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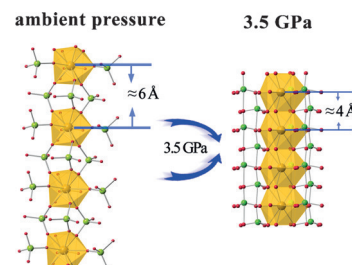


Polymorph Transitions

B. Xiao, P. Kegler, T. M. Gesing, L. Robben, A. Blanca-Romero, P. M. Kowalski, Y. Li, V. Klepov, D. Bosbach, E. V. Alekseev*

Giant Volume Change and Topological Gaps in Temperature- and Pressure-Induced Phase Transitions: Experimental and Computational Study of ThMo_2O_8

Under pressure: The study of ThMo_2O_8 under high-temperature/high-pressure conditions at 3.5 GPa reveals a large, 20%, volume change, accompanied by significant structural contraction along the c axis. Owing to such a high density increase following by structural recombination, the high-temperature/high-pressure polymorph is kinetically stable at ambient conditions.



Chem. Eur. J.
DOI: 10.1002/chem.201503839

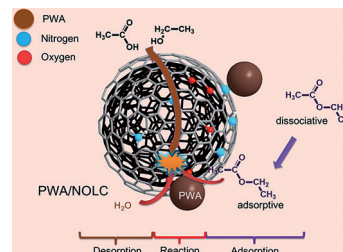


Heterogeneous Catalysis

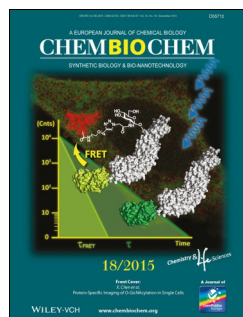
W. Liu, W. Qi,* X. Guo, D. Su*

Heteropoly Acid/Nitrogen Functionalized Onion-like Carbon Hybrid Catalyst for Ester Hydrolysis Reactions

Know your onion-like carbon: A heteropoly acid (HPA)/nitrogen functionalized onion-like carbon (NOLC) hybrid catalyst was successfully synthesized. The hydrophobic environment of NOLC effectively prevents the deactivation of HPA in an aqueous system, and the synergistic effect between NOLC and HPA significantly promotes its activity in hydrolysis reactions.



Chem. Asian J.
DOI: 10.1002/asia.201500944

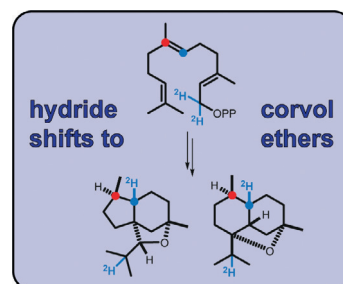


Terpene Biosynthesis

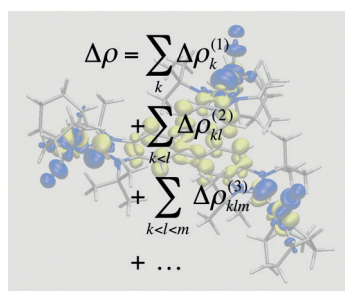
P. Rabe, A. Janusko, B. Goldfuss, J. S. Dickschat*

Experimental and Theoretical Studies on Corvol Ether Biosynthesis

Internal hydride migrations during corvol ether biosynthesis were investigated. Quantum chemical calculations revealed a sequence of two 1,2-hydride shifts to be energetically favoured; labelling experiments were in agreement with this. In addition, the stereochemical course of a reprotonation step was investigated with ^{13}C -labelled isomers of farnesyl diphosphate in water and in deuterium oxide.



ChemBioChem
DOI: 10.1002/cbic.201500543



ChemPhysChem

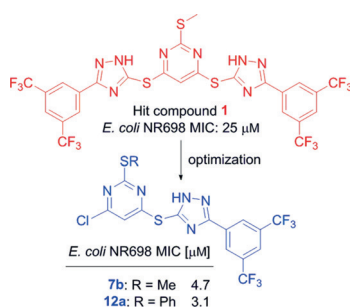
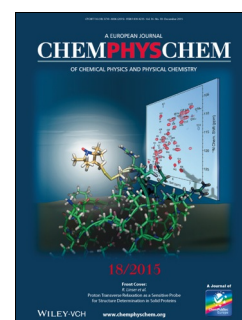
DOI: 10.1002/cphc.201500626

Spectroscopy

J. Chmela, M. E. Harding, D. Matioszek, C. E. Anson, F. Breher,*
W. Klopper*

Differential Many-Body Cooperativity in Electronic Spectra of Oligonuclear Transition-Metal Complexes

Cooperativity in twos and threes: A new concept is applied to the analysis of UV/Vis spectra of homotrinnuclear transition-metal complexes by means of a many-body expansion of the change in the spectrum induced by replacing each of the three transition-metal ions in the complex by another transition-metal ion to yield a new homotrinnuclear transition-metal complex.



ChemMedChem

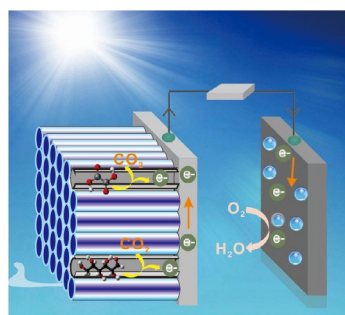
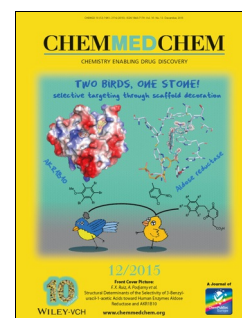
DOI: 10.1002/cmdc.201500447

Antimicrobials

J. Cui, J. Jin, A. S. Chaudhary, Y.-h. Hsieh, H. Zhang, C. Dai,
K. Damera, W. Chen, P. C. Tai,* B. Wang*

Design, Synthesis and Evaluation of Triazole-Pyrimidine Analogues as SecA Inhibitors

One stone, several birds! The SecA inhibitors discovered in this study are broad-spectrum antimicrobials with the intrinsic ability to null the effect of efflux pumps. They are therefore effective against multidrug-resistant bacterial strains, can inhibit virulence factor secretion, and are very active against strains of bacteria that are resistant to antibiotics in current use, including vancomycin.



ChemSusChem

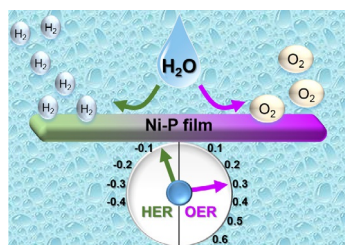
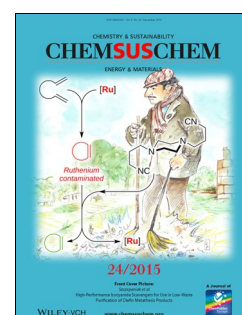
DOI: 10.1002/cssc.201500793

Fuel Cells

C. Hu, D. Kelm, M. Schreiner, T. Wollborn, L. Mädler, W. Y. Teoh*

Designing Photoelectrodes for Photocatalytic Fuel Cells and Elucidating the Effects of Organic Substrates

Electric results! Photocatalytic fuel cells (PFCs) are constructed with the aim of effectively converting organic materials into solar electricity. The syntheses of the anodized photoanodes are optimized, the photoelectrochemical properties and the effect of various organic compounds are characterized, and the PFCs are constructed and assessed. PFC performance is affected by the adsorption and photocatalytic degradation of the organic compounds.



ChemCatChem

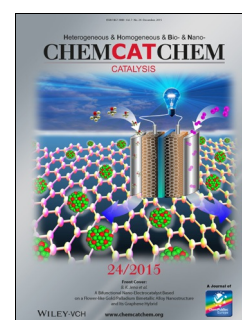
DOI: 10.1002/cctc.201501150

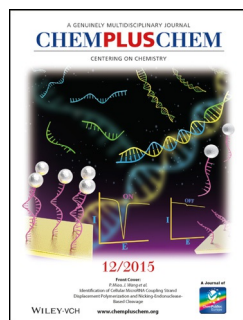
Water Splitting

N. Jiang, B. You, M. Sheng, Y. Sun*

Bifunctionality and Mechanism of Electrodeposited Nickel-Phosphorous Films for Efficient Overall Water Splitting

Overall water splitting: Electrodeposited nickel-phosphorous films (Ni-P) function as efficient bifunctional catalysts for overall water splitting under strong alkaline conditions, rivaling the performance of the state-of-the-art catalysts, Pt and IrO₂.



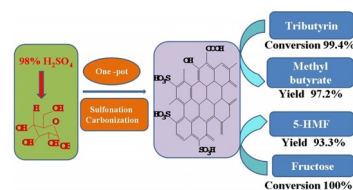


Heterogeneous Catalysis

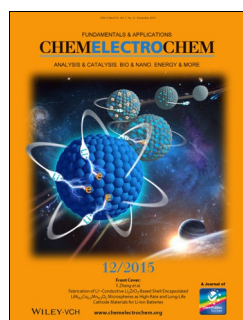
C. Wang, F. Yuan, L. Liu, X. Niu,* Y. Zhu*

Transesterification of Tributyrin and Dehydration of Fructose over a Carbon-Based Solid Acid Prepared by Carbonization and Sulfonation of Glucose

So solid! A carbon-based sulfonated solid acid is prepared through a facile method of simultaneous carbonization and sulfonation of D-glucose (see figure). The catalyst shows excellent activity for the transesterification of tributyrin and the dehydration of fructose to 5-hydroxymethylfurfural (5-HMF).



ChemPlusChem
DOI: 10.1002/cplu.201500261



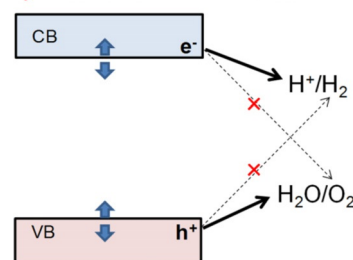
Photocatalysis

T. Takata,* C. Pan, K. Domen*

Design and Development of Oxynitride Photocatalysts for Overall Water Splitting under Visible Light Irradiation

Managing the band gap: Key approaches that have led to the recent progress in oxynitride photocatalysts for visible-light-driven water splitting are introduced. In particular, band engineering of semiconductors by compositional modification and effective surface coating, which has a molecular sieving function to control the surface redox reactions, are explained through recent advances in our studies as examples.

Photocatalytic water splitting needs:
1) Bandgap tuning 2) Control of surface redox reactions



ChemElectroChem
DOI: 10.1002/celec.201500324

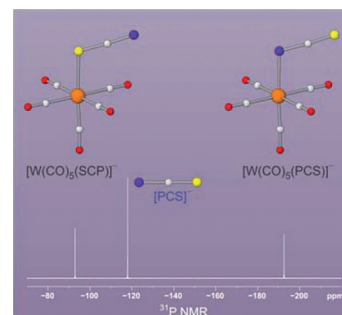


Phosphathioethynolates

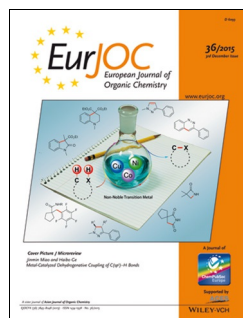
A. R. Jupp, M. B. Geeson, J. E. McGrady, J. M. Goicoechea*

Ambient-Temperature Synthesis of 2-Phosphathioethynolate, PCS⁻, and the Ligand Properties of ECX⁻ (E = N, P; X = O, S)

We report a synthesis of the 2-phosphathioethynolate anion, PCS⁻, under ambient conditions. The coordination chemistry of PCO⁻, PCS⁻ and their nitrogen-containing congeners is also explored.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201501075

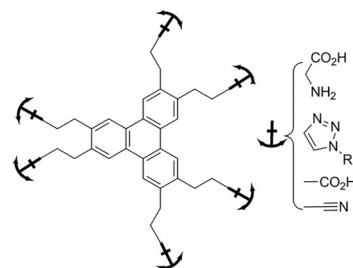


Molecules for Grafting

A. R. Pujol, S. Bataillé, A. Gourdon*

Functional Molecules for Grafting onto Ionic Surfaces

Two series of molecules designed for grafting onto KBr or NaCl surfaces have been prepared. The molecules comprise a rigid central benzene or triphenylene core bearing, respectively, two or six alkyl ether chains terminated by cyano, carboxylic, α-amino acids, or 1,2,3-triazoles as anchoring groups.



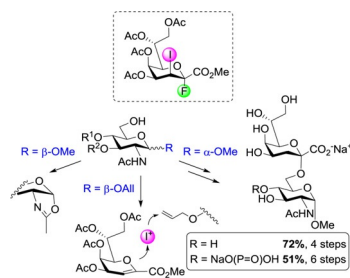
Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501077

Glycosylation Chemistry

B. Pokorny, P. Kosma*

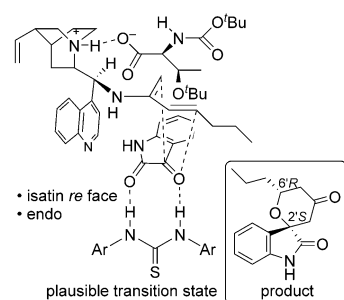
Scope and Limitations of 3-Iodo-Kdo Fluoride-Based Glycosylation Chemistry using *N*-Acetyl Glucosamine Acceptors

Protecting groups make the difference! 3-*O*-Benzyl- β -GlcN glycosyl acceptor derivatives are poor substrates for the novel 3-iodo-Kdo fluoride donor leading to various side reactions and byproducts (iodonium ion migration, oxazoline and glycal formation). A suitably protected α -GlcN acceptor, however, gives excellent yields in coupling and subsequent dehalogenation, phosphorylation, and deprotection steps.



ChemistryOpen

DOI: 10.1002/open.201500126



Asian J. Org. Chem.

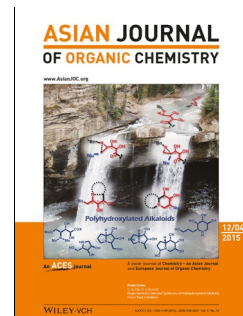
DOI: 10.1002/ajoc.201500412

Asymmetric Catalysis

H.-L. Cui, P. V. Chouthaiwale, F. Yin, F. Tanaka*

Reaction-Based Mechanistic Investigations of Asymmetric Hetero-Diels–Alder Reactions of Enones with Isatins Catalyzed by Amine-Based Three-Component Catalyst Systems

Three is better than one: Reaction-based mechanistic investigations were performed for the asymmetric hetero-Diels–Alder reactions of enones with isatins catalyzed by an amine-based three-component system. The reaction route was likely a kinetically controlled [4+2] cycloaddition of the in situ-generated enamine of the enone as diene and isatin as dienophile. All three components played important roles for the catalysis and the stereocontrol.

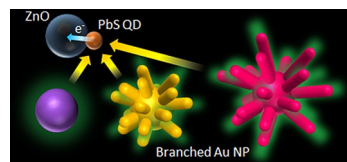


Plasmonics

T. Kawawaki, A. Asakura, T. Tatsuma*

Branched Au Nanoparticles as Light-Harvesting Antennae for Photosensitized Reactions

Branched gold nanoparticles serve as plasmonic nanoantennae and enhance the rate of PbS-sensitized photoelectrochemical reactions. The enhancement wavelength can be controlled in the 700–1300 nm range by changing the branch length.



ChemNanoMat

DOI: 10.1002/cnma.201500140



Chemical Societies

T. K. Lindhorst

New GDCh President

Professor Thisbe K. Lindhorst, University of Kiel, Germany, has been elected President of the Gesellschaft Deutscher Chemiker (GDCh, German Chemical Society) for 2016 and 2017. Her research interests include the biological chemistry of carbohydrates and glycoconjugates, the synthesis of carbohydrates, peptides, and dendrimers, as well as conformational switches.



ChemViews magazine

DOI: 10.1002/chemv.201500108

