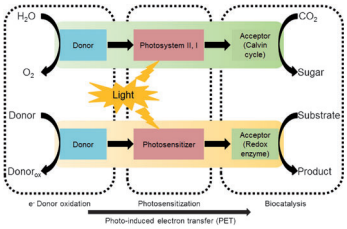
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Artificial Photosynthesis

S. H. Lee, J. H. Kim, C. B. Park*

Coupling Photocatalysis and Redox Biocatalysis Toward Biocatalyzed Artificial Photosynthesis

Nature versus man-made: Biocatalyzed artificial photosynthesis occurs through the coupling of redox biocatalysis and photocatalysis to mimic natural photosynthesis based on visible-light-driven regeneration of enzyme cofactors. Key design principles for reaction components, such as electron donors, photosensitizers, and electron mediators, are described for artificial photosynthesis involving biocatalytic assemblies.



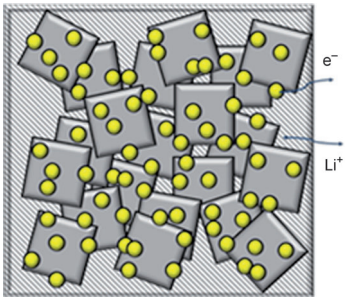
Chem. Eur. J.
DOI: **10.1002/chem.201204385**

Anode Materials

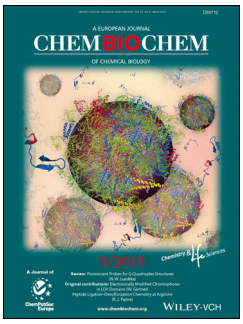
F. Dang, Y. Oaki, T. Kokubu, E. Hosono,* H. Zhou,* H. Imai*

Formation of Nanostructured MnO/Co/Solid–Electrolyte Interphase Ternary Composites as a Durable Anode Material for Lithium-Ion Batteries

An ode to anodes: Ternary nanocomposites consisting of a porous MnO framework, metallic Co nanoparticles, and a solid–electrolyte interphase (SEI) were produced from $MnCO_3$ precursors. As the highly dispersed Co nanoparticles and SEI provide electron and Li-ion conductive networks, respectively, the MnO frameworks are applicable as durable anode materials for Li-ion batteries.



Chem. Asian J.
DOI: **10.1002/asia.201201109**

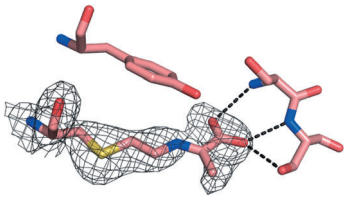


Aldolases

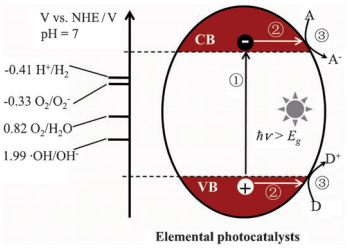
N. Timms, C. L. Windle, A. Polyakova, J. R. Ault, C. H. Trinh, A. R. Pearson, A. Nelson, A. Berry*

Structural Insights into the Recovery of Aldolase Activity in *N*-Acetylneuraminic Acid Lyase by Replacement of the Catalytically Active Lysine with γ-Thialysine by Using a Chemical Mutagenesis Strategy

Looks like lysine: The catalytically essential lysine in *N*-acetylneuraminic acid lyase was replaced by thialysine by chemical modification. High yields of modified enzyme allowed detailed structural and kinetic analyses which demonstrated that thialysine is a good structural mimic of lysine, but that the altered pK_a of the thialysine results in lower recovery of activity.



ChemBioChem
DOI: **10.1002/cbic.201200714**



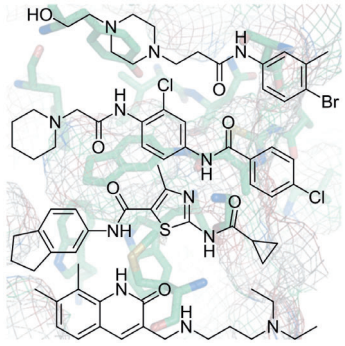
ChemPhysChem
DOI: **10.1002/cphc.201201075**

Photocatalysts

G. Liu, P. Niu, H.-M. Cheng*

Visible-Light-Active Elemental Photocatalysts

Elemental photocatalysts are emerging as a new class of visible-light-responsive catalytic materials for applications in pollutant degradation and water splitting.



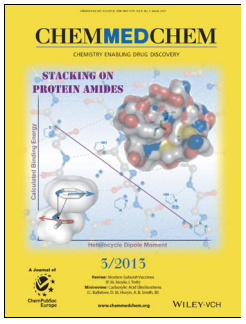
ChemMedChem
DOI: **10.1002/cmdc.201200584**

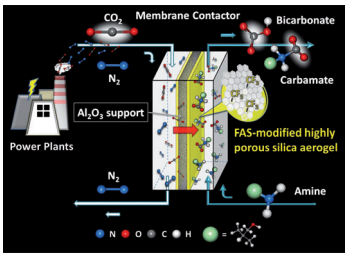
Antiviral Drug Design

C. Tintori, M. Selvaraj, R. Badia, B. Clotet, J. A. Esté, M. Botta*

Computational Studies Identifying Entry Inhibitor Scaffolds Targeting the Phe43 Cavity of HIV-1 gp120

Antiviral identification: Using a virtual screening protocol, ~250000 commercially available compounds were theoretically evaluated for potential anti-HIV activity through disruption of the gp120–CD4 interface. Twenty hits were subsequently evaluated in vitro, identifying four novel chemical scaffolds with EC_{50} values ranging between 25–0.9 μM against wild-type (NL4-3) HIV-1-infected MT-4 cells. Phe43 cavity of gp120 was confirmed as the target by a mutation experiment, being the Met475 Ile mutant strain resistant to these agents.





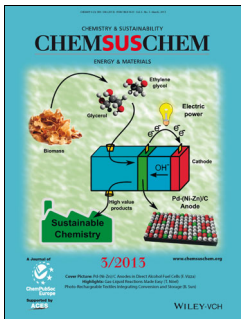
ChemSusChem
DOI: **10.1002/cssc.201200837**

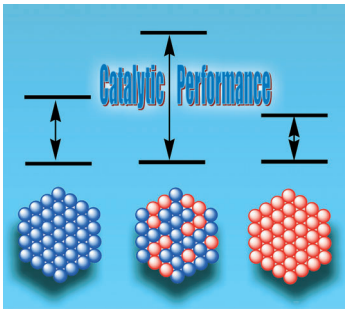
Carbon Dioxide Capture

Y.-F. Lin,* C.-H. Chen, K.-L. Tung,* T.-Y. Wei, S.-Y. Lu, K.-S. Chang

Mesoporous Fluorocarbon-Modified Silica Aerogel Membranes Enabling Long-Term Continuous CO_2 Capture with Large Absorption Flux Enhancements

Water repulsion and CO_2 attraction: We have developed a SiO_2 aerogel membrane modified with $-CF_3$ functional groups. This has the potential to be used in a membrane contactor for CO_2 absorption. The as-coated hydrophobic SiO_2 aerogel membranes reveal excellent reusability. The hydrophobized silica aerogel membrane contactor is a promising technology for large-scale CO_2 absorption during the post-combustion process in power plants.





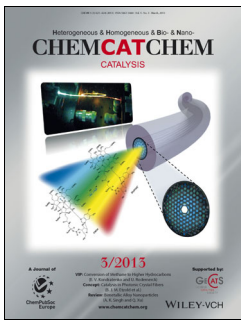
ChemCatChem
DOI: **10.1002/cctc.201200591**

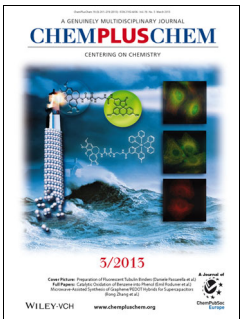
Bimetallic Nanocatalysts

A. K. Singh, Q. Xu*

Synergistic Catalysis over Bimetallic Alloy Nanoparticles

Co-op multiplayer: The synergistic effect of bimetallic alloy nanoparticles in various catalytic reactions is highlighted, in particular those related to fuel cells, such as the electrochemical oxidation of MeOH, EtOH, and formic acid, CO oxidation, oxygen reduction, and the dehydrogenation of ammonia borane, formic acid, hydrous hydrazine, and hydrazine borane. The use of synergistic catalysis in a number of other reactions is also discussed.



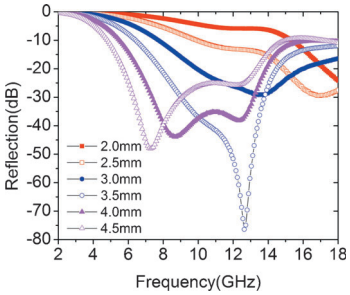


Hierarchical Nanostructures

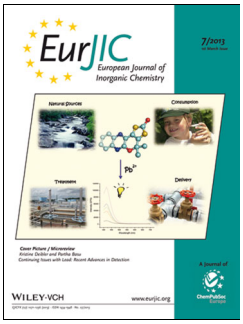
S. He, G.-S. Wang,* C. Lu, X. Luo, B. Wen, L. Guo,* M.-S. Cao*

Controllable Fabrication of CuS Hierarchical Nanostructures and Their Optical, Photocatalytic, and Wave Absorption Properties

A series of CuS hierarchical nanostructures have been synthesized. The CuS nanostructures with large surface area show excellent photocatalytic degradation of methylene blue. The formation mechanism of the hierarchical structures was discussed. Selected CuS nanostructures possess excellent microwave absorbing properties. When the absorbers have a thickness is 3.5 mm, the minimum reflection loss can reach −76.4 dB at 12.64 GHz (see graph).



ChemPlusChem
DOI: **10.1002/cplu.201200287**

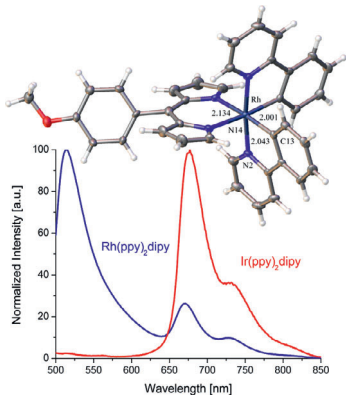


Dipyrromethene Rh/Ir Complexes

D. Ramlot, M. Rebarz, L. Volker, M. Ovaere, D. Beljonne, W. Dehaen, L. Van Meervelt, C. Moucheron, A. Kirsch-De Mesmaeker*

An Experimental and Theoretical Approach to the Photophysical Properties of Some Rh and Ir Complexes Incorporating the Dipyrromethene Ligand

The spectroscopic properties of Rh and Ir complexes that contain *meso-p*-methoxyphenyldipyrromethene (dipyH) and phenylpyridine (ppy) ligands, [Rh(dipy)$_3$], [Rh(ppy)$_2$(dipy)] and [Ir(ppy)$_2$(dipy)], are described and discussed from experimental and theoretical approaches.



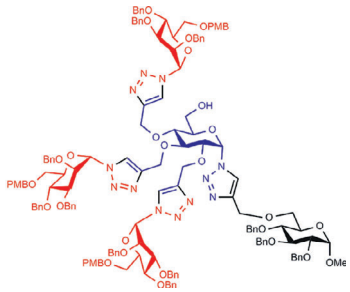
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201201427**

Glycoside Chemistry

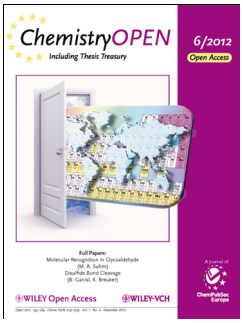
M. L. Lepage, A. Bodlenner, P. Compain*

Stereoselective Synthesis of α-Glycosyl Azides by TMSOTf-Mediated Ring Opening of 1,6-Anhydro Sugars

A new route to α-glycosyl azides by way of TMSN$_3$ ring-opening of 1,6-anhydro sugars is presented. The potential of this methodology is demonstrated by the expeditious synthesis of a pseudopentasaccharide following a "click-click" approach.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201201580**

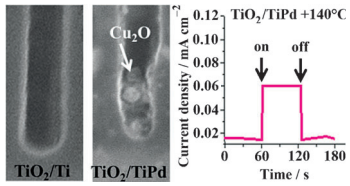


Palladium Activation

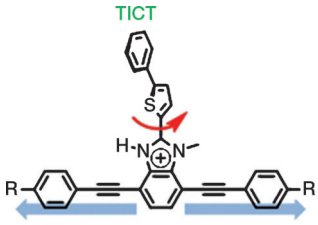
A. Mazare, N. Liu, K. Lee, M. S. Killian, P. Schmuki*

Embedded Palladium Activation as a Facile Method for TiO$_2$-Nanotube Nanoparticle Decoration: Cu$_2$O-Induced Visible-Light Photoactivity

Highly decorated! A direct and efficient way to decorate TiO$_2$ nanotubes with copper, Cu$_2$O and CuO particles is shown. Active palladium species embedded in the TiO$_2$ nanotube walls allow specific initiation sites to be triggered for electroless copper deposition. These Cu$_2$O-decorated TiO$_2$ nanotubes could be used for water splitting.



ChemistryOpen
DOI: **10.1002/open.201200041**



Charge-transfer Systems

T. Inouchi, T. Nakashima,* T. Kawai*

The Origin of the Emission Properties of π-Conjugated Molecules that have an Acid-responsive Benzimidazole Unit

A twist in the tale: The emission properties of π-conjugated molecules with an *N*-methylbenzimidazole as a proton-responsive unit are compared between T-shaped cross-conjugated and linear conjugated molecules. Acid-responsive twisted intramolecular charge-transfer (TICT) emission requires the cross-conjugated T-shaped structure in terms of the separation of frontier molecular orbitals of HOMO and LUMO as well as bond rotation.

Asian J. Org. Chem.
DOI: **10.1002/ajoc.201200203**

Drug Discovery

J. Rose

John LaMattina: 30 Years in Pharma

How has the pharmaceutical industry changed in the last 30 years? Dr. John L. LaMattina, former Senior Vice President, Pfizer Inc., and President, Pfizer Global Research and Development, explains that it has consolidated from a highly fractionated industry and that the discovery and development of safe, new, and effective medicines is now speeded by technology and slowed by hurdles in clinical development.

ChemViews magazine
DOI: **10.1002/chemv.201300013**