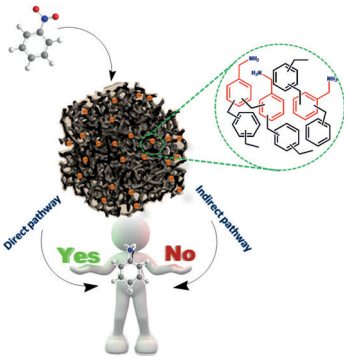
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Hydrogenation

J. Mondal,* S. K. Kundu, W. K. Hung Ng, R. Singuru, P. Borah, H. Hirao,* Y. Zhao,* A. Bhaumik*

Fabrication of Ruthenium Nanoparticles in Porous Organic Polymers: Towards Advanced Heterogeneous Catalytic Nanoreactors

This way or that? A strategy has been adopted to develop a benzene–benzylamine-1 (BBA-1) porous organic polymer (POP) by Friedel–Crafts alkylation. Ru@POP behaves as a heterogeneous catalytic nanoreactor for the catalytic transfer hydrogenation of nitroarenes at RT through a direct reaction pathway, as supported by DFT computational calculations (see figure).



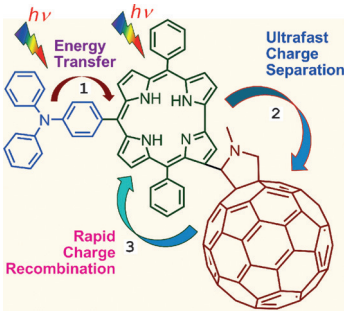
Chem. Eur. J.
DOI: **10.1002/chem.201504055**

Electron Transfer

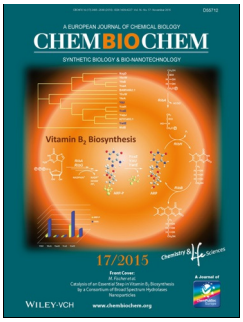
K. Sudhakar, S. Gokulnath, L. Giribabu,* G. N. Lim, T. Trâm, F. D'Souza*

Ultrafast Photoinduced Charge Separation Leading to High-Energy Radical Ion-Pairs in Directly Linked Corrole–C_{60} and Triphenylamine–Corrole-C_{60} Donor–Acceptor Conjugates

There ought to be a strict separation: A closely spaced triad system was synthesized possessing a central corrole that linked the energy donor triphenylamine at the *meso* position and the electron acceptor fullerene at the β-pyrrole position. The occurrence of rapid charge separation leading to high-energy charge-separated state in nonpolar toluene is demonstrated.



Chem. Asian J.
DOI: **10.1002/asia.201500679**

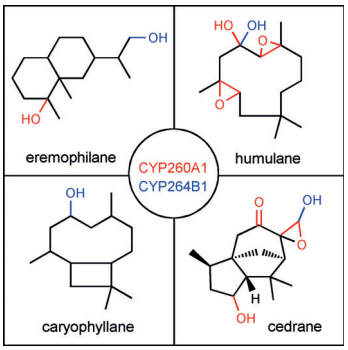


Cytochrome P450s

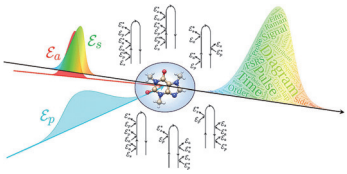
A. Schifrin, M. Litzenburger, M. Ringle, T. T. B. Ly, R. Bernhardt*

New Sesquiterpene Oxidations with CYP260A1 and CYP264B1 from *Sorangium cellulosum* So ce56

P450s for precision oxidation: This work compares the specificities and regioselectivities of the bacterial CYP260A1 and CYP264B1 for the oxidation of four sesquiterpene substrate classes. A whole-cell conversion system based on *E. coli* was employed. Filling gaps in sesquiterpene oxidations catalyzed by bacterial P450s, we obtained products that had not been observed in previous P450 conversion studies of terpenes.



ChemBioChem
DOI: **10.1002/cbic.201500417**



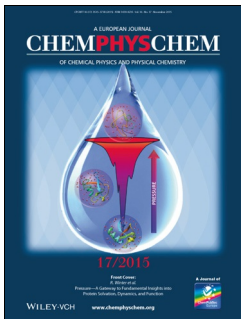
Fast Spectroscopy

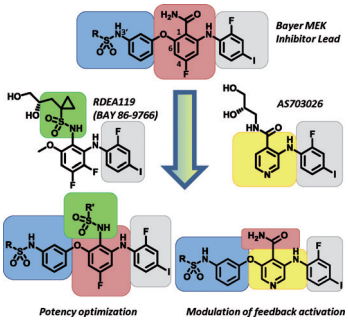
G. Fumero, G. Batignani, K. E. Dorfman, S. Mukamel, T. Scopigno*

On the Resolution Limit of Femtosecond Stimulated Raman Spectroscopy: Modelling Fifth-Order Signals with Overlapping Pulses

Overlaying signals: Assessing the resolution limit of pump–probe spectroscopies is a critical issue for tackling ultrafast phenomena. The authors address the case of femtosecond stimulated Raman spectroscopy under the extreme condition of time overlap between the pulses initiating the photoexcitation and those probing the subsequent dynamics. Surprisingly, new time-dependent features originate affecting the signal resolution.

ChemPhysChem
DOI: **10.1002/cphc.201500548**





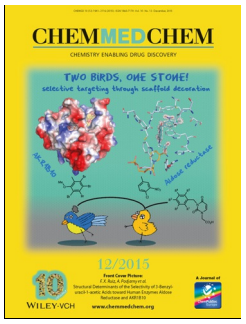
Structure-Based Drug Design

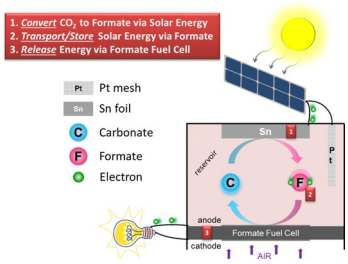
I. V. Hartung,* F. Pühler, R. Neuhaus, A. Scholz, G. Siemeister, J. Geisler, R. C. Hillig, O. von Ahsen, M. Hitchcock*

Modular Assembly of Allosteric MEK Inhibitor Structural Elements Unravels Potency and Feedback-Modulation Handles

Directed evolution of MEK inhibitors by backbone shuffling! Rational reassembly of mitogen-activated protein kinase kinase (MEK) inhibitor structural elements in a gene-shuffling-like fashion gives rise to exceptionally potent and in vivo efficacious novel inhibitors which show low potential for brain penetration and do not induce MEK pathway reactivation.

ChemMedChem
DOI: **10.1002/cmdc.201500442**





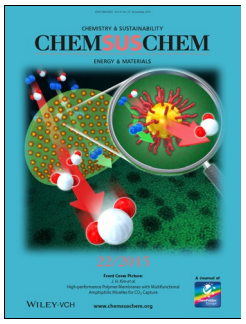
Energy Storage

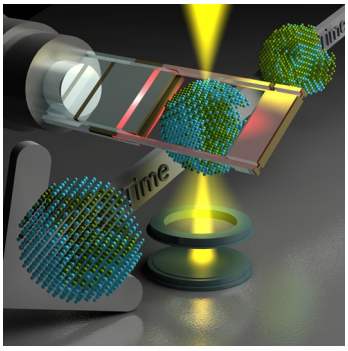
T. Vo, K. Purohit, C. Nguyen, B. Biggs, S. Mayoral, J. L. Haan*

Formate: an Energy Storage and Transport Bridge between Carbon Dioxide and a Formate Fuel Cell in a Single Device

All-in-one: The first device that simultaneously uses alternative energy in combination with a direct formate fuel cell (DFFC) is reported. A solar panel is used to power the electrochemical reduction of dissolved carbon dioxide (carbonate) into formate, which is then used to operate a DFFC. It is possible to continuously charge the device using alternative energy for on-demand use.

ChemSusChem
DOI: **10.1002/cssc.201500958**





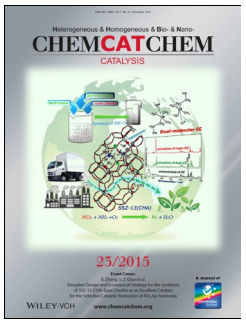
Atomic Ordering

S. Prabhudev, M. Bugnet, G.-Z. Zhu, C. Bock, G. A. Botton*

Surface Segregation of Fe in Pt–Fe Alloy Nanoparticles: Its Precedence and Effect on the Ordered-Phase Evolution during Thermal Annealing

Surface-segregation vs atomic-ordering: By using atomic-resolution imaging and electron energy loss spectroscopy and employing both ex situ and in situ approaches, an ongoing interplay between segregation and ordering during the thermal annealing of Pt—Fe alloy nanoparticles is studied. Findings reveal a surface segregation of Fe that is in contrast to earlier reports suggesting Pt surface segregation.

ChemCatChem
DOI: **10.1002/cctc.201500380**

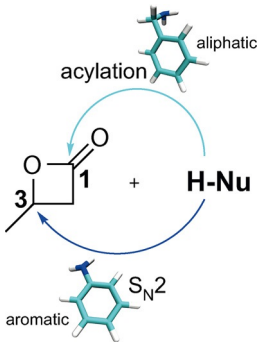


Reaction Mechanisms

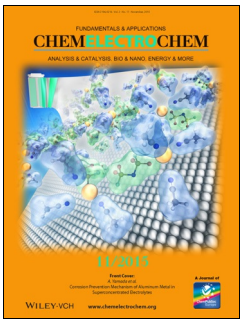
E. N. Wiedemann, F. A. Mandl, I. D. Blank, C. Ochsenfeld,*
A. R. Ofial,* S. A. Sieber*

Kinetic and Theoretical Studies of Beta-Lactone Reactivity—A Quantitative Scale for Biological Application

How reactive? Pharmacologically relevant electrophilic scaffolds, such as beta-lactones and beta-lactams, are kinetically evaluated according to their reactivity towards nucleophiles under physiological conditions (see figure). The ambident character of beta-butyrolactone (C1 vs. C3 attack) towards aromatic and primary aliphatic amines can be shown by kinetic studies and explained by QM/MM calculations using linear-scaling QM methods.



ChemPlusChem
DOI: **10.1002/cplu.201500246**

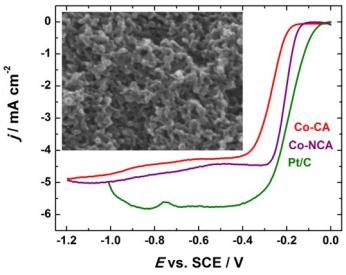


Electrocatalysis

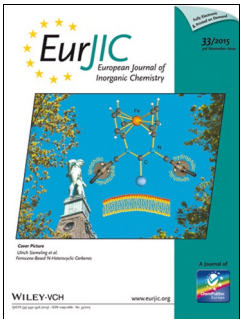
K. Kreek, A. Sarapuu,* L. Samolberg, U. Joost, V. Mikli, M. Koel, K. Tammeveski

Cobalt-Containing Nitrogen-Doped Carbon Aerogels as Efficient Electrocatalysts for the Oxygen Reduction Reaction

Non-precious, but effective: Carbon aerogels are prepared through sol-gel polymerization of organic precursors with subsequent insertion of Co by ion exchange and pyrolysis. High activity for the four-electron reduction of O_2 in alkaline solution (see picture) and good stability make these promising cathode catalysts for alkaline fuel cells.



ChemElectroChem
DOI: **10.1002/celc.201500275**

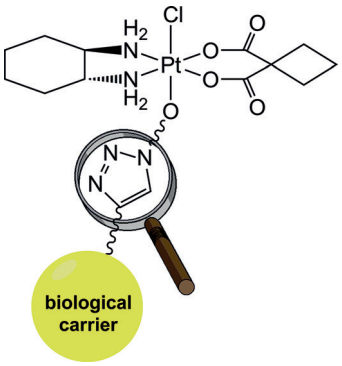


Antitumor Prodrugs

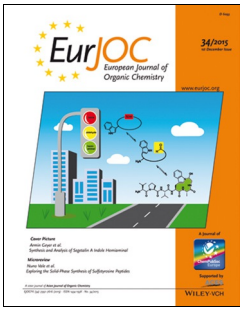
E. Gabano, M. Ravera, S. Tinello, D. Osella*

Synthesis of Pt^{IV}-Biomolecule Conjugates through Click Chemistry

Cu^{I}-catalyzed Huisgen cycloaddition was applied to a new azide-functionalized Pt^{IV} complex for coupling with three different model molecules that can be exploited for selective targeting of the platinum conjugate toward tumor cells.



Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201501066**

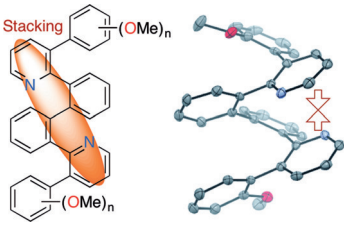


Helical Structures

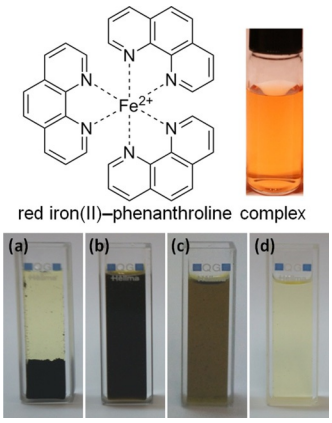
Y. Tokoro,* N. Ohtsuka, A. Toh, S.-i. Fukuzawa*

Synthesis and Structure of N-Hetero-*ortho*-phenylene Hexamers Containing 2,3-Substituted Pyridine Moieties

Two pyridine rings are substituted for benzene rings in *ortho*-phenylene hexamers, which are stacked in a helical conformation. Directive stacking of pyridine rings effectively stabilizes a 3:1 helical conformation, as compared with other possible conformers, even in $CDCl_3$.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201501270**



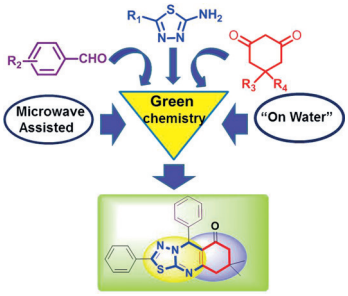
ChemistryOpen
DOI: **10.1002/open.201500096**

Carbon Nanotubes

E. Agustina, J. Goak, S. Lee, Y. Seo, J.-Y. Park, N. Lee*

Simple and Precise Quantification of Iron Catalyst Content in Carbon Nanotubes Using UV/Visible Spectroscopy

Purity assessment with phen: A simple colorimetric system can be used to determine the iron catalyst content in carbon nanotubes (CNTs). Iron dissolution from CNTs was investigated with various acids, either alone or in mixtures; shown here are: a) HCl/HNO_3 (3:1), b) H_2SO_4/HNO_3 (3:1), c) $HClO_4/HNO_3$ (3:1), and d) $HClO_4$/fuming-HNO_3 (3:1). The latter solution (d) completely dissolved the CNTs, rendering the sample suitable for analysis.



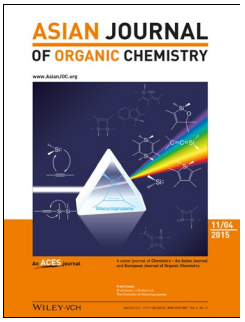
Asian J. Org. Chem.
DOI: **10.1002/ajoc.201500397**

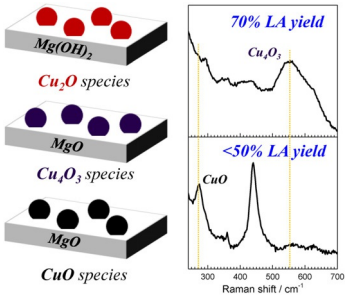
Multicomponent Synthesis

P. Wadhwa, T. Kaur, N. Singh, U. P. Singh, A. Sharma*

p-Toluenesulfonic Acid-Mediated Three-Component Reaction "On-Water" Protocol for the Synthesis of Novel Thiadiazolo-[2,3-*b*]quinazolin-6(7*H*)-ones

Three to one: The *p*-toluenesulfonic acid-mediated "on-water" multicomponent reaction sequence for the synthesis of thiadiazolo[2,3-*b*]quinazolinones is described. The reaction between 5-aryl-1,3,4-thiadiazol-2-amines, cyclic 1,3-dicarbonyls and aldehydes proceeds with microwave irradiation.





ChemNanoMat
DOI: **10.1002/cnma.201500131**

Metal Oxides

H. Choudhary, K. Ebitani*

A Convenient Surfactant-Mediated Hydrothermal Approach to Control Supported Copper Oxide Species for Catalytic Upgrading of Glucose to Lactic Acid

Un-phased: Through the combinatorial choice of surfactants, hydrothermal preparation, and post-hydrothermal treatment, the phase of magnesia-supported copper oxide catalysts can be controlled. Cationic surfactants possessing ammonium ions afford Cu_4O_3 species, whereas *N*,*N*-dimethyldodecylamine *N*-oxide (a nonionic surfactant) gave Cu_2O after hydrothermal treatment and CuO after calcination at 773 K in air.

ChemViews magazine
DOI: **10.1002/chemv.201500093**

Computational Chemistry

C. Goedecke, R. Tonner

Understanding and Designing Precursors for Chemical Vapor Deposition

What can computational chemistry contribute to new materials? Ralf Tonner, University of Marburg, Germany, explains his research on semiconductor functionalization and the value of a chemist's perspective in interdisciplinary work with physicists and materials scientists.