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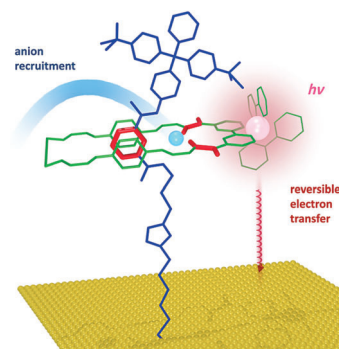


Rotaxanes

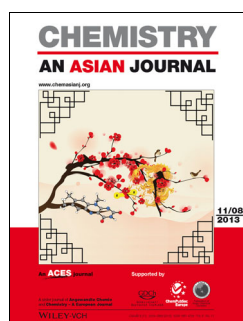
J. Lehr, T. Lang, O. A. Blackburn, T. A. Barendt, S. Faulkner, J. J. Davis,* P. D. Beer*

Anion Sensing by Solution- and Surface-Assembled Osmium(II) Bipyridyl Rotaxanes

Rotaxane reporters: The preparation of anion-templated [2]rotaxanes incorporating an optical- and electroactive osmium(II) bipyridyl reporter group is described. The subsequent selective anion recruitment by the generated interlocked cavity is analyzed by NMR spectroscopy, luminescence, and electrochemistry. Tethering to premodified gold electrode substrates by Huisgen cycloaddition enabled the generation of interlocked molecular films capable of selectively recruiting and reporting on the presence of chloride ions in solution.



Chem. Eur. J.
DOI: 10.1002/chem.201302886

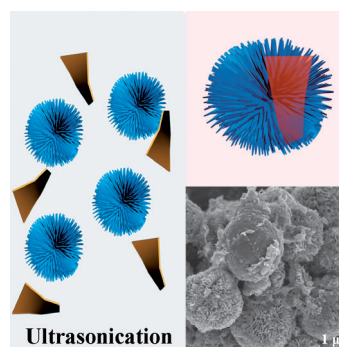


Photocatalysts

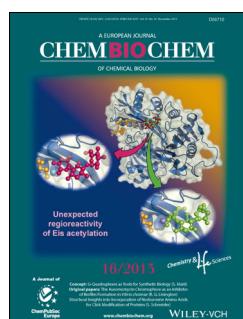
P. Gao, D. D. Sun*

Ultrasonic Preparation of Hierarchical Graphene-Oxide/TiO₂ Composite Microspheres for Efficient Photocatalytic Hydrogen Production

Ultrasound as a pound: Hierarchical GO-TiO₂ composite microspheres have been successfully prepared by mixing GO and TiO₂ microspheres on the microscale under ultrasonic conditions. These composites showed significantly higher hydrogen-evolution rates than composites that were prepared by mechanical grinding, owing to their enhanced interfacial charge separation and light absorption.



Chem. Asian J.
DOI: 10.1002/asia.201300565

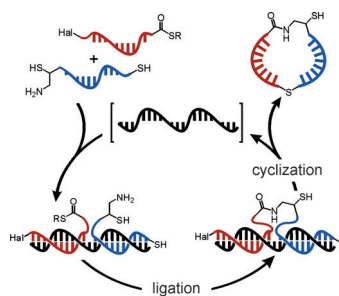


DNA-Directed Chemistry

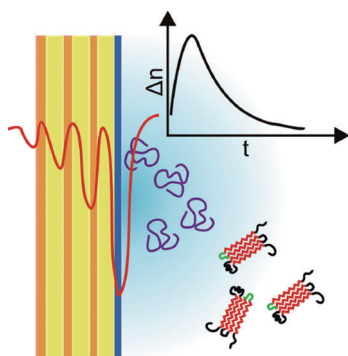
A. Roloff, O. Seitz*

Reducing Product Inhibition in Nucleic Acid-Templated Ligation Reactions: DNA-Templated Cyclization

Keep on rolling: A DNA-templated ligation–cyclization reaction yields cyclic ligation products with significantly decreased template affinity. Compared to ligation-only reactions, the “cyclization” method provides higher yields in shorter times. Product cyclization might provide a generic tool to reduce product inhibition in nucleic acid-templated chemistry.



ChemBioChem
DOI: 10.1002/cbic.201300516



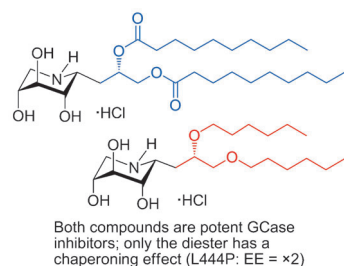
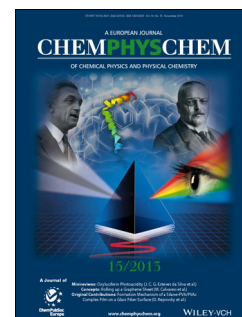
ChemPhysChem
DOI: 10.1002/cphc.201300633

Amyloid Aggregation

S. Santi, V. Musi, E. Descrovi, V. Paeder, J. Di Francesco, L. Hvozda, P. v. d. Wal, H. A. Lashuel, A. Pastore, R. Neier,* H. P. Herzig*

Real-time Amyloid Aggregation Monitoring with a Photonic Crystal-based Approach

Catching the wave: A Bloch surface wave (BSW) is generated at the interface between a dielectric multilayer structure and a solution containing the Aβ(1-42) peptide. The BSW is sensitive to the variation of the refractive index (Δn) of the solution. This variation is related to conformational changes of the Aβ(1-42) peptide during aggregation, that is, the transition from an initial soluble form to a non-soluble fibrillar state (see figure).



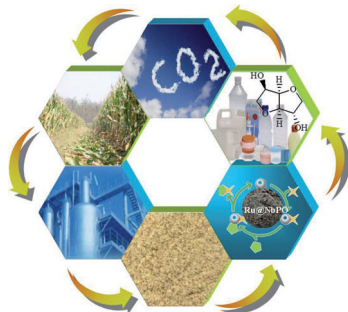
ChemMedChem
DOI: 10.1002/cmdc.201300327

Drug Discovery

W. Schönemann, E. Gallienne, K. Ikeda-Obatake, N. Asano, S. Nakagawa, A. Kato, I. Adachi, M. Górecki, J. Frelek, O. R. Martin*

Glucosylceramide Mimics: Highly Potent GCase Inhibitors and Selective Pharmacological Chaperones for Mutations Associated with Types 1 and 2 Gaucher Disease

The sincerest form of flattery: Glucosylceramide mimics based on an iminoxylitol C-linked to a di-O-acyl or di-O-alkyl glyceryl group were prepared, and all of them were shown to be nanomolar inhibitors of lysosomal β -glucosidase (glucocerebrosidase, GCase). One diester was identified as a potent chaperone for the L444P GCase in human fibroblasts. These structures provide leads for the development of therapeutic agents for Gaucher disease.



ChemSusChem
DOI: 10.1002/cssc.201300701

Renewables

P. Sun, X. Long, H. He, C. Xia, F. Li*

Conversion of Cellulose into Isosorbide over Bifunctional Ruthenium Nanoparticles Supported on Niobium Phosphate

Reap what ye isosorbide: A high yield of isosorbide from the one-pot hydrolytic hydrogenation and dehydration of inedible cellulose is achieved under hydrothermal conditions over a recyclable ruthenium catalyst supported on mesoporous niobium phosphate without the addition of soluble acids. This efficient and sustainable protocol could close the carbon cycle as a result of plants taking up CO₂ generated from the end products.



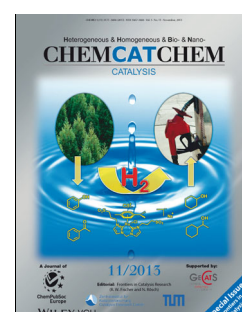
ChemCatChem
DOI: 10.1002/cctc.201300318

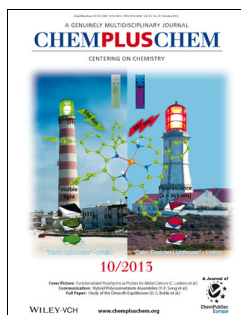
Biocatalysis

R. Westphal, D. Hahn, U. Mackfeld, S. Waltzer, M. Beigi, M. Widmann, C. Vogel, J. Pleiss, M. Müller, D. Rother, M. Pohl*

Tailoring the S-Selectivity of 2-Succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate Synthase (MenD) from *Escherichia coli*

Stereoselective traffic engineering: A step-by-step design of the active site of 2-succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate synthase from *Escherichia coli* enabled the R-pathway to be selectively hindered, which pushed catalysis towards the desired (S)-5-hydroxy-4-oxo-5-arylpentanoates with up to 99% enantiomeric excess.



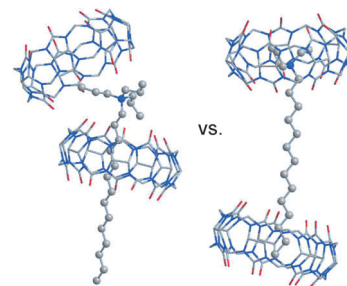


Supramolecular Chemistry

M. Pessêgo, J. P. Da Silva, J. A. Moreira, L. García-Río*

Differences in Cucurbit[7]uril: Surfactant Complexation Promoted by the Cationic Head Group

Complex hospitality: Distinct host/guest structures for complexes of cucurbit[7]uril and tetradecyltrialkylammonium bromide surfactants are promoted for differently sized surfactant head groups (see picture).



ChemPlusChem
DOI: 10.1002/cplu.201300164

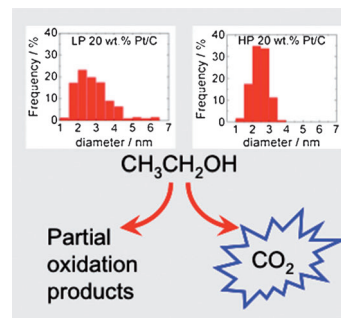


Nanocatalysts

J. F. Gomes, D. Profeti, L. J. Deiner*

Influence of the Particle Size Distribution on the Activity and Selectivity of Carbon-Supported Platinum Nanoparticle Catalysts for Ethanol Electrooxidation

Small is mighty. Cyclic voltammetry and differential electrochemical mass spectrometry are applied to study how ethanol electrooxidation catalysis depends on differences in the particle size distribution of supported platinum-nanoparticle catalysts. The results show that particles with diameters below 3.5 nm have a greater selectivity for the complete conversion of ethanol to CO₂ as compared to larger particles (see picture).



ChemElectroChem
DOI: 10.1002/celc.201300060

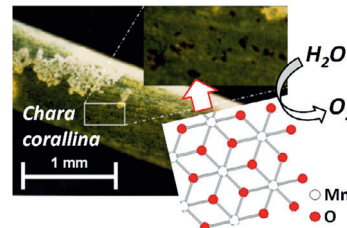


Biogenic Water-Oxidation Catalysts

A. Schöler, I. Zaharieva, S. Zimmermann, M. Wiechen, A.-M. Manke, P. Kurz,* C. Plieth,* H. Dau*

Biogenic Manganese–Calcium Oxides on the Cell Walls of the Algae *Chara corallina*: Elemental Composition, Atomic Structure, and Water-Oxidation Catalysis

The algae *Chara corallina* produce brown deposits on their cell walls when grown in manganese-rich media. By an unusual combination of normal and space-resolved X-ray absorption spectroscopy, it could be shown that the material belongs to the birnessite family of layered MnCa oxides. Furthermore, it was observed that the deposits act as biogenic water-oxidation catalysts.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201300697

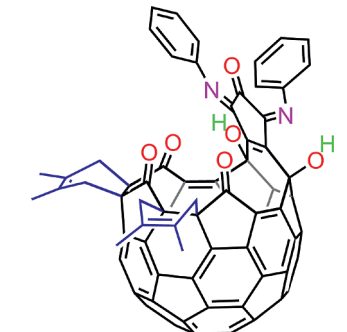


Fullerenes

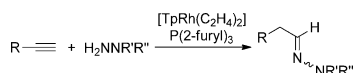
L. Xu, Q. Zhang, G. Zhang, S. Liang, Y. Yu, L. Gan*

Regioselective Diels–Alder Reactions Directed by Carbonyl Groups on the Rim of Open-Cage Fullerene Derivatives

Open-cage fullerenes with carbonyl groups on the rim of the orifice were found to react with electron-rich 1,3-dienes around the rim of the orifice. Both mono and bis adducts have been prepared and characterized by single-crystal X-ray diffraction analysis.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201301309



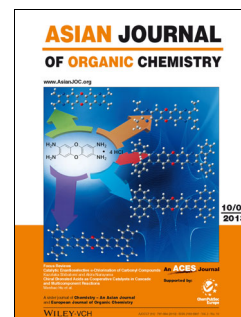
Hydrohydrazination

Y. Fukumoto,* A. Ohmae, M. Hirano, N. Chatani

Rhodium-Catalyzed Anti-Markovnikov Hydrohydrazination of Terminal Alkynes with *N*-Alkyl- and *N,N*-Dialkylhydrazines

Against the grain: The anti-Markovnikov addition of hydrazines to terminal alkynes in the presence of $[TpRh(C_2H_4)_2]/P(2-furyl)_3$ (Tp = trispyrazolylborate) as a catalyst system has been developed. *N*-alkyl- and *N,N*-dialkyl-substituted hydrazines are applicable to this highly regioselective hydrohydrazination, which affords aldimine-type hydrazine derivatives.

Asian J. Org. Chem.
DOI: 10.1002/ajoc.201300188



ChemViews magazine
DOI: 10.1002/chemv.201300100

Homogeneous Catalysis

R. Threlfall

Ei-ichi Negishi on his Research and Life

In a recent trip to the Wiley-VCH offices, Professor Ei-ichi Negishi, Purdue University, USA, spoke to Dr. Richard Threlfall about how winning the Nobel Prize has impacted his work. He also discussed the challenges of developing highly catalytic asymmetric carbon–carbon bond-forming reactions and his recent success in this area.



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They must include the following documents (in English): laudation summarizing the achievements of the candidate (maximum two pages), list of the five most relevant publications of the past ten years, CV, and bibliography.

Please send a PDF file (via e-mail or on CD) including all documents to Dr. Anja Hoffmann, hwp@boehringer-ingelheim-stiftung.de, Boehringer Ingelheim Foundation, Schusterstr. 46-48, 55116 Mainz, Germany.

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