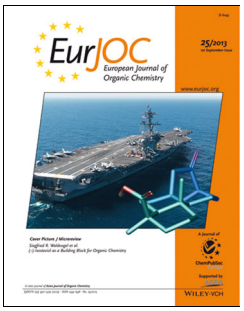
Chiral Silanes

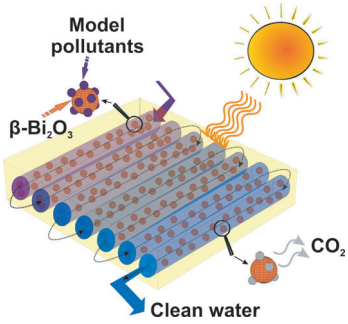
X. Lu, L. Li, W. Yang, K. Jiang, K.-F. Yang, Z.-J. Zheng, L.-W. Xu*

Catalytic Synthesis of Functional Silicon-Stereogenic Silanes through *Candida antarctica* Lipase B Catalyzed Remote Desymmetrization of Silicon-Centered Diols

Remote desymmetrization: A series of silicon-containing diols are synthesized and used in *Candida antarctica* lipase B (CAL-B)-catalyzed remote desymmetrization. This synthetic method is valuable in the construction of optically active silicon-stereogenic organosilicon compounds.

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201300932**





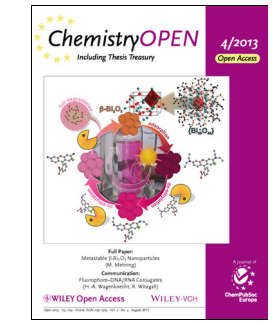
Nanoparticles

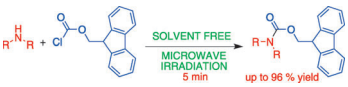
M. Schlesinger, M. Weber, S. Schulze, M. Hietschold, M. Mehring*

Metastable β-Bi_2O_3 Nanoparticles with Potential for Photocatalytic Water Purification Using Visible Light Irradiation

Water purification with β-Bi_2O_3: A straightforward synthetic procedure for the synthesis of β-Bi_2O_3 nanoparticles that offers the potential for gram-scale production is presented. The β-Bi_2O_3 nanoparticles show high photocatalytic activity and stability in the degradation of typical organic water pollutants under visible light irradiation. These nanoparticles might be promising materials for use in novel water purification systems.

ChemistryOpen
DOI: **10.1002/open.201300013**





Protecting-Group Chemistry

M. Godoi, G. V. Botteselle, J. Rafique, M. S. T. Rocha, J. M. Pena, A. L. Braga*

Solvent-Free Fmoc Protection of Amines Under Microwave Irradiation

Making a Fmoc-ery of it: We report an efficient, quick, and sustainable method for the protection of amines with a 9-fluorenylmethoxycarbonyl (Fmoc) group. This solvent-free approach results in good-to-excellent isolated yields of the desired products within only five minutes under microwave irradiation.

Asian J. Org. Chem.
DOI: **10.1002/ajoc.201300092**

Regulatory Science

Vera Köster

As a Chemist at the European Chemicals Agency (ECHA)

Dr. Derek Knight, Senior Scientific Advisor to the Executive Director at the European Chemicals Agency (ECHA), Helsinki, Finland, talks about how thinking outside the box led him to his rewarding job in regulatory science, in which he deals with applied science within a regulatory context. This is the first in a series of interviews that show how studying chemistry can lead to a variety of careers.

ChemViews magazine
DOI: **10.1002/chemv.201300074**