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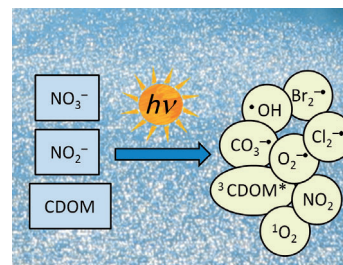


Environmental Chemistry

D. Vione,* M. Minella, V. Maurino, C. Minero

Indirect Photochemistry in Sunlit Surface Waters: Photoinduced Production of Reactive Transient Species

Shine a light on your chemistry! This paper gives an overview of the reactive transient species that are produced in surface waters by sun-light irradiation of photoactive molecules (photosensitizers), such as nitrate, nitrite, and chromophoric dissolved organic matter (CDOM) (see scheme). The main transient species ($\cdot\text{OH}$, $\text{CO}_3^{\cdot-}$, $^1\text{O}_2$, and CDOM triplet states) are involved in the indirect phototransformation of a very wide range of organic pollutants in surface waters.



Chem. Eur. J.
DOI: 10.1002/chem.201400413

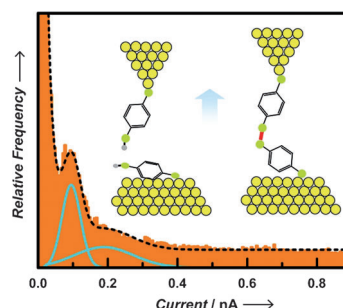


Electron Transport

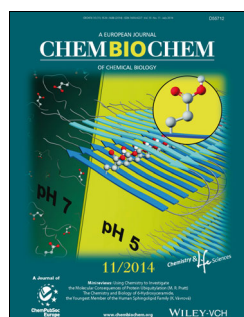
L. Wang, S.-Y. Li, J.-H. Yuan, J.-Y. Gu, D. Wang,* L.-J. Wan

Electron Transport Characteristics of the Dimeric 1,4-Benzenedithiol Junction

At an important junction: Scanning tunneling microscopy and quantum chemistry calculations were combined to probe the conductivity of the dimeric 1,4-benzenedithiol (BDT) junction. The dihedral angle of the S–S bond tends to take a perpendicular conformation, which breaks the conjugated structure and localizes the electron distribution.



Chem. Asian J.
DOI: 10.1002/asia.201402196

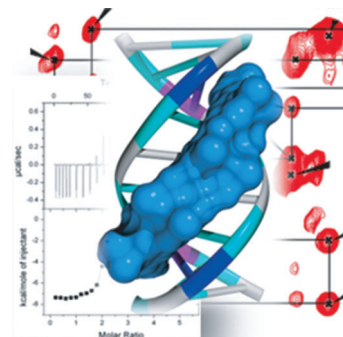


DNA Structure

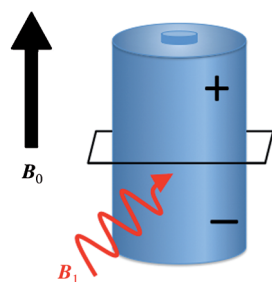
H. Y. Alniss, M.-V. Salvia, M. Sadikov, I. Golovchenko, N. G. Anthony, A. I. Khalaf, S. P. MacKay, C. J. Suckling, J. A. Parkinson*

Recognition of the DNA Minor Groove by Thiazotropsin Analogues

A snug fit: How does ligand–ligand affinity influence sequence-specific molecular recognition for the DNA minor groove? Energetic, structural and assembly characteristics for three related ligands and their cognate DNA recognition complexes were compared by NMR spectroscopy and ITC. Careful engineering of ligands can modify physicochemical properties such as aggregation characteristics without compromising DNA binding ability.



ChemBioChem
DOI: 10.1002/cbic.201402202



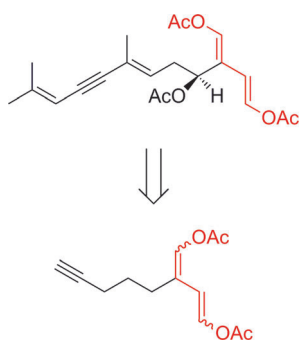
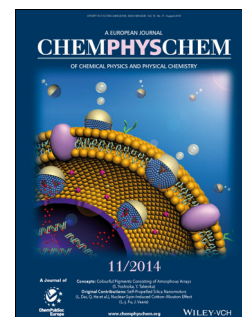
ChemPhysChem
DOI: 10.1002/cphc.201400083

Magnetic Resonance Imaging

M. M. Britton*

Magnetic Resonance Imaging of Electrochemical Cells Containing Bulk Metal

Caught on film: Magnetic resonance imaging (MRI) is common in medical research and, more recently, is being applied to visualize chemical composition, molecular transport, and physical environment in engineering and materials research. Researchers are now starting to use these techniques to investigate electrochemical devices.



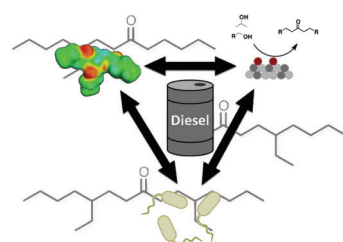
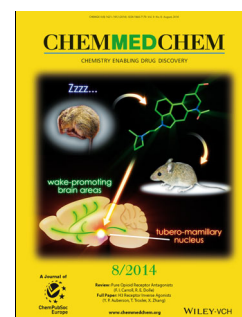
ChemMedChem
DOI: 10.1002/cmdc.201402065

Natural Product Analogues

P. Richter, G. Schubert, A. M. Schaible, L. Cavas, O. Werz,*
G. Pohnert*

Caulerpenyne and Related Bis-enol Esters Are Novel-Type Inhibitors of Human 5-Lipoxygenase

Stripping down to the essentials: Synthetic analogues of the lipoxygenase inhibitor caulerpenyne were tested on their inhibitory effect on human lipoxygenases. Systematic evaluation revealed a novel mode of action compared to established lipoxygenases inhibitors as well as a substantially simplified synthetic inhibitor for human 5-lipoxygenase.



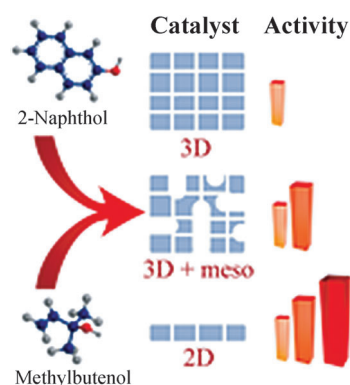
ChemSusChem
DOI: 10.1002/cssc.201402244

Biodiesel

S. Sreekumar, Z. C. Baer, E. Gross, S. Padmanaban, K. Goulas,*
G. Gunbas, S. Alayoglu, H. W. Blanch,* D. S. Clark,* F. D. Toste*

Chemocatalytic Upgrading of Tailored Fermentation Products Toward Biodiesel

Free upgrade: By tailoring both biological and chemocatalytic processes, the production of sustainable biodiesel from lignocellulosic sugar is maximized. Hydrotalcite-supported copper(II) and palladium(0) catalysts are combined with a modification of the process of fermentation of acetone–butanol–ethanol to isopropanol–butanol–ethanol, producing higher concentrations of diesel-range components in the alkylation reaction.



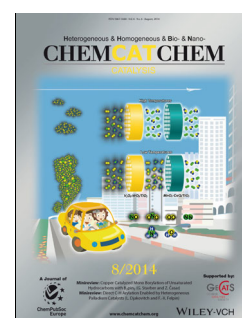
ChemCatChem
DOI: 10.1002/cctc.201402007

Zeolites

M. V. Opanasenko, M. V. Shamzhy, C. Jo, R. Ryoo, J. Čejka*

Annulation of Phenols: Catalytic Behavior of Conventional and 2D Zeolites

Ideal for bulky substrates: Catalytic behavior of hierarchical MFI zeolites was investigated in annulation reaction of phenols differing in size with methylbutenol and compared with that of medium and large-pore zeolites MFI and BEA.



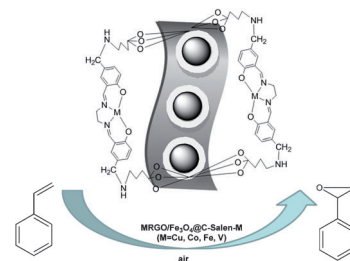


Supported Catalysts

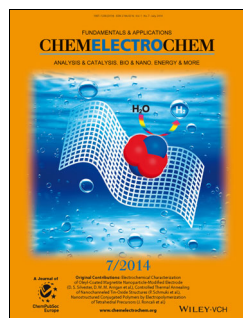
Z. Li, S. Wu, D. Zheng, H. Ding, X. Wang, X. Yang, Q. Huo, J. Guan,* Q. Kan*

Enhanced Aerobic Epoxidation of Styrene with Copper(II), Cobalt(II), Iron(III), or Oxovanadium(IV) Salen Complexes Immobilized onto Carbon-Coated Fe_3O_4 Nanoparticles Hybridized with Graphene Sheets

Extra support: Core-shell-structured magnetic nanocatalysts have been prepared and used as efficient heterogeneous catalysts for the aerobic oxidation of styrene. Mildly reduced graphene oxide (MRGO; see picture)/ Fe_3O_4 @C-salen-Co showed over 91 % conversion of styrene and over 52 % selectivity to the styrene oxide. The materials can be easily recovered through simple magnetic separation.



ChemPlusChem
DOI: 10.1002/cplu.201300424

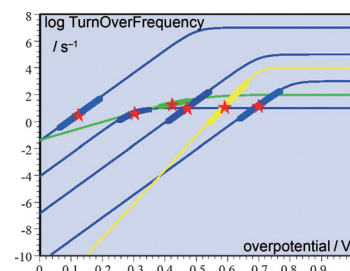


Electrocatalysis

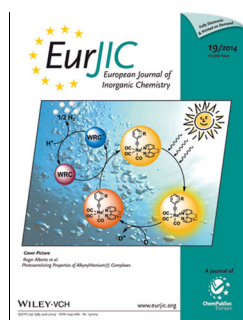
C. Costentin,* J.-M. Savéant*

Multielectron, Multistep Molecular Catalysis of Electrochemical Reactions: Benchmarking of Homogeneous Catalysts

Off the bench: Rational benchmarking of molecular catalysts entails comparing their catalytic Tafel plots within the same log(turnover frequency) versus overpotential plane of merit.



ChemElectroChem
DOI: 10.1002/celec.201300263

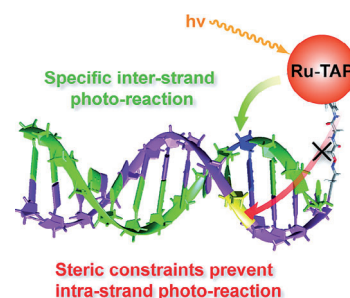


Oligonucleotides

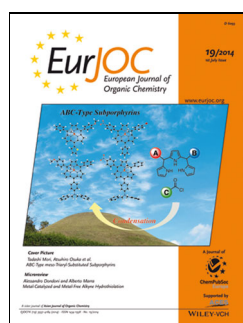
L. Marcélis, M. Surin, R. Lartia, C. Moucheron, E. Defrancq, A. Kirsch-De Mesmaeker*

Specificity of Light-Induced Covalent Adduct Formation between Ru^{II} Oligonucleotide Conjugates and Target Sequences for Gene Silencing Applications

Under irradiation, a Ru-TAP (TAP = 1,4,5,8-tetraazaphenanthrene) complex linked to an oligonucleotide (violet) hybridized with its complementary sequence (green) is covalently anchored specifically to the G bases of the complementary sequence and not the G bases along its own sequence.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201402189

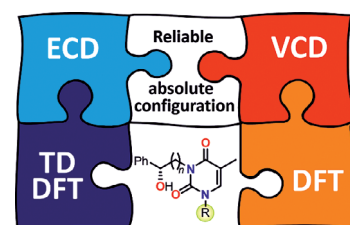


Circular Dichroism

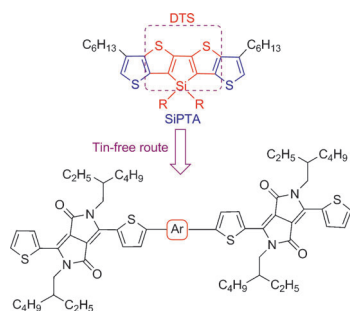
M. Górecki,* A. Karczmarzka-Wódzka, R. Kołodziejka, M. Damiński, J. Frelek

Determination of the Stereostructure of Pyrimidine Nucleoside Derivatives with a Combination of Various Chiroptical Methods

The absolute configuration of pyrimidine nucleoside derivatives obtained by enantioselective reduction was determined using a combination of electronic circular dichroism (ECD) and vibrational circular dichroism (VCD) spectroscopy in tandem with quantum chemical calculations.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201402190



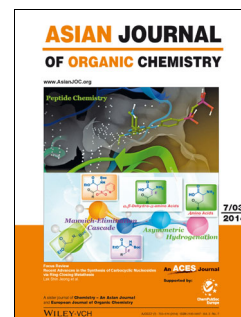
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201402106

Solar Cells

Q.-C. Yu, W.-F. Fu, H.-Y. Wang, X.-F. Wu, J.-H. Wan,* M.-M. Shi,*
H.-Z. Chen

An Efficient Tin-Free Route to Small Molecules Based on
Silole-Modified Pentathiophenes for Solution-Processed Organic Solar
Cells

Catch the sun: Two solution-processable donor-acceptor (D-A) structured organic small molecules based on silole-modified pentathiophene (SiPTA) as the donor unit and diketopyrrolopyrrole (DPP) as the acceptor unit, DPP₂(SiPTA) and DPP-SiPTA, were synthesized. The D-A structure and molecular symmetry can significantly tailor energy levels and crystallization, respectively. Solar cells based on DPP₂-(SiPTA) have power conversion efficiencies of 2.36 %.



ChemViews magazine
DOI: 10.1002/chemv.201400048

Drug Discovery

J. Rose

Addressing the Pharmaceutical Innovation Crisis

Dr. Rathnam Chaguturu, founder and CEO of iDDPartners, a nonprofit think tank that focuses on pharmaceutical innovation, sees a fundamental problem of drug development in how academia and industry view each other. In an interview he talks about the current state of drug discovery in industry and academia and what kind of partnerships might lead to success.

