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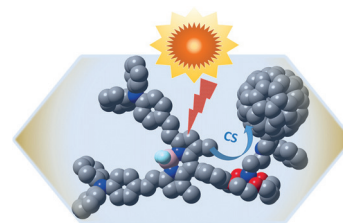


Supramolecular Chemistry

S. Shao, H. B. Gobeze, P. A. Karr, F. D'Souza*

Ultrafast Photoinduced Charge Separation in Wide-Band-Capturing Self-Assembled Supramolecular Bis(donor styryl)BODIPY–Fullerene Conjugates

Artificial photosynthesis: Bis(donor styryl)BODIPY–fullerene self-assembled donor–acceptor conjugates have been constructed as wide-band capturing artificial photosynthetic mimics. The occurrence of ultrafast photoinduced charge separation has been demonstrated (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201502395

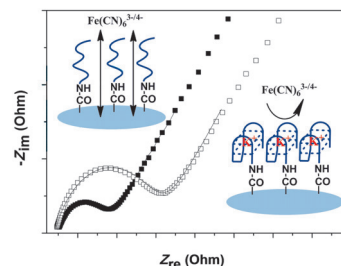


Electrochemistry

B. Zhu, M. A. Booth, H. Y. Woo, J. M. Hodgkiss, J. Travas-Sejdic*

Label-Free, Electrochemical Quantitation of Potassium Ions from Femtomolar Levels

Spider sense is tingling: A novel one-step aptasensor for potassium ions is developed by using a conducting polymer and electrochemical impedance spectroscopy. The G-quadruplex structure is formed after binding with potassium. This aptasensor can achieve femtomolar detection limits and has excellent selectivity towards other ions.



Chem. Asian J.
DOI: 10.1002/asia.201500313

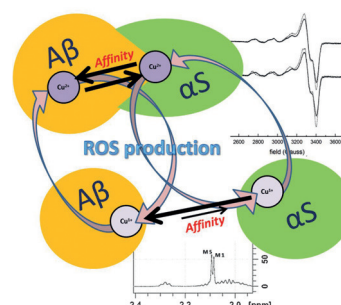


Amyloid Proteins

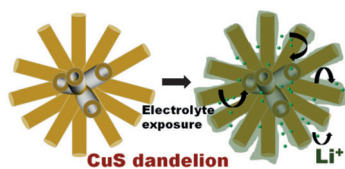
R. De Ricco, D. Valensin,* S. Dell'Acqua, L. Casella, C. Hureau, P. Faller*

Copper(I/II), α / β -Synuclein and Amyloid- β : Menage à Trois?

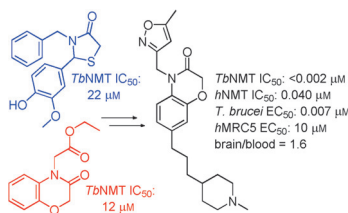
Copper binding to α -synuclein (aS) and to amyloid- β (Ab) has been connected to Parkinson's and Alzheimer's disease (AD), respectively. In certain cases of AD, Ab and aS might interact directly. Here the interactions of Cu^I and Cu^{II} in the simultaneous presence of the two Cu-binding domains of aS and Ab have been studied, and the formation of ternary complexes has been evaluated.



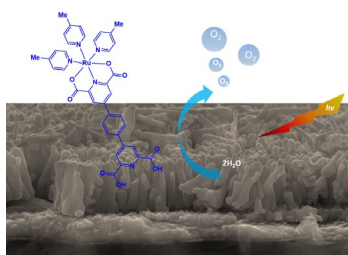
ChemBioChem
DOI: 10.1002/cbic.201500425



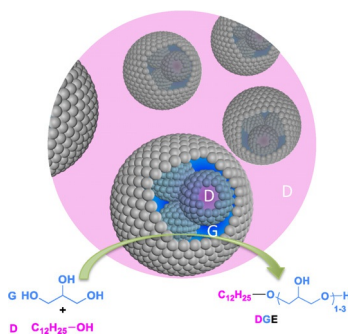
ChemPhysChem
DOI: 10.1002/cphc.201500568



ChemMedChem
DOI: 10.1002/cmdc.201500301



ChemSusChem
DOI: 10.1002/cssc.201500730



ChemCatChem
DOI: 10.1002/cctc.201500556

Electrode Materials

Z. Hosseinpour, A. Scarpellini, S. Najafshirvari, S. Marras, M. Colombo, A. Alemi, M. D. Volder, C. George,* V. Lesnyak*

Morphology-Dependent Electrochemical Properties of CuS Hierarchical Superstructures

Flower power! Two different morphologies of CuS superstructures were tested as electrodes in Li-ion batteries: tubular dandelion-like and ball-like assemblies composed of small covellite nanoparticles. These two morphologies showed markedly different performances, suggesting that their complex structures potentially influence the electrochemical properties.

Antiparasitic Agents

D. Spinks, V. Smith, S. Thompson, D. A. Robinson, T. Luksch, A. Smith, L. S. Torrie, S. McElroy, L. Stojanovski, S. Norval, I. T. Collie, I. Hallyburton, B. Rao, S. Brand, R. Brenk, J. A. Frearson, K. D. Read, P. G. Wyatt, I. H. Gilbert*

Development of Small-Molecule *Trypanosoma brucei* N-Myristoyltransferase Inhibitors: Discovery and Optimisation of a Novel Binding Mode

HATs off to diversity! Screening a diverse library against *Trypanosoma brucei* N-myristoyltransferase (NMT) identified hits based on thiazolidinone and benzomorpholine scaffolds. X-ray crystallography of these compounds bound to *Leishmania major* NMT revealed novel active site binding conformations. Using the structural information, the benzomorpholine scaffold was optimised to a blood–brain barrier penetrant compound with activity against *TbNMT* of <0.002 μM.

Water Oxidation

K. Fan, F. Li, L. Wang, Q. Daniel, H. Chen, E. Gabrielsson, J. Sun, L. Sun*

Immobilization of a Molecular Ruthenium Catalyst on Hematite Nanorod Arrays for Water Oxidation with Stable Photocurrent

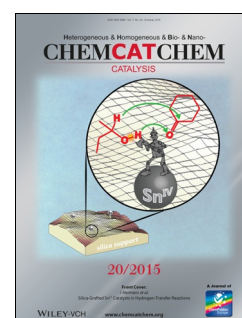
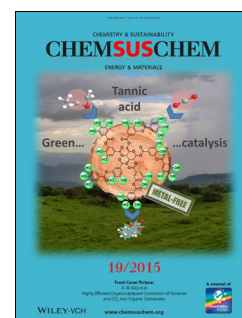
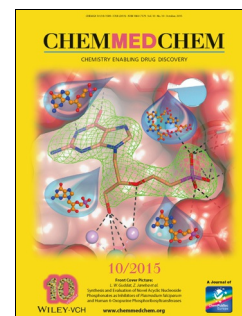
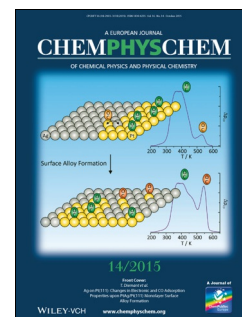
Hold on tight! A molecular ruthenium catalyst containing a strong 2,6-pyridine-dicarboxylic acid anchoring group is successfully demonstrated as a co-catalyst for the hematite photoanode. By combining a hematite nanorod array with this molecular ruthenium catalyst, the photocurrent of the photoelectrochemical device for water oxidation is not only enhanced, but also shows high stability.

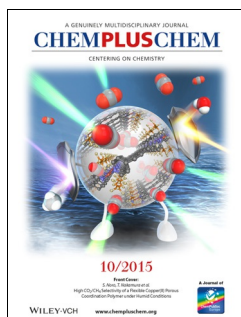
Emulsions

H. Shi, Z. Fan, V. Ponsinet, R. Sellier, H. Liu,* M. Pera-Titus,* J.-M. Clacens

Glycerol/Dodecanol Double Pickering Emulsions Stabilized by Polystyrene-Grafted Silica Nanoparticles for Interfacial Catalysis

Ether this or that: Polystyrene-grafted silica nanoparticles bearing sulfonic acid centers and balanced hydrophilic/hydrophobic properties are able to perform the biphasic etherification reaction of glycerol with dodecanol in the presence of double Pickering emulsions. By optimizing the hydrophobic properties of the particles, the emulsions allow facilitated diffusion of glycerol and dodecanol into the microenvironment near the acid centers.



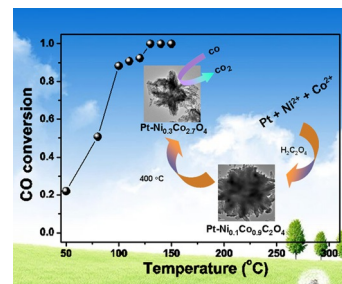


Heterogeneous Catalysis

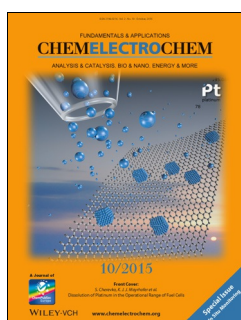
X. Wang, D. Liu,* F. Wang, J. Li, J. Zhen, H. Zhang*

Strongly Coupled Pt–Ni_{0.3}Co_{2.7}O₄ Hybrid Nanoflowers with Remarkably Enhanced Catalytic Performance

Side-stepping stoichiometry: A low-cost facile synthetic method has been developed to fabricate strongly coupled Pt–Ni_{0.3}Co_{2.7}O₄ porous hybrid nanoflowers. Interestingly, the whole synthesis is accomplished without any surface-modification techniques. The as-obtained “non-stoichiometric” hybrid nanocatalyst exhibits remarkable enhanced catalytic performance for the oxidation of CO (see picture).



ChemPlusChem
DOI: 10.1002/cplu.201500189

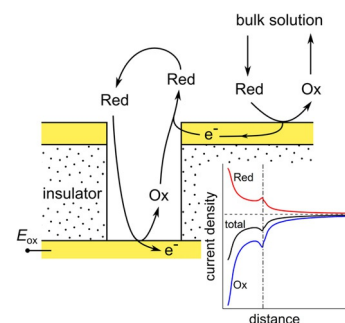


Electrode Arrays

A. Oleinick, J. Yan, B. Mao, I. Svir,* C. Amatore*

Theory of Microwell Arrays Performing as Generators–Collectors Based on a Single Bipolar Plane Electrode

Unbiased and efficient: Plane-recessed disk-electrode arrays are extremely useful for sensing purposes, even when the top-plane electrode is not biased. This theoretical study provides insights into the bipolar performance of such systems and shows that rational design may allow their optimization for a broad range of experimental conditions.



ChemElectroChem
DOI: 10.1002/celec.201500321

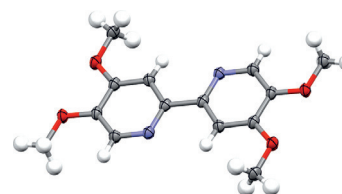


Photoreductants

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

Photoredox Properties of Homoleptic d⁶ 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 ³MLCT 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

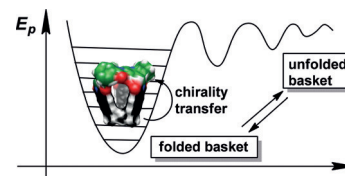


Gated and Twisted Hosts

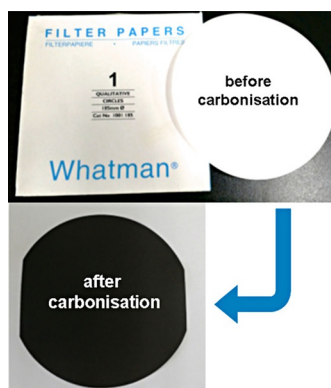
L. Hu, S. Polen, A. M. Hardin, Y. Pratumyot, C. M. Hadad, J. D. Badjić*

On the Transfer of Chirality, Thermodynamic Stability, and Folding Characteristics of Stereoisomeric Gated Baskets

We have obtained stereoisomeric and gated baskets comprising a *P* or *M* twisted cup and amidopyridine gates at the rim. The gates form a seam of intramolecular hydrogen bonds to occlude space. They also assume a unidirectional orientation, induced by the cup's shape. Chemical and thermal stimuli trigger the basket's unfolding, which could be used in the design of switchable sensors and catalysts.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501071



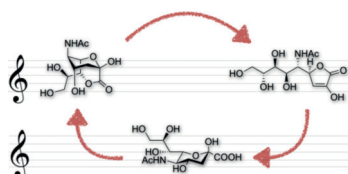
ChemistryOpen
DOI: 10.1002/open.201500150

Supercapacitors

L. Jiang, G. W. Nelson, H. Kim, I. N. Sim, S. O. Han,* J. S. Foord*

Cellulose-Derived Supercapacitors from the Carbonisation of Filter Paper

The power of paper! Pure filter paper made from cellulose was successfully converted to a conductive carbon material by carbonising at different temperatures from 600 to 1700 °C. The material with the best specific capacitance with a high stability was obtained by carbonising at 1500 °C. This carbonised filter paper, without addition of additives, is a promising alternative carbon material for supercapacitor applications.



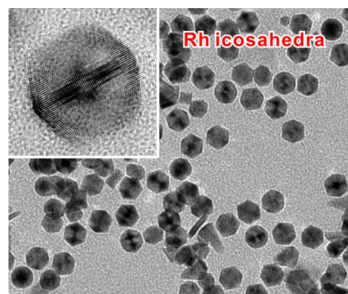
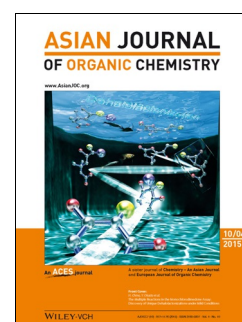
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201500304

Sialic Acids

P. Rota, P. Allevi, L. Anastasia*

The Sialic Acids Waltz: Novel Stereoselective Isomerization of the 1,7-Lactones of *N*-Acetylneuraminic Acids into the Corresponding γ -Lactones and Back to the Free Sialic Acids

Free to dance? Sialic acid derivatives are important molecules in a range of biological processes. A high-yielding internal rearrangement of the 1,7-lactone of *N*-acetylneuraminic acid into its γ -lactone is reported. This is complemented by the subsequent conversion of that γ -lactone into the free parent sialic acid under optimized acidic and basic conditions.



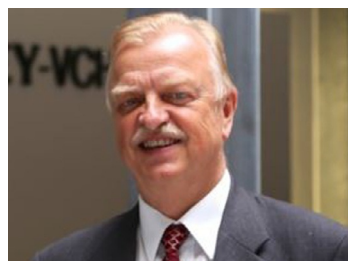
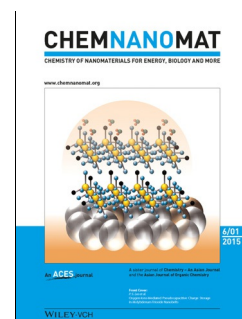
ChemNanoMat
DOI: 10.1002/cnma.201500122

Noble Metal Nanocrystals

S.-I. Choi, S. R. Lee, C. Ma, B. Oliy, M. Luo, M. Chi, Y. Xia*

Facile Synthesis of Rhodium Icosahedra with Controlled Sizes up to 12 nm

Slow down the reduction: The formation of Rh icosahedra was achieved under a proper reduction rate through the use of Rh(acac)₃ and poly(vinyl pyrrolidone) (PVP, MW $\approx$ 40000) as the precursor and reductant, respectively.



ChemViews magazine
DOI: 10.1002/chemv.201500054

Catalysis

V. Koester

Catalysis, Enzymes, and Transition Metals in Organic Chemistry

Professor Jan-Erling Bäckvall of Stockholm University, Sweden, spoke with Dr. Vera Koester for *ChemViews Magazine* about his research ranging from palladium-catalyzed oxidative carbocyclizations and dynamic kinetic resolution using enzymes, to nanopalladium catalysts.

