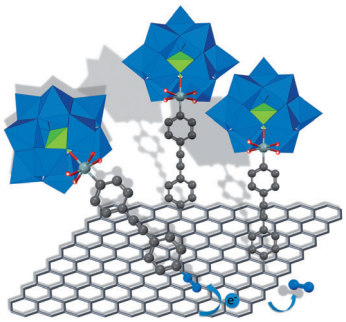
Polyoxometalates

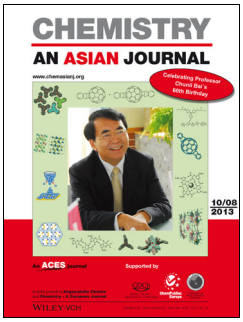
C. Rinfray, G. Izzet, J. Pinson, S. Gam Derouich, J.-J. Ganem, C. Combellas, F. Kanoufi,* A. Proust*

Electrografting of Diazonium-Functionalized Polyoxometalates: Synthesis, Immobilisation and Electron-Transfer Characterisation from Glassy Carbon

POMs at work: Electron transport at a glassy carbon electrode covalently modified by electrochemical activation of a polyoxometalate (POM) hybrid bearing a pending diazonium group is assessed and discussed as an essential step toward a deeper understanding of the degree of communication between the electrode and the immobilised POMs for further implementation in functional devices (see figure).



Chem. Eur. J.
DOI: **10.1002/chem.201302304**

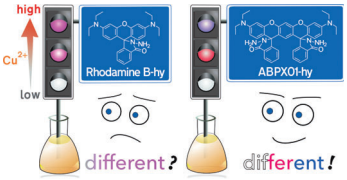


Sensors

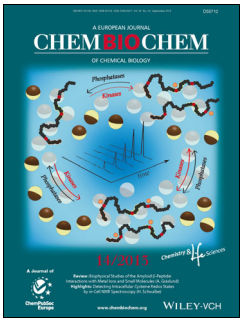
Y. Shirasaki, S. Kamino,* M. Tanioka, K. Watanabe, Y. Takeuchi, S. Komeda, S. Enomoto*

New Aminobenzopyranoxanthene-Based Colorimetric Sensor for Copper(II) Ions with Dual-Color Signal Detection System

One molecule, three faces: A new aminobenzopyranoxanthene (ABPX)-based colorimetric sensor allows determination of changes in Cu^{2+} concentration by spectrophotometry and the naked eye. This quantitative, colorful, and simple method takes advantage of the unique protolytic reaction of ABPX in response to Cu^{2+}.



Chem. Asian J.
DOI: **10.1002/asia.201300515**

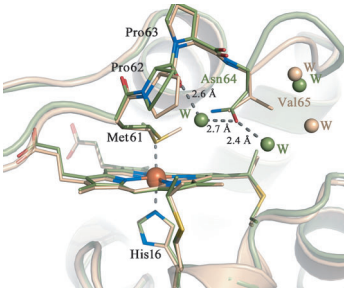


EPR Spectroscopy

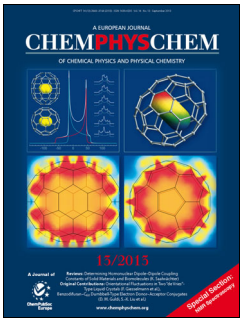
M. Can, J. Krucinska, G. Zoppellaro, N. H. Andersen, J. E. Wedekind,* H.-P. Hersleth,* K. K. Andersson,* K. L. Bren*

Structural Characterization of *Nitrosomonas europaea* Cytochrome *c*-552 Variants with Marked Differences in Electronic Structure

Many roles for one residue: X-ray crystal structures of *N. europaea* cytochrome *c*-552 and of a single-deletion mutant demonstrate that one heme pocket residue influences axial ligand conformation, heme conformation, and access of water to the heme, with significant consequences for electronic structure.



ChemBioChem
DOI: **10.1002/cbic.201300118**

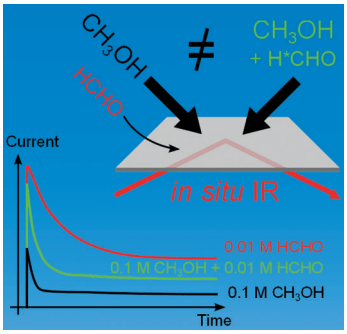


Electrocatalysis

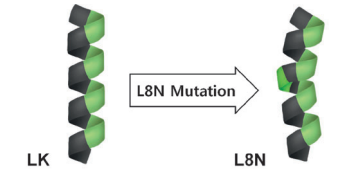
R. Reichert, J. Schnaidt, Z. Jusys, R. J. Behm*

The Influence of Reactive Side Products in Electrocatalytic Reactions: Methanol Oxidation as Case Study

The role and impact of follow-up processes involving reactive side products in an electrocatalytic reaction is demonstrated for the electrooxidation of methanol at a Pt electrode. By using combined in situ infrared spectroscopy and online mass spectrometry and employing isotope-labeling techniques, it is shown that even small amounts of the incomplete oxidation products formaldehyde and formic acid have pronounced effects on the reaction.



ChemPhysChem
DOI: **10.1002/cphc.201300726**



	LK	L8N	Remark
MIC (*E. coli*) [μM]	20	2.5	8-fold ↓
MHC [μM]	0.08	640	8000-fold ↑
Therapeutic Index	0.004	256	64000-fold ↑

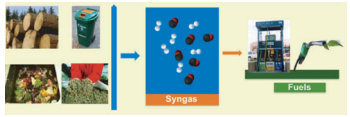
Antimicrobial Peptides

M. Son, Y. Lee, H. Hwang, S. Hyun, J. Yu*

Disruption of Interactions between Hydrophobic Residues on Nonpolar Faces is a Key Determinant in Decreasing Hemolysis and Increasing Antimicrobial Activities of α-Helical Amphipathic Peptides

To design antimicrobial peptides with decrease pore-forming activity in eukaryotic (host) membranes, an amphipathic α-helical model peptide composed of Leu and Lys was modified to probe the balance in antimicrobial and hemolytic activities. Among analogues with broken hydrophobic interactions, L8N derivative exhibited an 8000-fold decrease in hemolytic activity and an eightfold improvement in antimicrobial activity, affording a 64000-fold increase in therapeutic index against *E. coli*.

ChemMedChem
DOI: **10.1002/cmdc.201300264**



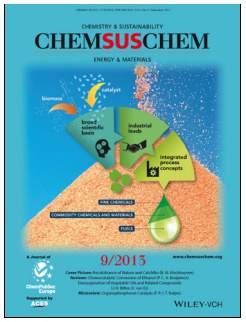
Liquid Fuels

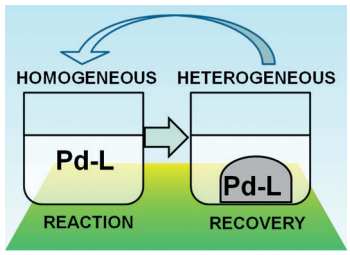
S. Sartipi,* M. Alberts, M. J. Meijerink, T. C. Keller, J. Pérez-Ramírez, J. Gascon,* F. Kapteijn

Towards Liquid Fuels from Biosyngas: Effect of Zeolite Structure in Hierarchical-Zeolite-Supported Cobalt Catalysts

Wax on, wax off: Bifunctional cobalt-based catalysts on zeolite supports are applied for the valorization of biosyngas through Fischer-Tropsch chemistry. By using these catalysts, waxes can be hydrocracked to shorter-chain hydrocarbons, increasing the selectivity towards the C_5–C_{11} (gasoline) fraction. The zeolite topology and the amount and strength of acid sites are key parameters to maximize the performance of these bifunctional catalysts, steering Fischer-Tropsch product selectivity towards liquid hydrocarbons.

ChemSusChem
DOI: **10.1002/cssc.201300339**





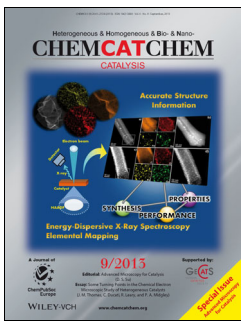
Cross Coupling

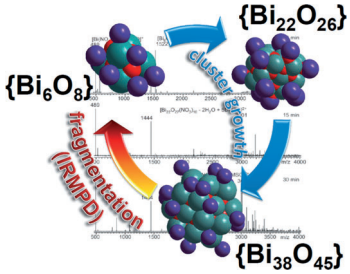
S. Navalón, M. Álvaro, H. García*

Polymer- and Ionic Liquid-Containing Palladium: Recoverable Soluble Cross-Coupling Catalysts

A bridge over troubled catalysis: One major drawback of homogeneous but recoverable systems is the poor stability of palladium complexes. This review describes strategies to develop palladium complexes anchored to soluble polymers and ionic liquids and shows the advantages and limitations of this approach to develop recyclable palladium catalysts.

ChemCatChem
DOI: **10.1002/cctc.201300339**





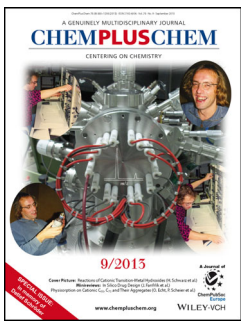
Gas-Phase Reactions

D. Sattler, M. Schlesinger, M. Mehring,* C. A. Schalley*

Mass Spectrometry and Gas-Phase Chemistry of Bismuth–Oxido Clusters

Grow and change: Electrospray ionization (tandem) mass spectrometry was used to investigate the growth of bismuth–oxido clusters in solution, their ligand-exchange reactions, and their fragmentation in the gas phase (see figure). Clusters of different sizes and with different ligand shells were studied to identify typical growth intermediates and to examine dissociation reactions that proceed in the ligand shell as well as within the cluster core.

ChemPlusChem
DOI: **10.1002/cplu.201300122**



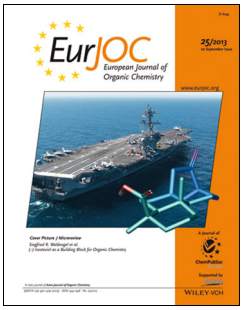
Microwave Synthesis

J. Tönnemann, J. Risse, Z. Grote, R. Scopelliti, K. Severin*

Efficient and Rapid Synthesis of Chlorido-Bridged Half-Sandwich Complexes of Ruthenium, Rhodium, and Iridium by Microwave Heating

The important organometallic starting materials $[(p\text{-cymene})RuCl_2]_2$ and $[(cyclopentadienyl)MCl_2]_2$ (M = Ru, Rh, Ir) can be obtained by microwave heating. This methodology shortens their synthesis times from several hours to a few minutes.

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201300600**

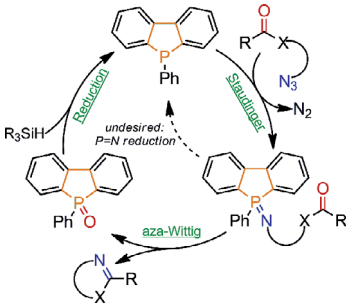


Organophosphorus Catalysis

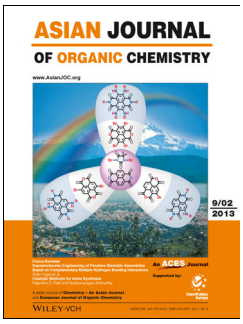
H. A. van Kalkeren, C. te Grotenhuis, F. S. Haasjes, C. (R.) A. Hommersom, F. P. J. T. Rutjes, F. L. van Delft*

Catalytic Staudinger/Aza-Wittig Sequence by in situ Phosphane Oxide Reduction

A catalytic Staudinger/aza-Wittig reaction sequence, involving in situ phosphane oxide reduction, was successfully developed. Benzoxazoles, benzodiazepine imidates and 2-methoxypyrrole were synthesized without phosphane oxide waste products.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201300585**

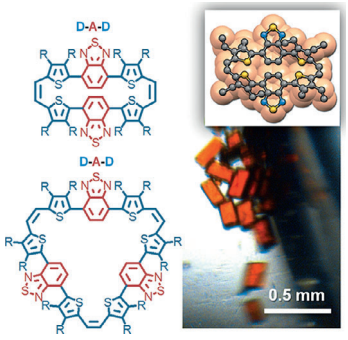


Conjugated Cyclooligomers

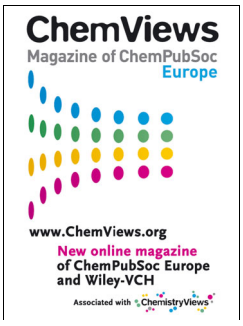
C.-W. Chu, M. Horie*

Synthesis and Characterization of Cyclic Conjugated Architectures Composed of Thiophene and Benzothiadiazole Units

Completing the cycle: Conjugated cyclophanes comprising dialkylthiophene and benzothiadiazole linked with vinylene were synthesized by McMurry coupling. The ^1H NMR signals of cyclophanedienes are shifted specifically upfield compared with that of cyclophanetrienes. X-ray single crystallography of the cyclophanediene showed closed and strained structures. The conjugated cyclophanes have a charge-transfer structure comprising sequential donor-acceptor-donor groups.



Asian J. Org. Chem.
DOI: **10.1002/ajoc.201300158**

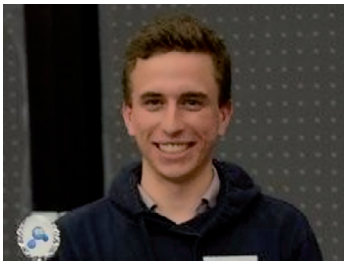


Desalination

V. Köster

Competition to Design Energy Self-sufficient Desalination Plants

The TUM DeSal Challenge is a competition to design desalination plants that supply drinking water without the use of fossil energy, at low cost, and with minimum effort. The winner of this year's competition, Raphael Wagensonner, discusses the challenges of designing, developing, and building his plant and the plans to build a pilot plant that will be tested in the Red Sea of Jordan.



ChemViews magazine
DOI: **10.1002/chemv.201300095**