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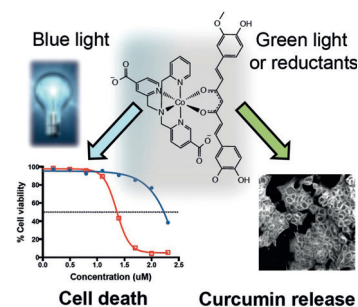


Photochemotherapy

A. K. Renfrew,* N. S. Bryce, T. Hambley

Cobalt(III) Chaperone Complexes of Curcumin: Photoreduction, Cellular Accumulation and Light-Selective Toxicity towards Tumour Cells

Cobalt(III) chaperones in a new light: Inert cobalt(III)-curcumin complexes have been prepared that can be activated by visible light to release curcumin. The complexes show good cellular uptake and very low toxicity in the dark, but are up to 20 times more toxic towards tumour cells in combination with visible light.



Chem. Eur. J.
DOI: 10.1002/chem.201502702

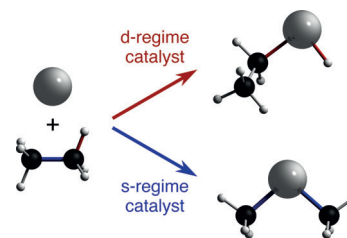


C–H activation

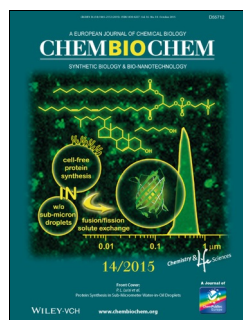
L. P. Wolters, F. M. Bickelhaupt*

Selective C–H and C–C Bond Activation: Electronic Regimes as a Tool for Designing d^{10} ML_n Catalysts

Custom Design! We develop an approach to design d^{10} ML_n catalysts that can selectively activate C–H bonds versus C–C bonds in ethane or C–H bonds in ethane versus those in methane by making use of subtle differences in the electronic structures of these bonds. Promising insight is obtained through detailed quantum-chemical analyses with the activation strain model and quantitative molecular orbital theory.



Chem. Asian J.
DOI: 10.1002/asia.201500368



Microfluidics

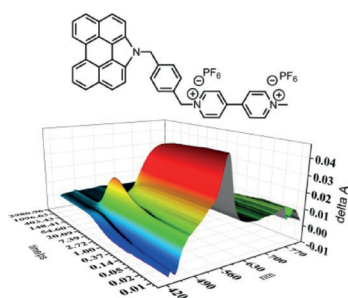
J. A. Crooks, M. D. Stilwell, P. M. Oliver, Z. Zhong, D. B. Weibel*

Decoding the Chemical Language of Motile Bacteria by Using High-Throughput Microfluidic Assays

Marvels of microfluidics: We report a simple microfluidic-based high-throughput assay to screen large chemical libraries for bacterial chemotaxis activity. We provide experiments that demonstrate how our approach can be used to rapidly identify and characterize the chemotactic behavior of uncharacterized bacterial species.



ChemBioChem
DOI: 10.1002/cbic.201500324



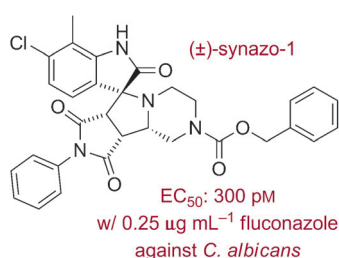
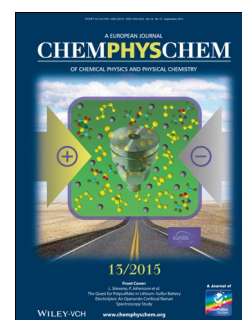
ChemPhysChem
DOI: 10.1002/cphc.201500615

M.-P. Santoni,* A. Santoro, T. M. G. Salerno, F. Puntoriero,*
F. Nastasi, M. L. Di Pietro, M. Galletta, S. Campagna*

Photoinduced Charge Separation in a Donor–Spacer–Acceptor Dyad with *N*-Annulated Perylene Donor and Methylviologen Acceptor

Time for a NAP: For the first time a strongly emissive *N*-annulated perylene (NAP) dye is connected to an electron acceptor subunit by its macrocyclic nitrogen. This molecular motif does not alter the intrinsic properties of the NAP species, and photoinduced charge separation is obtained with a time constant of 5 ps, with the charge-separated state recombining in 19 ps. New ways for designing light-active multicomponent species containing NAP are proposed.

Dyes



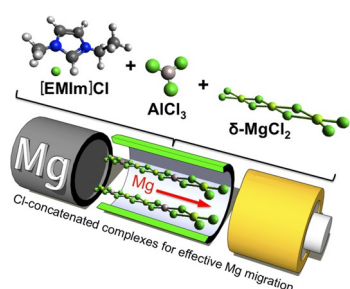
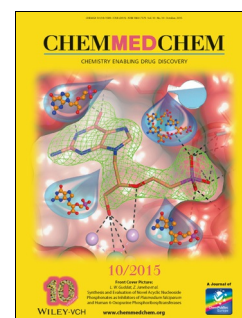
ChemMedChem
DOI: 10.1002/cmdc.201500271

I. D. U. A. Premachandra, K. A. Scott, C. Shen, F. Wang, S. Lane,
H. Liu, D. L. Van Vranken*

Potent Synergy between Spirocyclic Pyrrolidinoindolones and Fluconazole against *Candida albicans*

Synergy from stereochemical complexity: An attempt to synthesize analogues of a known spiroindolinone led to a series of diastereomers. One spiroindolinone, termed synazo-1, was shown to exhibit potent activity (300 pM) against *C. albicans* in the presence of fluconazole. Synazo-1 is a true synergizer and was also highly active against some drug-resistant *C. albicans* strains.

Antifungal Agents



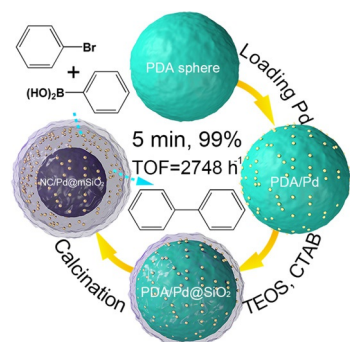
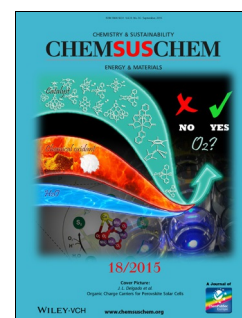
ChemSusChem
DOI: 10.1002/cssc.201500339

F. Bertasi, C. Hettige, F. Sepehr, X. Bogle, G. Pagot, K. Vezzù,
E. Negro, S. J. Paddison, S. G. Greenbaum, M. Vittadello, V. Di Noto*

A Key concept in Magnesium Secondary Battery Electrolytes

New kid on the block! Electrolytes for secondary Mg batteries based on chloroaluminate ionic liquid and innovative Mg salt with superior electrochemical performances are reported. A 3D chloride-concatenated dynamic network model, which explains the electrochemical and electrical behaviour of the electrolytes, together with a conductivity mechanism are proposed.

Batteries



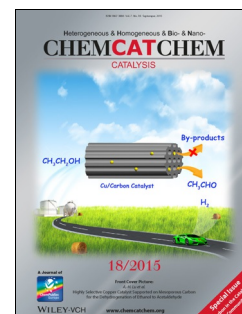
ChemCatChem
DOI: 10.1002/cctc.201500600

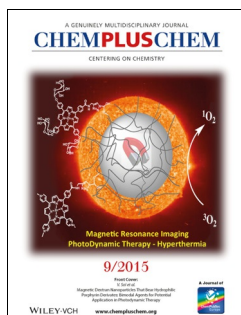
F. Wei, C. Cao,* Y. Sun, S. Yang, P. Huang, W. Song*

Highly Active and Stable Palladium Nanoparticles Encapsulated in a Mesoporous Silica Yolk–Shell Nanoreactor for Suzuki–Miyaura Reactions

Core catalysis: A yolk–shell nanoreactor with nitrogen-doped carbon spheres as the yolk and mesoporous silica (mSiO₂) as the shell, together with Pd nanoparticles uniformly encapsulated in the void space, showed excellent catalytic activity and stability in the Suzuki–Miyaura reaction. CTAB = Hexadecyl trimethyl ammonium bromide, PDA = Polydopamine, TEOS = Tetraethyl orthosilicate.

Palladium Catalysis



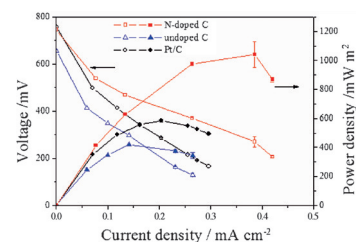


Microbial Fuel Cells

G. Yue,* K. Meng, Q. Liu

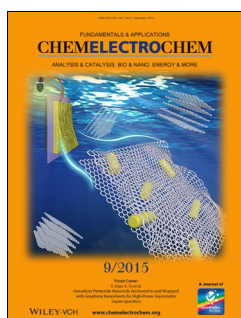
One-Step Synthesis of N-Doped Carbon and Its Application as a Cost-Efficient Catalyst for the Oxygen Reduction Reaction in Microbial Fuel Cells

Heating cellulose under an ammonia atmosphere results in an N-doped carbon material with high surface area that exhibits high electrocatalytic activity for the oxygen reduction reaction in microbial fuel cells (MFCs). This N-doped carbon is an inexpensive, highly efficient catalyst, and can be a promising alternative to Pt/C in large-scale applications of MFCs.



ChemPlusChem

DOI: 10.1002/cplu.201500057

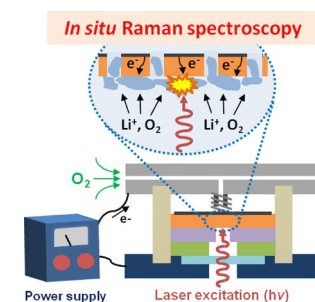


Batteries

F. S. Gittleston, K. P. C. Yao, D. G. Kwabi, S. Y. Sayed, W.-H. Ryu, Y. Shao-Horn, A. D. Taylor*

Raman Spectroscopy in Lithium–Oxygen Battery Systems

Raman rocks! Raman spectroscopy is an essential tool for studying product chemistry and mechanisms in Li–O₂ battery systems.



ChemElectroChem

DOI: 10.1002/celec.201500218

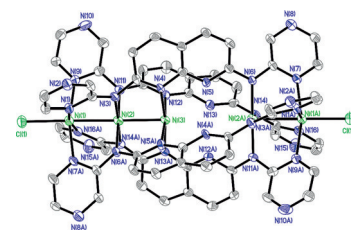


Metal String Complexes

W.-Z. Wang,* D. Zhao, T.-B. Tsao, R. Ismayilov, G.-H. Lee, S.-M. Peng*

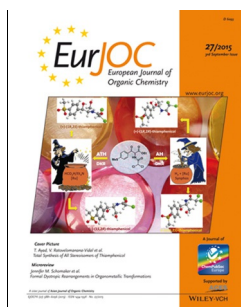
A Very Stable Nickel Broken-Chain Complex with Isolated Ni–Ni Interactions

The pentanickel-extended metal-atom chain [Ni₅(μ₅-dpznda)₄Cl₂] (H₂dpznda = N²,N⁷-bis(pyrazin-2-yl)-1,8-naphthyridine-2,7-diamine) was synthesized, and its magnetism and conductance were studied. In its linear structure, which is partially delocalized, four ligands are wrapped around the metal string forming the core of the molecule.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.201500674

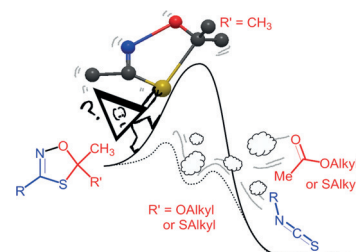


Thermal Rearrangements

R. J. Hewitt,* M. J. H. Ong, Y. W. Lim, B. A. Burkett*

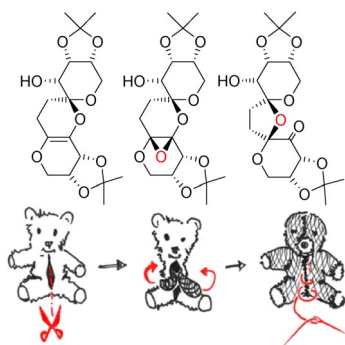
Investigations of the Thermal Responsiveness of 1,4,2-Oxathiazoles

The first systematic study of the thermal rearrangement/fragmentation of 5,5-disubstituted 1,4,2-oxathiazoles into isothiocyanates is reported. Structure–activity relationships reveal that the choice of substituent at the 5-position of the 1,4,2-oxathiazoles not only influences the ease of fragmentation but may also have mechanistic consequences on the reaction.



Eur. J. Org. Chem.

DOI: 10.1002/ejoc.201500909



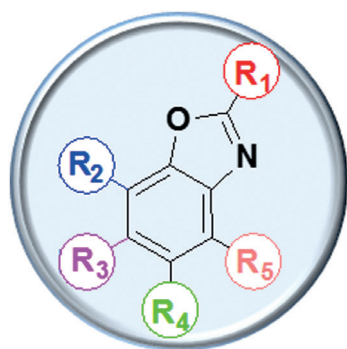
ChemistryOpen
DOI: 10.1002/open.201500122

Organic Rearrangements

C. Lorenc, J. Saurí, A. Moser, A. V. Buevich, A. J. Williams,
R. T. Williamson, G. E. Martin, M. W. Pecuh*

Turning Spiroketal Inside Out: A Rearrangement Triggered by an Enol Ether Epoxidation

Turn it inside out! Epoxidations of polycyclic, enol-ether-containing spiroketals triggered rearrangements that completely remodeled their structures, essentially turning them “inside out”. Due to the high level of substitution on the carbon skeletons of the substrates and products, characterization resorted to X-ray crystallography and advanced computation and NMR techniques to solve their structures.



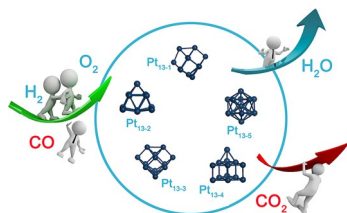
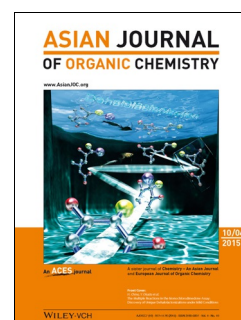
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201500235

Pharmacologically Active Benzoxazoles

S. Singh, G. Veeraswamy, D. Bhattarai, J.-I. Goo, K. Lee,* Y. Choi*

Recent Advances in the Development of Pharmacologically Active Compounds that Contain a Benzoxazole Scaffold

The benzoxazole motif has emerged as a valuable scaffold in organic compounds, and these benzoxazole-based compounds have gained special attention in recent years because of their broad range of pharmacological activities. In this Focus Review, we highlight recent advancements in the development of these biologically active heterocyclic compounds since the year 2000.



ChemNanoMat
DOI: 10.1002/cnma.201500107

Clusters

W. Zhang, A. Sumer, J. Jellinek,* D. Cheng*

Morphology Tailoring of Pt Nanocatalysts for the Oxygen Reduction Reaction: The Paradigm of Pt₁₃

Shaping platinum: Structural properties, ORR activity, and CO tolerance of five morphological forms of the Pt₁₃ cluster are investigated. The results indicate that of the five considered, Pt₁₃₋₁ and Pt₁₃₋₂ possesses the best, overall comparable, combination of catalytic characteristics—activity and CO tolerance—relevant to the ORR.



ChemViews magazine
DOI: 10.1002/chemv.201500083

Healthcare

C. Goedecke, A. Sprenger

Replacing Vaccine Injections with a Tablet

What if instead of vaccinations with follow-up injections, patients could just take a pill at home? Adrian Sprenger, CEO of the start-up Bionicure, talks about their drug depot formulation that might make this possible and gives advice for founders from a science background.

