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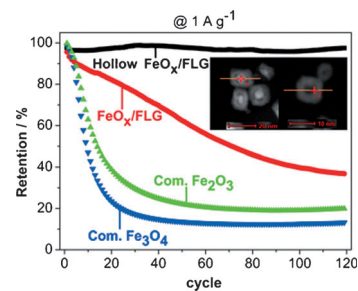


Nanostructures

Z. Sun,* K. Xie, Z. A. Li, I. Sinev, P. Ebbinghaus, A. Erbe, M. Farle, W. Schuhmann, M. Muhler, E. Ventosa*

Hollow and Yolk-Shell Iron Oxide Nanostructures on Few-Layer Graphene in Li-Ion Batteries

Running on empty: Hollow and yolk-shell iron oxide nanostructures supported on few-layer graphene (FLG) were found to be beneficial for the cycling stability in lithium-ion batteries, especially for electrodes with low carbon content (see figure). Further improvement of capacity retention upon cycling was achieved for composites with a hollow structure, obtaining retention values above 97% after 120 cycles at 1000 mA g⁻¹.



Chem. Eur. J.
DOI: 10.1002/chem.201303723

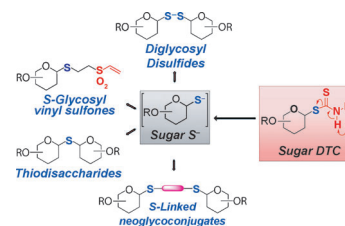


Glycoconjugates

A. Megia-Fernandez, D. de la Torre-Gonzalez, J. Parada-Aliste, F. J. Lopez-Jaramillo, F. Hernandez-Mateo, F. Santoyo-Gonzalez*

Masked Thiol Sugars: Chemical Behavior and Synthetic Applications of S-Glycopyranosyl-N-monoalkyl Dithiocarbamates

Behind the mask: Controlled unmasking of thiolate sugars from S-glycopyranosyl-N-monoalkyl dithiocarbamates is a versatile methodology that allows easy access to diglycosyl disulfides and the S-glycosylation of electrophilic substrates (see scheme).



Chem. Asian J.
DOI: 10.1002/asia.201301270

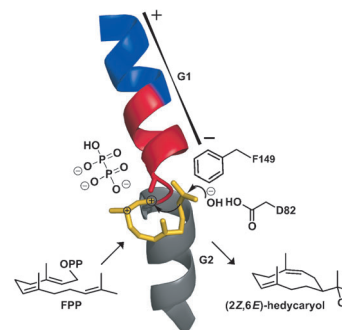


X-Ray Crystallography

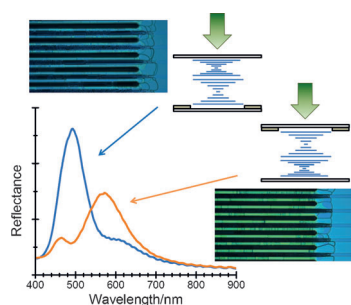
P. Baer, P. Rabe, C. A. Citron, C. C. de Oliveira Mann, N. Kaufmann, M. Groll,* J. S. Dickschat*

Hedycaryol Synthase in Complex with Nerolidol Reveals Terpene Cyclase Mechanism

High-precision structure: The structure of the bacterial sesquiterpene synthase hedycaryol synthase from *Kitasatospora setae* in complex with the reaction intermediate analogue nerolidol was obtained at high resolution (1.5 Å). Detailed mechanistic principles for the late steps of terpene cyclisations were delineated and extensively tested by analysis of twelve site-specific mutants.



ChemBioChem
DOI: 10.1002/cbic.201300708

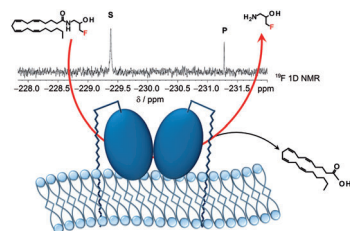
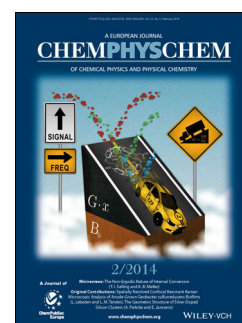


ChemPhysChem
DOI: 10.1002/cphc.201300995

Liquid Crystals

M. Rumi, V. P. Tondiglia, L. V. Natarajan, T. J. White, T. J. Bunning*
Non-Uniform Helix Unwinding of Cholesteric Liquid Crystals in Cells with Interdigitated Electrodes

Asymmetrical mirrors: Cholesteric liquid crystals in cells with interdigitated electrodes can yield different reflection spectra from the two sides of the cell (see picture) for certain values of the voltage applied between the electrodes, due to non-uniform unwinding of the helical structure.



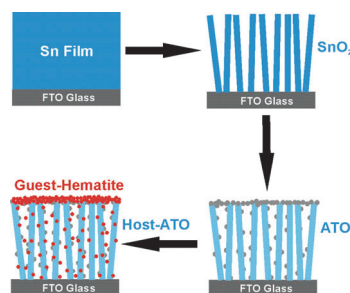
ChemMedChem
DOI: 10.1002/cmcd.201300438

Functional Screening Techniques

M. Veronesi, E. Romeo, C. Lambruschini, D. Piomelli, T. Bandiera, R. Scarpelli, G. Garau,* C. Dalvit*

Fluorine NMR-Based Screening on Cell Membrane Extracts

Membrane-bound is better: A homogeneous and robust ¹⁹F NMR-based functional screening assay on cell extracts was developed for the identification of inhibitors against membrane-bound enzymes and for the determination of their IC₅₀ values. This approach allows the discovery of novel binding fragments against targets known to be difficult to purify or where membrane-association is required for activity.



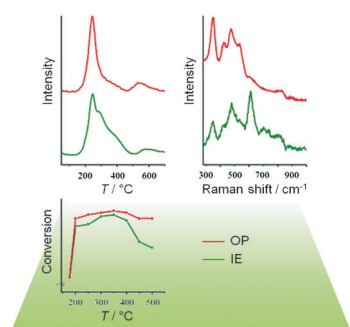
ChemSusChem
DOI: 10.1002/cssc.201301120

Water Splitting

L. Wang, A. Palacios-Padrós, R. Kirchgeorg, A. Tighineanu, P. Schmuki*

Enhanced Photoelectrochemical Water Splitting Efficiency of a Hematite-Ordered Sb:SnO₂ Host-Guest System

Being a good host: We form a well-defined nanoarchitecture of ATO as a host for hematite crystallites, and show its use as a photoanode for photoelectrochemical water splitting. The key improvement in photocurrent can be attributed to successful Sb doping of the SnO₂ structure in combination with the high surface area provided by the 3D nanochannel geometry.



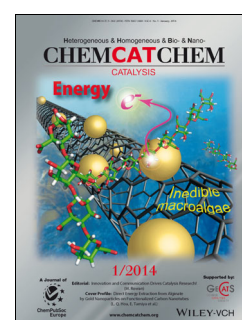
ChemCatChem
DOI: 10.1002/cctc.201300775

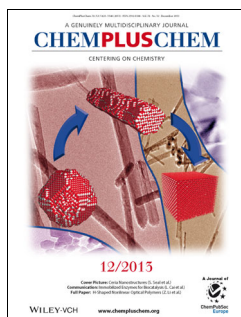
Selective Catalytic Reduction

Q. Guo, F. Fan, D. A. J. M. Ligthart, G. Li, Z. Feng, E. J. M. Hensen,* C. Li*

Effect of the Nature and Location of Copper Species on the Catalytic Nitric Oxide Selective Catalytic Reduction Performance of the Copper/SSZ-13 Zeolite

Copper in uniform: Temperature-programmed reduction of hydrogen and Raman spectroscopy of Cu/SSZ-13 zeolites reveal that copper species are more uniformly speciated in the one-pot synthesized sample (OP; Cu/Al=0.37), which demonstrates higher activity in a wide temperature range than does the ion-exchanged sample (IE; Cu/Al=0.36).



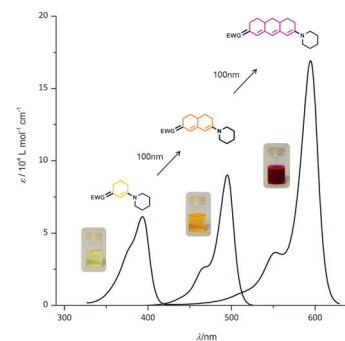


Donor-Acceptor Systems

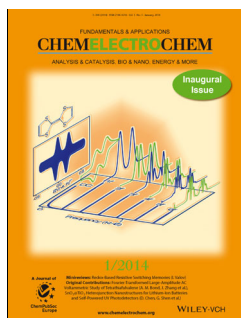
K. C. Kreß, T. Fischer, J. Stumpe, W. Frey, M. Raith, O. Beiraghi, S. H. Eichhorn,* S. Tussetschläger, S. Laschat*

Influence of Chromophore Length and Acceptor Groups on the Optical Properties of Rigidified Merocyanine Dyes

Marked and valuable peak shifts in the absorption spectra, as well as quantum yields of up to 95% were obtained through the systematic experimental and theoretical investigation of rigidified merocyanine dyes. Furthermore, solvatochromism studies in appropriate solvents led to extreme variations in the line shapes (see figure; EWG = electron-withdrawing group).



ChemPlusChem
DOI: 10.1002/cplu.201300308

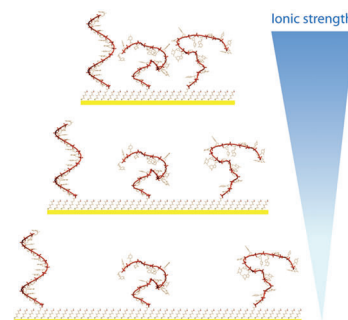


Biosensors

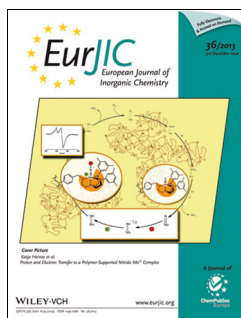
Th. Doneux, A. De Rache, E. Triffaux, A. Meunier, M. Steichen, C. Buess-Herman*

Optimization of the Probe Coverage in DNA Biosensors by a One-Step Coadsorption Procedure

It's a cover up! The analytical performance of DNA-based biosensors can be easily optimized by adjusting the probe surface coverage through the ionic strength in a one-step coadsorption procedure.



ChemElectroChem
DOI: 10.1002/celc.201300145

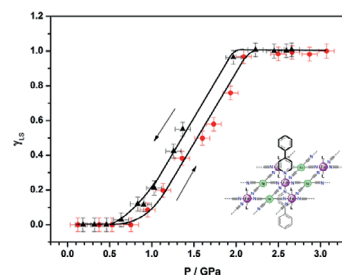


Cooperative Spin Transitions

A. B. Gaspar, G. Levchenko,* S. Terekhov, G. Bukin, J. Valverde-Muñoz, F. J. Muñoz-Lara, M. Seredyuk, J. A. Real*

The Effect of Pressure on the Cooperative Spin Transition in the 2D Coordination Polymer $\{\text{Fe}(\text{phpy})_2[\text{Ni}(\text{CN})_4]\}$

This work demonstrates that the Hofmann-like nonporous two-dimensional polymer $\{\text{Fe}(\text{phpy})_2[\text{Ni}(\text{CN})_4]\}$ can act as a molecular pressure sensor at room temperature.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201301374

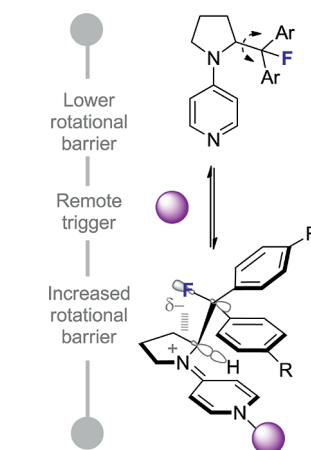


Emulating Enzymes

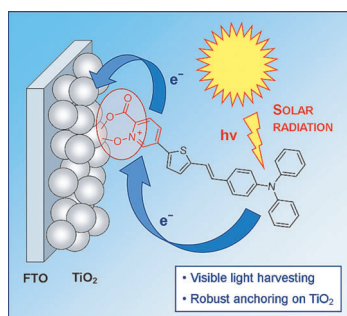
Y. P. Rey, L. E. Zimmer, C. Sparr, E.-M. Tanzer, W. B. Schweizer, H. M. Senn,* S. Lakhdar,* R. Gilmour*

Molecular Design Exploiting a Fluorine *gauche* Effect as a Stereoelectronic Trigger

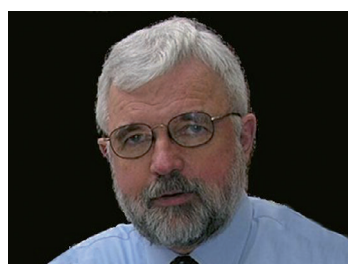
The fluorine *gauche* effect was used to control torsional rotation in fluorinated dimethylamino pyridine (DMAP) analogues. Upon "substrate binding" an electropositive nitrogen centre vicinal to the fluorine atom at a molecular hinge ($\text{F}-\text{C}_\beta-\text{C}_\alpha-\text{N}^+$) triggers a conformational change akin to those induced in enzymatic systems. Catalysis experiments and kinetic and reactivity studies are disclosed.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201301730



Asian J. Org. Chem.
DOI: 10.1002/ajoc.201300267



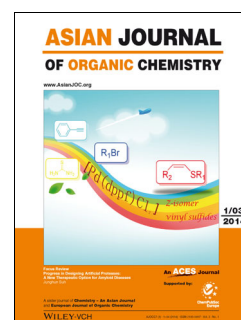
ChemViews magazine
DOI: 10.1002/chemv.201300124

Dye-Sensitized Solar Cells

B. Cecconi, A. Mordini, G. Reginato, L. Zani, M. Taddei,
F. F. d. Biani, F. D. Angelis, G. Marotta, P. Salvatori, M. Calamante*

Pyridine-*N*-Oxide 2-Carboxylic Acid: An Acceptor Group for Organic Sensitizers with Enhanced Anchoring Stability in Dye-Sensitized Solar Cells

A sensitive soul: A D- π -A organic dye carrying a pyridine-*N*-oxide 2-carboxylic acid anchoring group was synthesized and used as a sensitizer for TiO₂. Desorption kinetics experiments demonstrated that the new dye adsorbs onto TiO₂ more strongly than a classic cyanoacrylic-acid-containing dye. When used as a sensitizer in a dye-sensitized solar cell, the power conversion efficiency of the sensitizer was approximately 66% of that of a reference dye.



Chemical Societies

Vera Köster

E. Peter Kündig: Chemistry in Switzerland

Professor E. Peter Kündig, President of the Swiss Chemical Society (SCS), talks with Dr. Vera Köster about the changes occurring at the SCS. These include opening up to scientists working in fields adjacent to core areas of chemistry and forming closer contacts to industry. He also discusses how he sees the future of chemistry in Switzerland.



GESELLSCHAFT DEUTSCHER CHEMIKER

Call for Nominations for the Georg Manecke Prize 2014

The Georg Manecke Foundation supports younger scientists in the field of polymer science, in particular those working on the synthesis and transformation of macromolecular materials and on their biochemical and biotechnological applications.

Georg Manecke considered rather early to utilize polymer compounds for medical purposes, e.g. for linkage, transport and targeted release of drugs. The foundation is willing to also support applications which pursue this implementation.

The prize is endowed with 7.000 Euro and will be awarded at the biennial meeting of the GDCh Division Macromolecular Chemistry on September 14, 2014, in Jena. The prize winner will give a lecture on his/her scientific work.

Proposals should consist of a letter in support of the nomination (self-nominations are welcome), a curriculum vitae, and a list of publications.

Please submit your nomination by **May 5, 2014** to the „Kuratorium Georg-Manecke-Stiftung“, Gesellschaft Deutscher Chemiker, Varrentrappstraße 40-42, 60486 Frankfurt am Main, Germany.

The President
Dr. Thomas Geelhaar

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