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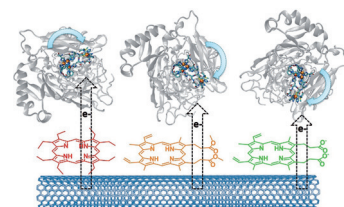


Enzyme Immobilization

N. Lalaoui, A. Le Goff,* M. Holzinger, S. Cosnier

Fully Oriented Bilirubin Oxidase on Porphyrin-Functionalized Carbon Nanotube Electrodes for Electrocatalytic Oxygen Reduction

Facing the right way: Bilirubin oxidase from *Myrothecium verrucaria* can be efficiently immobilized and oriented on multi-walled carbon nanotube electrodes by using π -stacked porphyrins as a direct electron-transfer promoter (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201502377

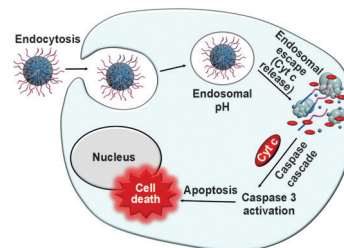


Apoptosis

A. N. Koo, K. H. Min, H. J. Lee, J. H. Jegal, J. W. Lee, S. C. Lee*

Calcium Carbonate Mineralized Nanoparticles as an Intracellular Transporter of Cytochrome c for Cancer Therapy

Locked and released: Block copolymer templated CaCO_3 mineralization enables the formation of cytochrome c (Cyt c) mineralized nanoparticles (MNPs) that can stably hold Cyt c at blood pH and release it at endosomal pH (see figure). The Cyt c MNPs undergo effective cellular uptake and help Cyt c escape from endosomal vesicles, thereby efficiently inducing apoptosis of MCF-7 cancer cells.



Chem. Asian J.
DOI: 10.1002/asia.201500630

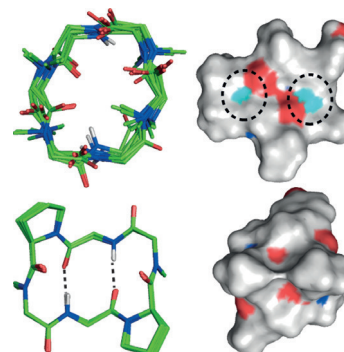


Cyclic Peptides

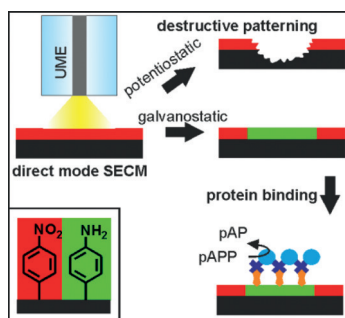
D. S. Nielsen, R.-J. Lohman, H. N. Hoang, T. A. Hill, A. Jones, A. J. Lucke, D. P. Fairlie*

Flexibility versus Rigidity for Orally Bioavailable Cyclic Hexapeptides

Three similar cyclic peptides with varying flexibility were compared for membrane permeability, oral bioavailability and metabolic stability. We show that more rigid structures were more orally bioavailable, possibly as a result of the reduced exposure of polar surfaces and lower entropy penalty associated with crossing a membrane.



ChemBioChem
DOI: 10.1002/cbic.201500441



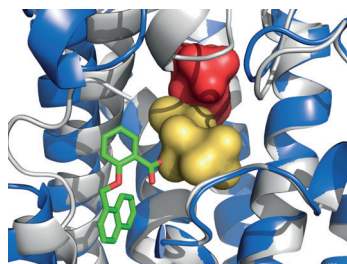
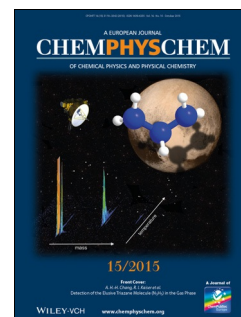
ChemPhysChem
DOI: 10.1002/cphc.201500585

Scanning Electrochemical Microscopy

L. Stratmann, J. Clausmeyer, W. Schuhmann*

Non-destructive Patterning of Carbon Electrodes by Using the Direct Mode of Scanning Electrochemical Microscopy

Chemical writing: Nitrophenyl groups grafted onto glassy carbon were locally reduced to amino groups by galvanostatic pulsing in the direct mode of scanning electrochemical microscopy (SECM). By using pH-modulated SECM imaging, the identity of the amino groups was unambiguously discriminated against corroded carbon resulting from destructive patterning. The amino functionalities were used for the generation of bioarrays by local protein immobilization.



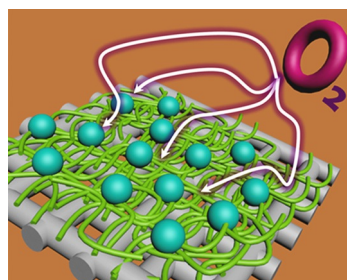
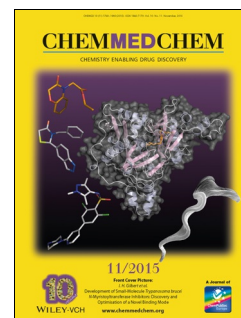
ChemMedChem
DOI: 10.1002/cmdc.201500338

Drug Discovery

A. L. Marzinzik,* R. Amstutz, G. Bold, E. Bourcier, S. Cotesta, J. F. Glickman, M. Götte, C. Henry, S. Lehmann, J. C. D. Hartwig, S. Ofner, X. Pellé, T. P. Roddy, J.-M. Rondeau, F. Stauffer, S. J. Stout, A. Widmer, J. Zimmermann, T. Zoller, W. Jahnke*

Discovery of Novel Allosteric Non-Bisphosphonate Inhibitors of Farnesyl Pyrophosphate Synthase by Integrated Lead Finding

Beyond the bone: Farnesyl pyrophosphate synthase (FPPS) is an important target for osteoporosis and bone metastases, and holds promise for a number of non-bone diseases, including cancer, parasitic infections, progeria, and Alzheimer's disease. Herein we describe two novel chemotypes of allosteric FPPS inhibitors. These are useful leads to evaluate the therapeutic potential of FPPS inhibitors for these new indications.



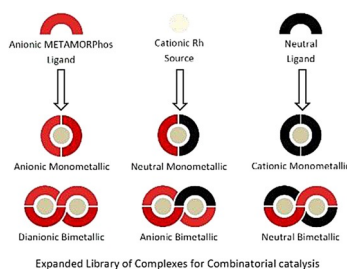
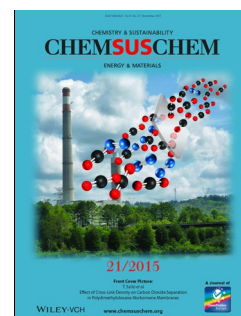
ChemSusChem
DOI: 10.1002/cssc.201500636

Lithium-Air Batteries

B. Liu, W. Xu,* P. Yan, P. Bhattacharya, R. Cao, M. E. Bowden, M. H. Engelhard, C.-M. Wang, J.-G. Zhang*

In Situ-Grown ZnCo_2O_4 on Single-Walled Carbon Nanotubes as Air Electrode Materials for Rechargeable Lithium–Oxygen Batteries

Catalytic architecture: The in situ synthesis of nanosheet-assembled ZnCo_2O_4 microspheres on single-walled carbon nanotubes (ZCO/SWCNTs) as high-performance air electrode materials for Li– O_2 batteries is described. The ZCO/SWCNT composite electrodes deliver high discharge capacities, decrease the onset of the oxygen evolution reaction, and lead to greater cycling stability.



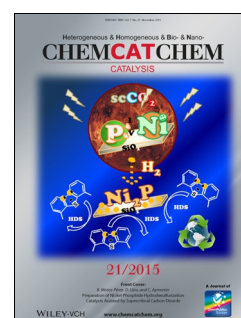
ChemCatChem
DOI: 10.1002/cctc.201500621

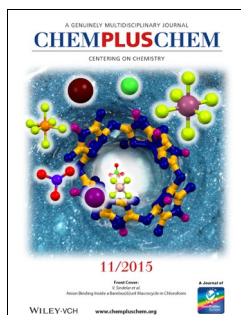
Asymmetric Hydrogenation

F. G. Terrade, A. M. Kluwer,* R. J. Detz, Z. Abiri, A. M. van der Burg, J. N. H. Reek*

Combinatorial Strategies to find New Catalysts for Asymmetric Hydrogenation Based on the Versatile Coordination Chemistry of METAMORPhos Ligands

Easy diversity: Anionic METAMORPhos ligands and neutral amino-acid-based ligands are used separately and in mixtures to form rhodium complexes that are used in the asymmetric hydrogenation of industrially relevant substrates. Depending on the ligand combinations, cationic, neutral, or anionic, mononuclear or binuclear complexes are accessible.



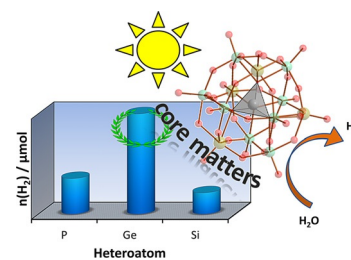


Water Splitting

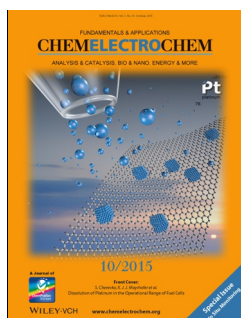
K. von Allmen, R. Moré, R. Müller, J. Soriano-López, A. Linden, G. R. Patzke*

Nickel-Containing Keggin-Type Polyoxometalates as Hydrogen Evolution Catalysts: Photochemical Structure–Activity Relationships

Nickel for your POMs: A series of Keggin-type polyoxometalates (POMs; $[\text{Ni}(\text{OH}_2)\text{XW}_{11}\text{O}_{39}]^{n-}$ ($\text{X} = \text{P}, \text{Si}, \text{Ge}$) were tested for catalytic activity in visible-light-driven hydrogen evolution without co-catalysts. The photocatalytic activity of the nickel POMs can be tuned through heteroatom X. The highest turnover number among the series was found for the germanium-containing POM (see figure).



ChemPlusChem
DOI: 10.1002/cplu.201500074

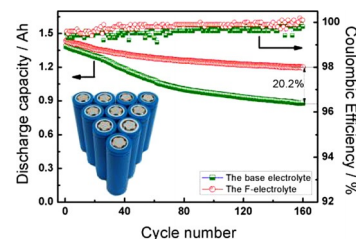


Electrolytes

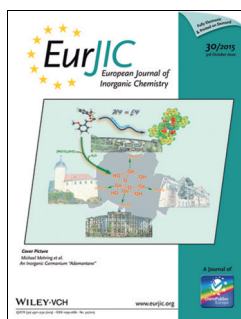
L. Xia, Y. Xia,* C. Wang, H. Hu, S. Lee, Q. Yu, H. Chen, Z. Liu*

5 V-Class Electrolytes Based on Fluorinated Solvents for Li-Ion Batteries with Excellent Cyclability

High class: A novel, electrochemically compatible, high-voltage, and nonflammable F-electrolyte based on fluorinated 1,1,1,3,3,3-hexafluoroisopropyl methyl ether is prepared. Mesocarbon microbeads/ $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ 18650 batteries made with this F-electrolyte display an excellent cycling stability with 82% capacity retention after 200 cycles at a high cutoff voltage of 4.9 V, confirming their potential as high-voltage lithium-ion batteries with enhanced safety and longevity.



ChemElectroChem
DOI: 10.1002/celec.201500286

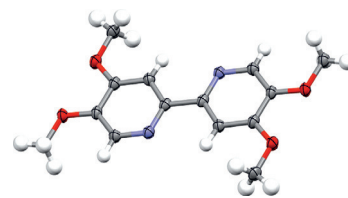


Photoreductants

L. A. Büldt, A. Prescimone, M. Neuburger, O. S. Wenger*

Photoredox Properties of Homoleptic d^6 Metal Complexes with the Electron-Rich 4,4',5,5'-Tetramethoxy-2,2'-bipyridine Ligand

A fourfold methoxy-substituted 2,2'-bipyridine molecule was used as a ligand for homoleptic complexes with Fe^{II} , Ru^{II} , and Os^{II} . The last two are strong electron donors in their long-lived $^3\text{MLCT}$ excited states. Their ability to act as photoredox reagents in acidic media has been demonstrated with the example of acetophenone reduction by proton-coupled electron transfer (PCET).



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201500670

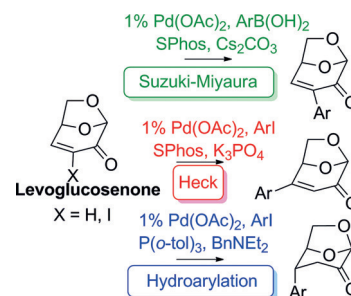


Cross-Coupling Reactions

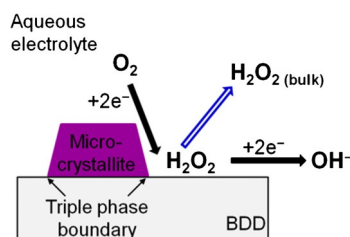
K. P. Stockton, C. J. Merritt, C. J. Sumby, B. W. Greatrex*

Palladium-Catalyzed Suzuki–Miyaura, Heck and Hydroarylation Reactions on (–)-Levoglucosenone and Application to the Synthesis of Chiral γ -Butyrolactones

Three new cross-coupling approaches to the derivatization of levoglucosenone are described and the products converted into butyrolactones.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501083



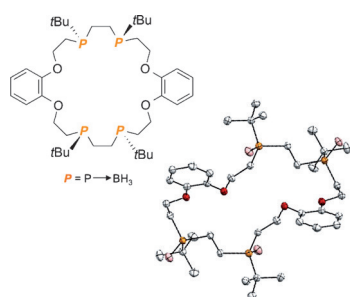
ChemistryOpen
DOI: 10.1002/open.201500075

Electrocatalysis

P. Gan, J. S. Foord, R. G. Compton*

Surface Modification of Boron-Doped Diamond with Microcrystalline Copper Phthalocyanine: Oxygen Reduction Catalysis

Dropcasting on doped diamond: Modification of boron-doped diamond with microcrystalline copper phthalocyanine by dropcast deposition was found to be sensitive to the surface termination. After modification of the hydrogen-terminated diamond, a significant electrocatalysis was observed for oxygen reduction, while this effect was not seen at the oxidised diamond.



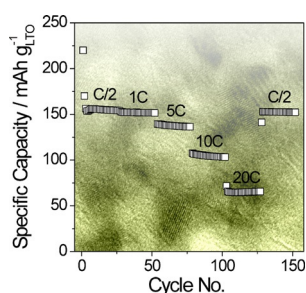
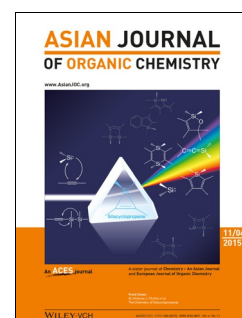
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201500343

Tetraphosphacrowns

R. Kato, Y. Morisaki,* Y. Chujo*

Synthesis of P-Stereogenic Tetraphosphacrowns

Chiral-P: P-Stereogenic tetraphosphacrowns containing four P-stereogenic centers in the ring were synthesized by using a P-stereogenic secondary bisphosphine as a key building block.



ChemNanoMat
DOI: 10.1002/cnma.201500078

Mesoporous Materials

J. Yue, C. Suchomski, T. Brezesinski,* B. M. Smarsly*

Polymer-Templated Mesoporous Li₄Ti₅O₁₂ as a High-Rate and Long-Life Anode Material for Rechargeable Li-Ion Batteries

Cubic mesoporous Li₄Ti₅O₁₂ powder has been synthesized by sol-gel co-assembly through a soft-templating method. This novel material exhibits excellent rate capability and cycling performance in lithium half-cells.



ChemViews magazine
DOI: 10.1002/chemv.201500076

Food

K. Roth, E. Lück

The Saccharin Saga

In the summer of 1878, two chemists discovered an extremely sweet and non-toxic compound: saccharin, the first artificial sweetener. Read the eventful story of the compound and of the chemists' lifetime battle over recognition for the invention in *ChemViews Magazine*.

