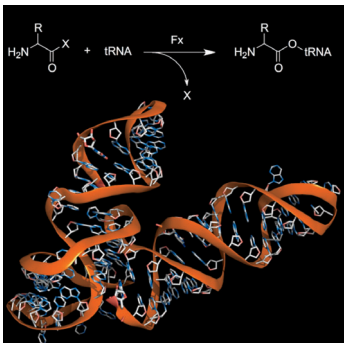
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Genetic Code Reprogramming

T. Passioura, H. Suga*

Flexizyme-Mediated Genetic Reprogramming As a Tool for Noncanonical Peptide Synthesis and Drug Discovery

Rewriting the rules: Genetic reprogramming techniques, in which non-canonical amino acids are incorporated into peptides, allow the synthesis of structurally diverse drug-like molecules. This Concept article outlines the development of these techniques. We focus on the use of ribozymes as tRNA aminoacylation catalysts (see scheme) and discuss the application of these technologies to drug discovery.



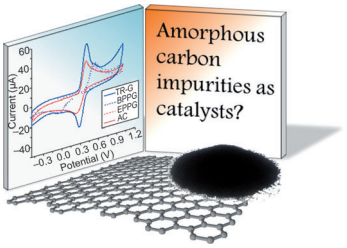
Chem. Eur. J.
DOI: **10.1002/chem.201300247**

Graphene

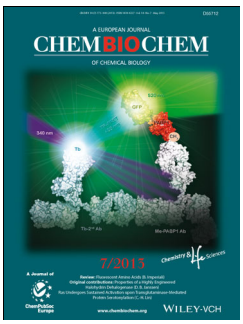
L. Wang, A. Ambrosi, M. Pumera*

Could Carbonaceous Impurities in Reduced Graphenes be Responsible for Some of Their Extraordinary Electrocatalytic Activities?

Impure and simple: Thermally and chemically reduced graphene materials contain significant amounts of carbonaceous impurities that are similar in structure to amorphous carbon. Herein, the claimed electrocatalytic activities of these materials for the oxidation of NADH, acetaminophen, and hydroquinone are shown to mainly be due to the presence of carbonaceous impurities.



Chem. Asian J.
DOI: **10.1002/asia.201300122**

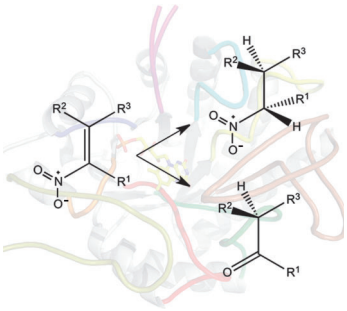


Oxidoreductases

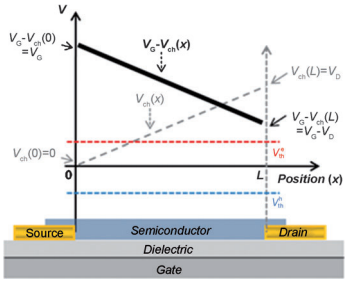
G. Oberdorfer, A. Binter, S. Wallner, K. Durchschein, M. Hall, K. Faber, P. Macheroux, K. Gruber*

The Structure of Glycerol Trinitrate Reductase NerA from *Agrobacterium radiobacter* Reveals the Molecular Reason for Nitro- and Ene-Reductase Activity in OYE Homologues

Refining reductases: We determined the crystal structure of the OYE-like enzyme NerA from *Agrobacterium radiobacter*, which shows both ene-reductase and nitro-reductase activity. Structure analysis and spectroscopic studies indicate the presence of two alternate binding modes of the nitro compounds as an explanation of the dual activity of some OYE homologues.



ChemBioChem
DOI: **10.1002/cbic.201300136**

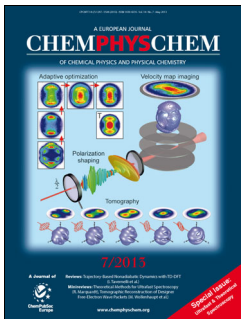


Field-Effect Transistors

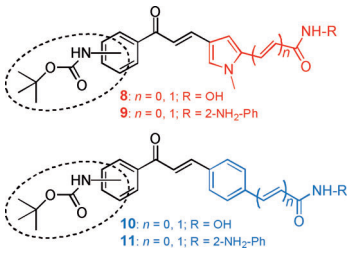
M. S. Kang, C. D. Frisbie*

A Pedagogical Perspective on Ambipolar FETs

What a picture is worth: The operation of an ambipolar field-effect transistor (FET) is described graphically, based on a simple diagram depicting the gate voltage-channel potential profile relative to the injection threshold voltage of charge carriers.



ChemPhysChem
DOI: **10.1002/cphc.201300014**

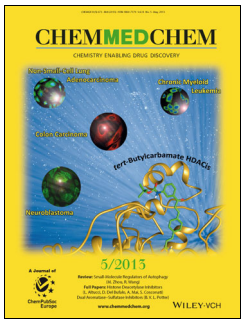


Drug Discovery

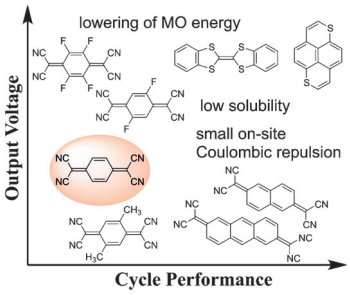
S. Valente, D. Trisciuoglio, M. Tardugno, R. Benedetti, D. Labella, D. Secci, C. Mercurio, R. Boggio, S. Tomassi, S. Di Maro, E. Novellino, L. Altucci,* D. Del Bufalo,* A. Mai,* S. Cosconati*

tert-Butylcarbamate-Containing Histone Deacetylase Inhibitors: Apoptosis Induction, Cytodifferentiation, and Antiproliferative Activities in Cancer Cells

Cell-cycle arrest warrant: Novel pyrrole- and benzene-based hydroxamates and 2′-aminoanilides bearing the *tert*-butylcarbamate group at the CAP moiety are shown to be HDAC inhibitors. Two compounds, **8b** and **10c**, selectively inhibit HDAC6 at nanomolar levels and display high levels of apoptosis induction in human leukemia U937 cells. In tests against a panel of cancer cells, **10c** showed inhibition of cell proliferation at sub- to low-micromolar concentrations; further studies are needed to assess its anticancer value in vivo.



ChemMedChem
DOI: **10.1002/cmdc.201300005**

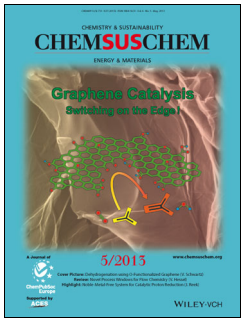


Organic Batteries

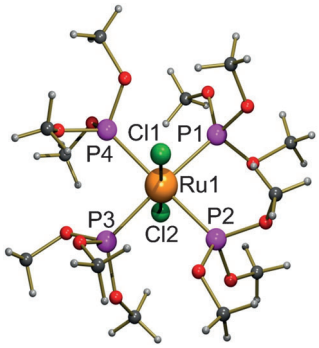
S. Nishida, Y. Yamamoto, T. Takui,* Y. Morita*

Organic Rechargeable Batteries with Tailored Voltage and Cycle Performance

Made to order: Rechargeable batteries are fabricated by using organic electron acceptors and donors as active cathode materials. Their output voltage and cycle performance can be tuned by organic chemistry techniques. The output voltages are linked to both the redox potentials and the energy levels of the frontier molecular orbitals of the cathode materials, enabling to predict the output voltage at an early stage of the design.



ChemSusChem
DOI: **10.1002/cssc.201300010**

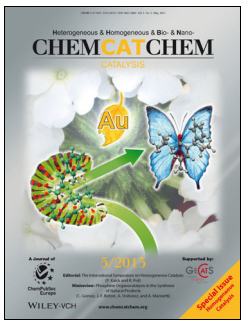


CO_2 Hydrogenation

K. Muller, Y. Sun, W. R. Thiel*

Ruthenium(II)–Phosphite Complexes as Catalysts for the Hydrogenation of Carbon Dioxide

Ru(II) for the home team: Ruthenium complexes of simple and cheap phosphite ligands give high activities in the hydrogenation of carbon dioxide under supercritical conditions. The activities correlate well with the steric demand of the substituents.



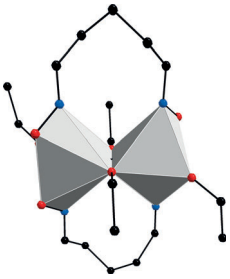
ChemCatChem
DOI: **10.1002/cctc.201200818**

Titanium and Zirconium Alkoxides

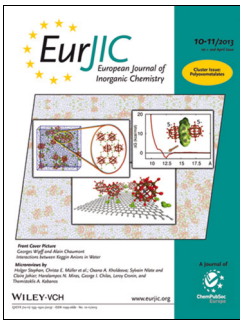
C. Maurer, E. Pittenauer, M. Puchberger, G. Allmaier, U. Schubert*

Dioximate- and Bis(salicylaldiminate)-Bridged Titanium and Zirconium Alkoxides: Structure Elucidation by Mass Spectrometry

Building bridges: Modification of titanium and zirconium alkoxides with various dioximes and bis(salicylaldimines) resulted in dimeric complexes, in which the ligands bridge the metal alkoxide moieties (see figure; O red, N blue). ESI mass spectrometry was found to be a powerful tool for structure elucidation of the complexes.



ChemPlusChem
DOI: **10.1002/cplu.201300014**

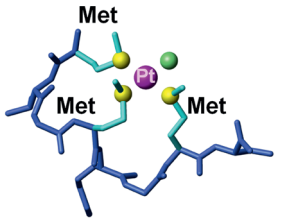


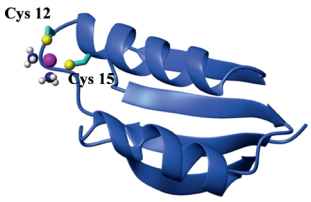
Cisplatin Transport

F. Arnesano,* M. Losacco, G. Natile

An Updated View of Cisplatin Transport

Membrane transporters and soluble chaperones of copper ions mediate cellular uptake of and resistance to platinum-based drugs. In this microreview, the interactions of cisplatin with the methionine-rich motifs of the copper permease Ctr1 and with the cysteine motifs of the cytosolic copper chaperone Atox1 are described. Only in the latter case does the drug retain its ammine ligands essential for antitumor activity.





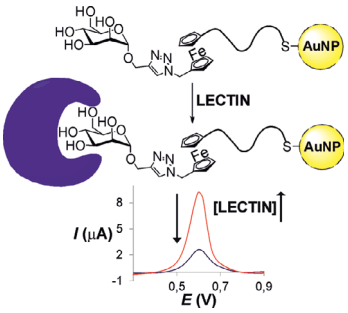
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201300001**

Glycoconjugate Nanoparticles

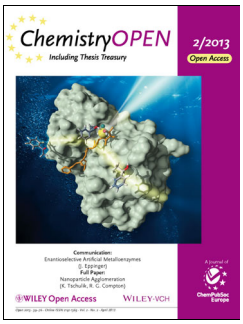
M. C. Martos-Maldonado, M. B. Thygesen, K. J. Jensen,*
A. Vargas-Berenguel*

Gold–Ferrocene Glyco-Nanoparticles for High-Sensitivity Electrochemical Detection of Carbohydrate–Lectin Interactions

The preparation of two types of gold nanoparticles coated with ferrocene–mannose conjugates is described. Such nanoparticles allowed the detection of concanavalin A (Con A) by both optical and electrochemical methods. The glycoside multivalent effect and multielectron exchange due to the multiple display of ferrocene resulted in the electrochemical detection of Con A with high sensitivity.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201300205**

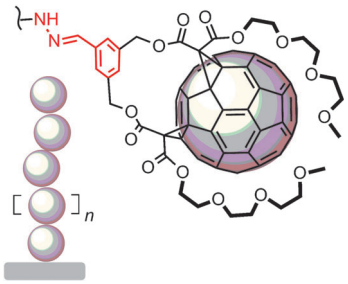


Photosystems

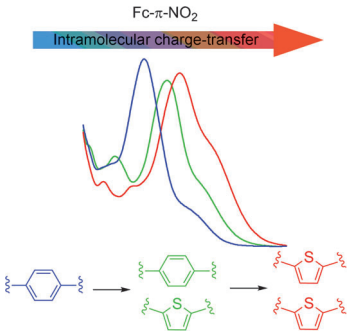
A. Bolag, H. Hayashi, P. Charbonnaz, N. Sakai, S. Matile*

Self-Organizing Surface-Initiated Polymerization of Multicomponent Photosystems: Stack Exchange with Fullerenes

Like beads on a string: A synthetic method for the directional construction of strings of spherical fullerenes along stacks of planar oligothiophenes is described. The key to success was the preparation of fullerenes with two solubilizing tri(ethylene glycol) tails (bold) and an aromatic aldehyde for covalent capture by hydrazides along the oligothiophene stacks (red).



ChemistryOpen
DOI: **10.1002/open.201300004**



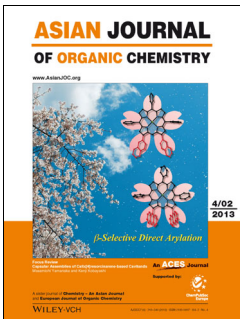
Asian J. Org. Chem.
DOI: **10.1002/ajoc.201300063**

Charge-Transfer Chromophores

J. Kulhánek, F. Bureš,* J. Opršal, W. Kuznik, T. Mikysek, A. Růžička

1,4-Phenylene and 2,5-Thienylene π-Linkers in Charge-Transfer Chromophores

Not such a pushover: The properties of 15 D-π-A chromophores that feature ferrocene donors and NO_2 acceptors were investigated by X-ray analysis, electrochemistry, absorption spectroscopy, and DFT calculations. Systematic replacement of 1,4-phenylene with 2,5-thienylene π-linker subunits considerably affects the electronic properties of the push-pull chromophores. Thiophene proved to be a polarizable moiety that allows substantial intramolecular charge transfer.



ChemViews magazine
DOI: **10.1002/chemv.201300044**

Fullerenes

Helena Dodziuk

Like a Detective Story: The Discovery of C_{60}

The discovery of fullerenes was neither quick nor easy and was rich in surprising twists. From the prediction in 1945 that molecules of such high symmetry would never be found, it took until 1981 for the synthesis of a regular dodecahedrane to be described. And it took even longer to identify and obtain C_{60}, of regular icosahedral symmetry, and assign its structure.