Organocatalysis

M. D. Díaz-de-Villegas,* J. A. Gálvez, R. Badorrey, M. P. López-Ram-de-Víu

Organocatalyzed Enantioselective Desymmetrization of Diols in the Preparation of Chiral Building Blocks

Breaking symmetry: Discrimination between enantiotopic hydroxyl groups in prochiral and *meso*-diols is a powerful methodology for the preparation of important chiral building blocks (see scheme). Organocatalysis offers a valuable alternative to the classical methods used in this transformation, which is beginning to provide promising results in cheaper and cleaner processes.

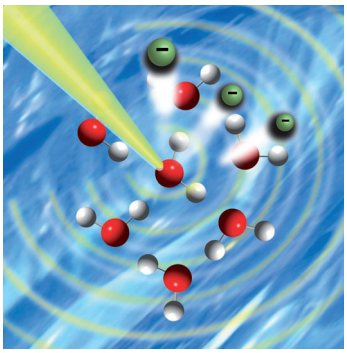
Chem. Eur. J.
DOI: **10.1002/chem.201202264**

Hydrogen Bonding

K. M. Lange, E. F. Aziz*

The Hydrogen Bond of Water from the Perspective of Soft X-Ray Spectroscopy

Water, water, everywhere: The hydrogen-bond network, which is formed by interactions between the water molecules, is key for understanding the unusual properties of water. However, a better understanding of the structure of this network, as well as its dynamics, must yet be established. Soft X-ray spectroscopy allows the investigation of the local electronic structure of water by probing the occupied- and unoccupied valence molecular orbitals.



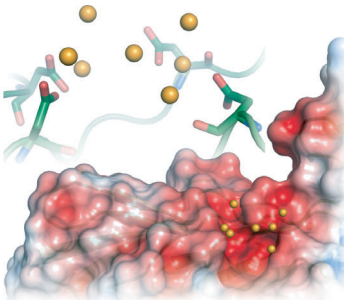
Chem. Asian J.
DOI: **10.1002/asia.201200533**

Lanthanides

M. Veelders, L.-O. Essen*

Complex Gadolinium–Oxo Clusters Formed along Concave Protein Surfaces

Protein-bound contrast: The unusual observation of a heptanuclear gadolinium–oxo cluster on the surface of the cell-adhesion protein Flo5A establishes the basis for directed incorporation of poly-lanthanide clusters into biomolecules. The observed gadolinium cluster might serve as a paradigm for the design of protein-based MRI contrast agents.



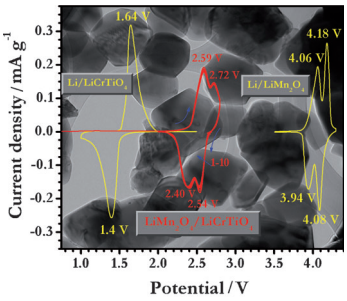
ChemBioChem
DOI: **10.1002/cbic.201200441**

Fuel Cells

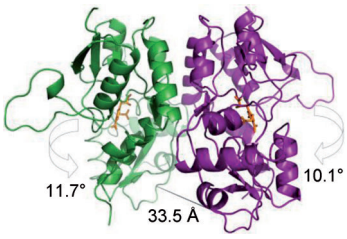
V. Aravindan, W. C. Ling, S. Madhavi*

$LiCrTiO_4$: A High-Performance Insertion Anode for Lithium-Ion Batteries

Bring on the power: A high-performance insertion-type $LiCrTiO_4$ anode is synthesized by solid-state-reaction methods. Reversible insertion of almost one mole of lithium is achieved in the half-cell configuration. The picture shows a TEM image of $LiCrTiO_4$ with superimposed cyclic voltammetric traces of a $LiMn_2O_4/LiCrTiO_4$ cell.



ChemPhysChem
DOI: **10.1002/cphc.201200398**



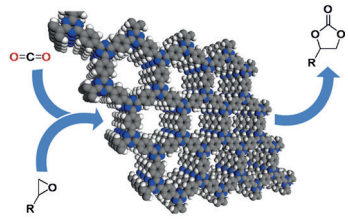
Neurochemistry

R. Venskutonytė, K. Frydenvang, E. A. Valadés, E. Szymańska, T. N. Johansen, J. S. Kastrup,* D. S. Pickering*

Structural and Pharmacological Characterization of Phenylalanine-Based AMPA Receptor Antagonists at Kainate Receptors

Control your KAR: A series of phenylalanine derivatives act as kainate receptor (KAR) antagonists at non-desensitizing GluK1 and GluK3. As GluK3-selective antagonists are highly desirable within KAR research, compound **3 d**, combined with the crystal structure of (*S*)-**3 h** in the GluK1 ligand binding domain, might serve as a starting point for the development of improved phenylalanine-based compounds.

ChemMedChem
DOI: **10.1002/cmdc.201100599**



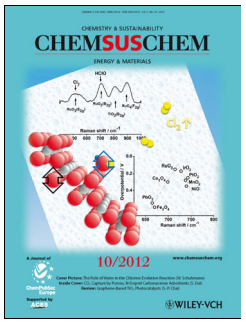
Carbon Dioxide Conversion

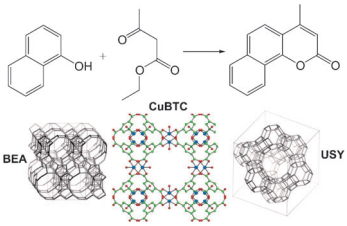
J. Roeser,* K. Kailasam, A. Thomas

Covalent Triazine Frameworks as Heterogeneous Catalysts for the Synthesis of Cyclic and Linear Carbonates from Carbon Dioxide and Epoxides

CO_2 with COF: Triazine-based covalent organic frameworks are efficiently used as heterogeneous catalysts in the conversion of CO_2 to cyclic and linear carbonates. The catalytic activity is influenced by small chemical and structural modifications of the synthesized materials.

ChemSusChem
DOI: **10.1002/cssc.201200091**





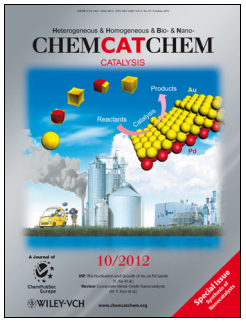
Zeolites

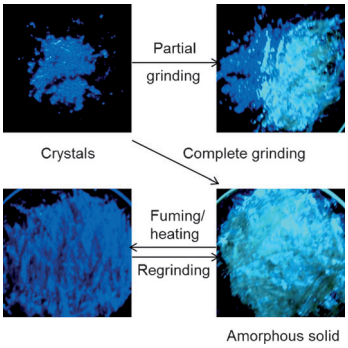
M. Opanasenko, M. Shamzhy, J. Čejka*

Solid Acid Catalysts for Coumarin Synthesis by the Pechmann Reaction: MOFs versus Zeolites

Beta watch out, MOFs are about: The catalytic behavior of metal–organic frameworks (MOFs) Fe- and Cu-benzene-1,3,5-tricarboxylate (Fe- and CuBTC) was investigated in the Pechmann condensation of different phenols (resorcinol, pyrogallol, and naphthol) with ethyl acetoacetate and compared with beta (BEA) and ultrastable Y (USY) large-pore zeolites.

ChemCatChem
DOI: **10.1002/cctc.201200232**





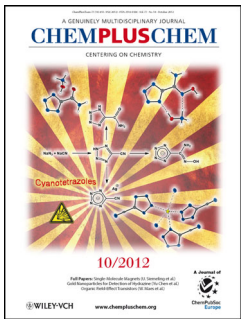
Solid-State Emitters

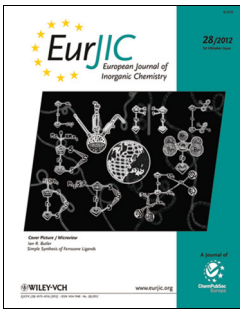
C. Y. K. Chan, J. W. Y. Lam, Z. Zhao, C. Deng, S. Chen, P. Lu, H. H. Y. Sung, H. S. Kwok, Y. Ma, I. D. Williams, B. Z. Tang*

A Facile Approach to Highly Efficient and Thermally Stable Solid-State Emitters: Knitting up AIE-Active TPE Luminogens by Aryl Linkers

Thermally stable and efficient solid-state arylene bis(tetraphenylethene) emitters have been investigated. These emitters exhibit aggregation-induced emission as well as mechano-, vapo-, and thermochromism fluorescence properties and display strong sky-blue electroluminescence with maximum luminance and external quantum efficiency of 7900 cd m^{-2} and 2.1%, respectively (see figure).

ChemPlusChem
DOI: **10.1002/cplu.201200202**



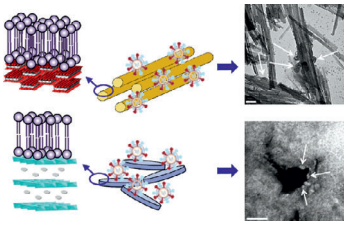


Bio-Nanohybrids

B. Wicklein, M. Á. Martín del Burgo, M. Yuste, M. Darder, C. E. Llavata, P. Aranda, J. Ortin, G. del Real, E. Ruiz-Hitzky*

Lipid-Based Bio-Nanohybrids for Functional Stabilisation of Influenza Vaccines

Clay-lipid bio-nanohybrids were evaluated as carriers of viral antigens in the development of thermally stable and efficacious vaccines against influenza A. The biomimetic lipid interfaces on sepiolite and an Mg/Al-type layered double hydroxide afford improved immunogenicity compared with standard aluminium adjuvants and modulate support-antigen interactions to ensure thermal stability of the immobilised virions.



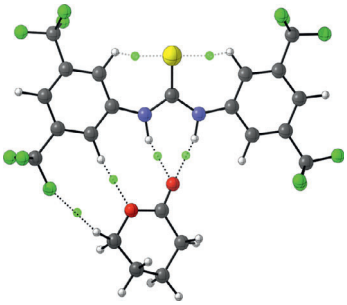
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201200579**

Organocatalysis

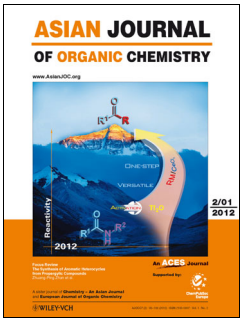
K. M. Lippert, K. Hof, D. Gerbig, D. Ley, H. Hausmann, S. Guenther, P. R. Schreiner*

Hydrogen-Bonding Thiourea Organocatalysts: The Privileged 3,5-Bis(trifluoromethyl)phenyl Group

The present work reveals that thiourea derivatives bearing a 3,5-bis(trifluoromethyl)phenyl group interact with Lewis basic sites of carbonyl derivatives through NH and highly polarized *ortho*-CH interactions in hydrogen-bonded complexes. Evidence is provided through a combination of DFT, variable-temperature IR and NMR spectroscopy, as well as MS (ESI) studies.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201200739**

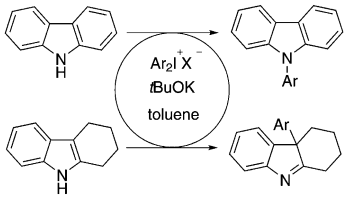


Carbazole Arylation

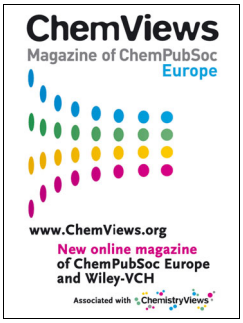
F. Guo, L. Wang,* P. Wang, J. Yu, J. Han*

Transition-Metal-Free N-Arylation of Carbazoles and C-Arylation of Tetrahydrocarbazoles by using Diaryliodonium Salts

Ideal iodonium: A method for the direct N-arylation of carbazoles and C-arylation of tetrahydrocarbazoles (substituted indoles) with diaryliodonium salts mediated by KO*t*Bu in toluene has been developed. A range of arylated products were obtained in 50–92% yield. The reaction has a wide scope and is tolerant of a broad range of functional groups.



Asian J. Org. Chem.
DOI: **10.1002/ajoc.201200071**

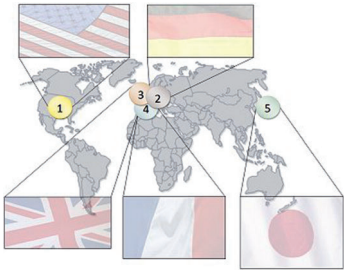


Nobel Prize

ChemViews

Nobel Prize Trends

Since 1901 the Nobel Prize in Chemistry has been awarded to up to three people each year who have made an important chemical contribution or improvement. ChemViews magazine looks at the typical age of a Laureate, which countries have produced the most Laureates, and asks whether it is taking longer for discoveries to be recognized.



ChemViews magazine
DOI: **10.1002/chemv.201200110**