Spotlights ...

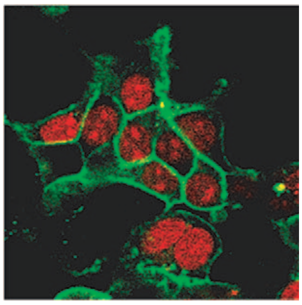
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Fluorescent Probes

S. Watanabe, S. Mizukami, Y. Akimoto, Y. Hori, K. Kikuchi*

Intracellular Protein Labeling with Prodrug-Like Probes Using a Mutant β-Lactamase Tag

A bright idea! A novel design strategy for cell-permeable probes for BL-tag technology is demonstrated based on the use of a clinical β-lactam prodrug, which specifically labels intracellular target proteins without the required washing of excess probe.



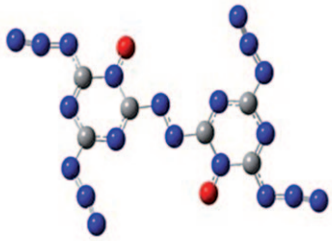
Chem. Eur. J.
DOI: **10.1002/chem.201100973**

Azides

C. Qi, R.-B. Zhang, X.-J. Zhang, Y.-C. Li, Y. Wang, S.-P. Pang*

Theoretical Investigation of 4,4′,6,6′-Tetra(azido)azo-1,3,5-triazine-*N*-oxides and the Effects of $N\rightarrow O$ Bonding on Organic Azides

$N\rightarrow$Othing compares to you: The effects of $N\rightarrow O$ bonding on the properties of organic azido compounds, such as density, heat of formation, detonation performances, and stability, were investigated using a family of 4,4′,6,6′-tetra(azido)azo-1,3,5-triazine-*N*-oxides. The introduction of an appropriate number of $N\rightarrow O$ bonds increased the oxygen balance and density of the compounds, and resulted in compounds with better detonation performances.



Chem. Asian J.
DOI: **10.1002/asia.201000897**

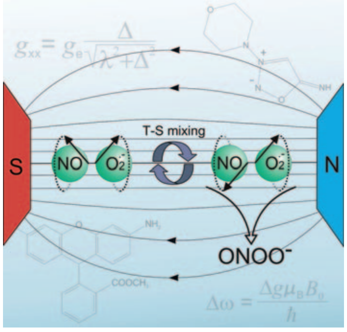
Directed Evolution

M. T. Reetz,* H. Zheng

Manipulating the Expression Rate and Enantioselectivity of an Epoxide Hydrolase by Using Directed Evolution

Two with one hit: Directed evolution has been utilized for enhancing both the expression rate and stereoselectivity of an epoxide hydrolase as a catalyst in organic chemistry. A highly enantioselective mutant was identified that catalyzes the hydrolytic kinetic resolution of racemic glycidyl phenyl ether with a selectivity factor of $E = 160$.

ChemBioChem
DOI: **10.1002/cbic.201100078**



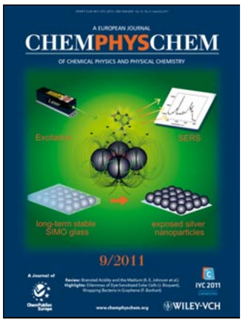
Magnetic Field Effects

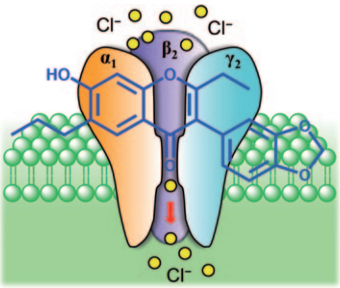
T. Y. Karogodina, I. G. Dranov, S. V. Sergeeva, D. V. Stass,*
U. E. Steiner*

Kinetic Magnetic-Field Effect Involving the Small Biologically Relevant Inorganic Radicals NO and $O_2^{\bullet-}$

Magnetic-field-dependent yield of substrate oxidation by $ONOO^-$, generated in a biomimetic system by recombination of NO and $O_2^{\bullet-}$, is revealed by carrying out reactions between 0 and 18 T. This magnetic-field effect can be theoretically accounted for in terms of the spin chemistry of the $NO/O_2^{\bullet-}$ radical pair (see picture). Spin chemistry thus allows magnetic effects of these radicals to be detected under conditions where they cannot be observed by conventional magnetic resonance techniques.

ChemPhysChem
DOI: **10.1002/cphc.201100178**





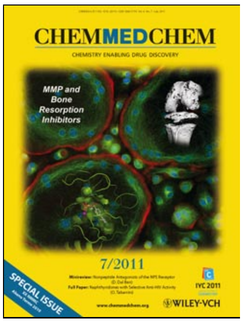
Drug Discovery

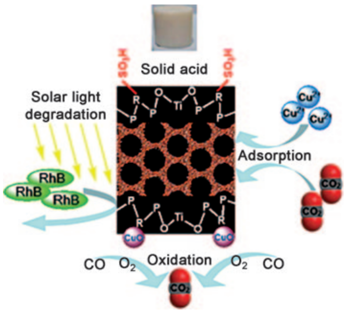
N. Gavande, N. Karim, G. A. R. Johnston, J. R. Hanrahan, M. Chebib*

Identification of Benzopyran-4-one Derivatives (Isoflavones) as Positive Modulators of $GABA_A$ Receptors

Isoflavones do it too! Enhancement of chloride ion flux at $GABA_A$ receptors by positive modulators is an important therapeutic strategy for the treatment of central nervous system (CNS)-related disorders. Benzopyran-4-one derivatives (isoflavones), identified by systematic structure-driven design, exhibit potent flumazenil-insensitive positive modulation at human recombinant $\alpha_1\beta_2\gamma_{2L}$ receptors expressed in *Xenopus* oocytes.

ChemMedChem
DOI: **10.1002/cmdc.201100120**





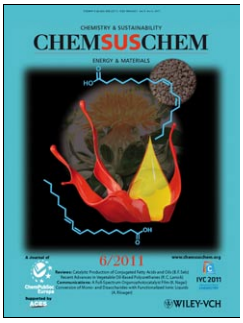
Hybrid Mesostructures

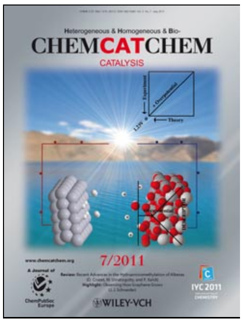
T.-Y. Ma, Z.-Y. Yuan*

Metal Phosphonate Hybrid Mesostructures: Environmentally Friendly Multifunctional Materials for Clean Energy and Other Applications

Friendly multis: Organic–inorganic hybrid mesoporous metal phosphonate materials can be prepared from a series of polyphosphonic acids, and their structure can be tuned to wormhole-like, cellular foam, hexagonal, and cubic morphologies. These materials are environmentally friendly and can be used in adsorption, separation, solar light utilization, and catalysis. In this Minireview, recent progress in the preparation of mesoporous metal phosphonate materials is summarized.

ChemSusChem
DOI: **10.1002/cssc.201100050**



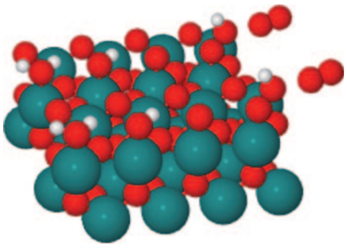


Electrocatalysis

I. C. Man, H.-Y. Su, F. Calle-Vallejo, H. A. Hansen, J. I. Martínez, N. G. Inoglu, J. Kitchin, T. F. Jaramillo, J. K. Nørskov, J. Rossmeisl*

Universality in Oxygen Evolution Electrocatalysis on Oxide Surfaces

HOOt-n-HOller: Based on the scaling relations between HO* and HOO* species and on the constant difference of 3.2 eV between the two levels, theoretical overpotential trends towards oxygen evolution reaction (OER) are reported for a wide range of oxides including rutile, perovskites, spinel rock salt, and bixbyte. The theoretical and experimental trends agree. Comparing 3.2 eV with the ideal value of 2.46 eV indicates that limitations exist for OER on oxide-based electrocatalysts.



ChemCatChem
DOI: **10.1002/cctc.201000397**

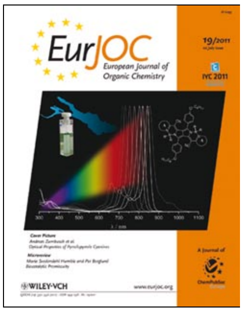
Asymmetric Coordination Chemistry

E. Meggers*

Asymmetric Synthesis of Octahedral Coordination Complexes

This microreview provides an overview of the asymmetric coordination chemistry of octahedral metal complexes within the historical context, including examples from nature, the predetermination of metal-centered chirality with tailored chiral ligands, chiral-anion-mediated and chiral-auxiliary-mediated asymmetric synthesis, and a recent example of the catalytic asymmetric synthesis of an octahedral coordination complex.

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201100327**

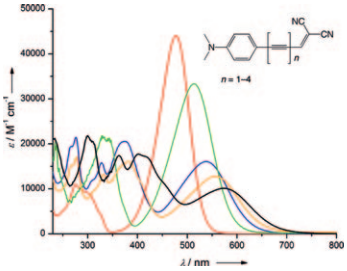


Donor–Acceptor Chromophores

B. B. Frank, P. R. Laporta, B. Breiten, M. C. Kuzyk, P. D. Jarowski, W. B. Schweizer, P. Seiler, I. Biaggio, C. Boudon, J.-P. Gisselbrecht, F. Diederich*

Comparison of CC Triple and Double Bonds as Spacers in Push–Pull Chromophores

A comparison of the optoelectronic properties of two series of push–pull chromophores, in which *N*,*N*-dialkylanilino donors and dicyanovinyl acceptors are separated by $C{\equiv}C$ or $C{=}C$ spacers, is presented. The electrochemical HOMO–LUMO gaps are similar in both series whereas the oxidation and reduction potentials differ substantially. Third-order optical nonlinearities also differ significantly in the two series.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201100378**