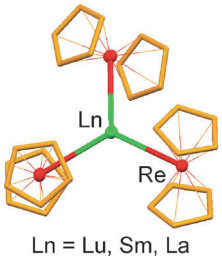
Metal–Metal Bonding

B. Oelkers, M. V. Butovskii, R. Kempe*

f-Element–Metal Bonding and the Use of the Bond Polarity To Build Molecular Intermetalloids

Molecular intermetalloids: In this Concept, structurally authenticated molecular compounds with direct bonds between rare-earth metals or actinoids and transition or main group metals are summarized. Special attention is given to the use of bond polarity as a tool for designing molecular intermetalloids incorporating rare-earth and transition metals.



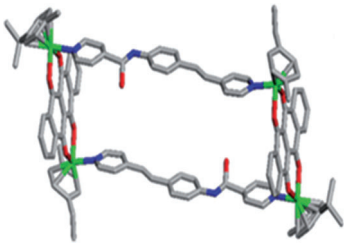
Chem. Eur. J.
DOI: **10.1002/chem.201200783**

Host–Guest Systems

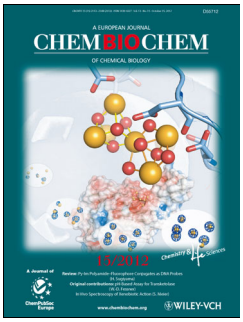
A. Mishra, S. Lee, H. Kim, T. R. Cook, P. J. Stang, K.-W. Chi*

Selective Detection of Multicarboxylate Anions based on "Turn on" Electron Transfer by Self-Assembled Molecular Rectangles

More than a black box: Two new large molecular rectangles were obtained from dinuclear arene–ruthenium complexes and an unsymmetrical amide donor ligand. The rectangles were utilized for anion-sensing studies and one showed stronger binding with multicarboxylate anions, such as oxalate, tartrate, and citrate, in UV/Vis and fluorescence titration experiments.



Chem. Asian J.
DOI: **10.1002/asia.201200488**

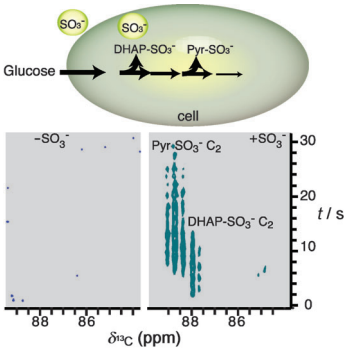


In Vivo NMR Spectroscopy

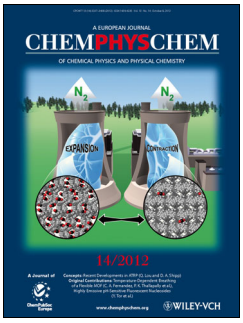
S. Meier,* N. Solodovnikova, P. R. Jensen, J. Wendland

Sulfite Action in Glycolytic Inhibition: In Vivo Real-Time Observation by Hyperpolarized ^{13}C NMR Spectroscopy

Sugar-free diet: The effects of xenobiotics are often phenotypically evident even without sufficient insight into the underlying molecular mechanisms. Here, we visualize the mode of action of sulfite in living cells by detecting sulfite association with specific metabolites that results in glycolytic inhibition.



ChemBioChem
DOI: **10.1002/cbic.201200450**

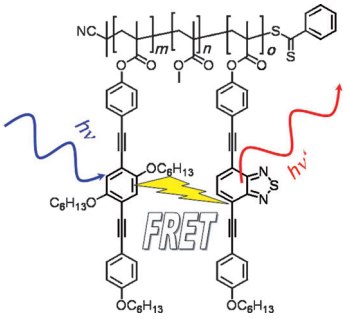


Fluorescence Spectroscopy

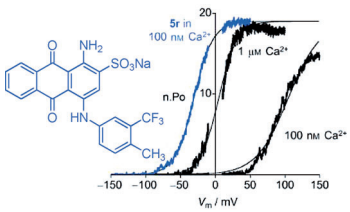
J. Schäfer, A. Breul, E. Birckner, M. D. Hager, U. S. Schubert, J. Popp, B. Dietzek*

Fluorescence Study of Energy Transfer in PMMA Polymers with Pendant Oligo-Phenylene-Ethynylenes

Fluorescence depolarization by energy migration: Energy migration between individual oligo-phenylene-ethynylenes pendant to a polymer backbone as well as energy transfer from blue-emitting donors to red-emitting acceptors (see picture) is investigated by means of fluorescence emission spectroscopy. Emission anisotropy measurements indicate fluorescence depolarization due to energy migration.



ChemPhysChem
DOI: **10.1002/cphc.201200545**



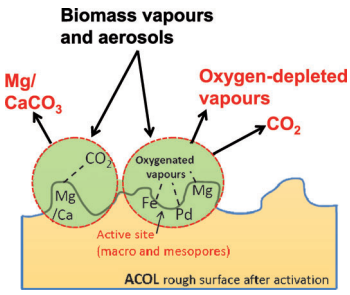
Drug Discovery

S. Roy, A. Morayo Akande, R. J. Large, T. I. Webb, C. Camarasu, G. P. Sergeant, N. G. McHale, K. D. Thornbury, M. A. Hollywood*

Structure–Activity Relationships of a Novel Group of Large-Conductance Ca^{2+}-Activated K^+ (BK) Channel Modulators: The GoSlo-SR Family

Opening up ion channels: We synthesised a series of anthraquinone analogues, called the GoSlo-SR family. Their effects on bladder smooth muscle BK channels were examined and, as shown, shifted voltage dependent activation > -100 mV (at 10 μM). They were more efficacious than NS11021 and could provide a new scaffold for the design of efficacious BK openers.

ChemMedChem
DOI: **10.1002/cmdc.201200321**



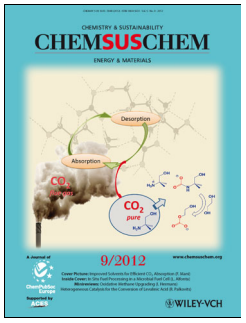
Bio-oils

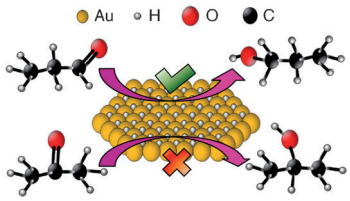
A. Sanna,* J. M. Andrésen

Bio-oil Deoxygenation by Catalytic Pyrolysis: New Catalysts for the Conversion of Biomass into Densified and Deoxygenated Bio-oil

Grains of truth: Catalytic pyrolysis is able to produce bio-oil with a low O and N content and high levels of aliphatics and H from spent grains by using activated serpentine and olivine at 430–460 °C. The biomass oxygenated vapours and aerosols interact in the macro- and mesoporous active sites with the naturally present metallic species to undergo decarboxylation with the formation of CO_2 and C_5–C_6 O-depleted species.

ChemSusChem
DOI: **10.1002/cssc.201200245**





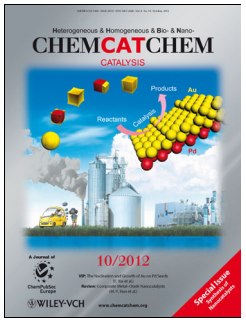
Gold Catalysis

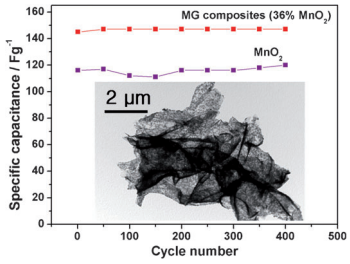
M. Pan, Z. D. Pozun, A. J. Brush, G. Henkelman, C. B. Mullins*

Low-Temperature Chemoselective Gold-Surface-Mediated Hydrogenation of Acetone and Propionaldehyde

A golden opportunity: Chemoselective reactivity for the hydrogenation of acetone and propionaldehyde on H-covered gold is described. Propionaldehyde forms 1-propanol, whereas no hydrogenated product is detected from the interaction between acetone and hydrogen. Dissimilar energetic barriers and the polymerization of CH_3CH_2CHO are the basis of the chemoselective activity.

ChemCatChem
DOI: **10.1002/cctc.201200311**





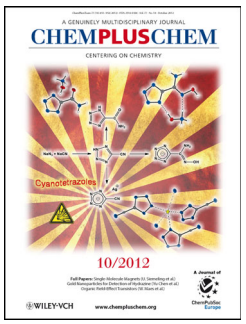
Supercapacitors

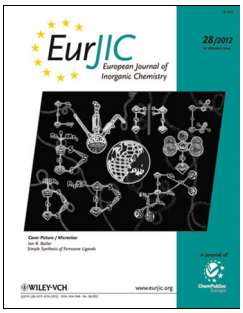
Q. Chu, J. Du, W. Lu, G. Chang, Z. Xing, H. Li, C. Ge, L. Wang, Y. Luo, A. M. Asiri, A. O. Al-Youbi, X. Sun*

Synthesis of a MnO_2 Nanosheet/Graphene Flake Composite and Its Application as a Supercapacitor having High Rate Capability

Hydrothermal treatment of $KMnO_4$ and graphene flakes (GFs) leads to MnO_2 nanosheets decorated on GFs. The resulting MnO_2/GF (MG) composite has been tested as a supercapacitor electrode in aqueous electrolyte and found to exhibit good cycling stability with a specific capacitance of 147 Fg^{-1} at a current density of 5 Ag^{-1} (see figure).

ChemPlusChem
DOI: **10.1002/cplu.201200178**



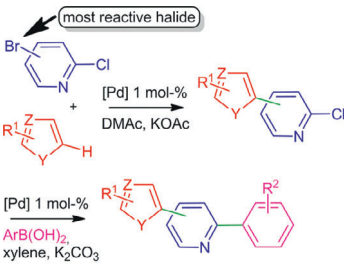


Palladium-Catalysed Arylation

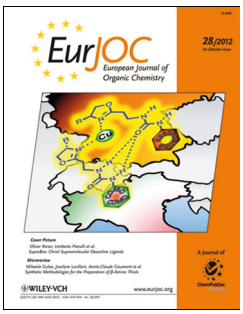
M. Baloch, D. Roy, S. Bensaid, V. Guerchais, H. Doucet*

Sequential Palladium-Catalysed Direct Arylation Followed by Suzuki Coupling of Bromo-2-chloropyridines: Simple Access to a Variety of 2-Arylpyridines

The palladium-catalysed direct heteroarylation of bromo-2-chloropyridines followed by Suzuki coupling allows the synthesis of a variety of heteroarylated 2-arylpyridines in only two steps.



Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201200613**

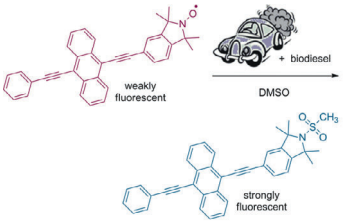


Biodiesel Radical Production

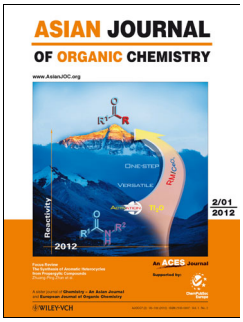
S. Stevanovic, B. Miljevic, G. K. Eaglesham, S. E. Bottle, Z. D. Ristovski, K. E. Fairfull-Smith*

The Use of a Nitroxide Probe in DMSO to Capture Free Radicals in Particulate Pollution

The oxidative potential of particulate pollution derived from a biodiesel engine exhaust stream was evaluated by using a profluorescent nitroxide. A methanesulfonamide adduct arising from the reaction of the nitroxide with DMSO-derived sulfoxyl radicals was identified as the main fluorescent product.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201200903**

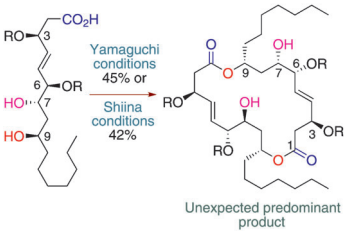


Macrolides

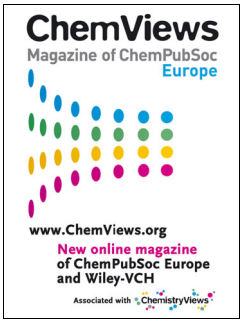
S.-M. Zhang, X.-W. Lu, Y. Wu*

Unexpected Facile Formation of an Achaetolide Dimer

Expect the unexpected: In contrast to the smooth ring closures in all ring-closing metathesis (RCM)-based approaches to achaetolide, lactonization led to no monolactone, in spite of the high-dilution conditions, but gave a diolide as the predominant product. This method is a facile one-pot route to dilactones and also reveals a so far unnoticed advantage of RCM over lactonization in the construction of the given ring system. R = methoxymethyl.



Asian J. Org. Chem.
DOI: **10.1002/ajoc.201200063**



Social Media

Vera Köster

Social Media in Sciences – Interview with P. Smith, Agilent Technologies

How can scientists benefit from the increasing use of social media within the scientific community? Paul Smith, EMEA and India Compliance Program Manager for Agilent Technologies, UK, and moderator of a LinkedIn group, talks about his experiences of networking with researchers and industry through social media and how he uses these contacts to benefit him and his company.

ChemViews magazine
DOI: **10.1002/chemv.201200090**