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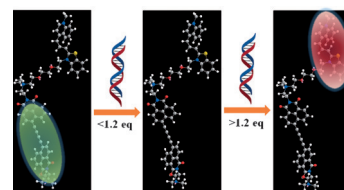


DNA Markers

Y. Mao, K. Liu, L. Chen, X. Cao, T. Yi*

A Programmed DNA Marker Based on Bis(4-ethynyl-1,8-naphthalimide) and Three-Methane-Bridged Thiazole Orange

Two for one: A naphthalimide derivative containing three-methane-bridged thiazole orange (TO3), which can selectively bind DNA in a programmed way that leads to a change in fluorescence, was designed and synthesized. The green emission at $\lambda = 532$ nm (naphthalimide group; see figure) of the newly synthesized compound initially decreased and the red emission at $\lambda = 655$ nm (TO3 group) increased sequentially with increased DNA concentration.



Chem. Eur. J.
DOI: 10.1002/chem.201502874

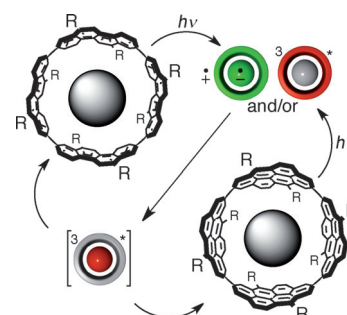


Electron Transfer

S. Hitosugi, K. Ohkubo, Y. Kawashima, T. Matsuno, S. Kamata, K. Nakamura, H. Kono, S. Sato, S. Fukuzumi,* H. Isobe*

Modulation of Energy Conversion Processes in Carbonaceous Molecular Bearings

Having a bearing on electron transfer: Energetics and photodynamics of carbonaceous molecular bearings were investigated to show that light absorption generates excited states which decay by transferring their energy to thermal vibrations.



Chem. Asian J.
DOI: 10.1002/asia.201500673

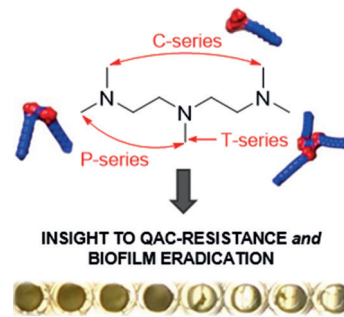


Antibiotics

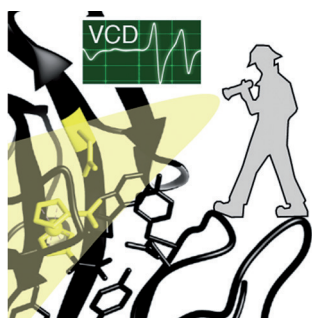
M. A. Mitchell, A. A. Iannetta, M. C. Jennings, M. H. Fletcher, W. M. Wuest,* K. P. C. Minbiole*

Scaffold-Hopping of Multicationic Amphiphiles Yields Three New Classes of Antimicrobials

Hopping along: Bacteria resistant to quaternary ammonium compounds (QACs) present significant health threats, but novel multicationic variants (multiQACs) show promise for addressing this issue. Using a scaffold-hopping approach, we have efficiently prepared alternate architectures of multiQACs that show excellent potency against methicillin-resistant *Staphylococcus aureus* (MRSA) and biofilms.



ChemBioChem
DOI: 10.1002/cbic.201500381



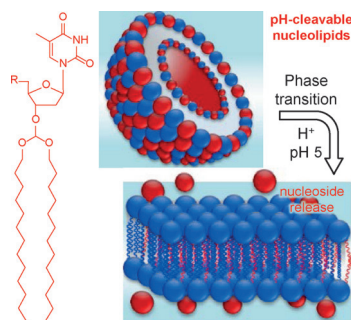
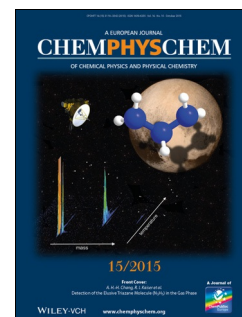
ChemPhysChem
DOI: 10.1002/cphc.201500551

Chirality

S. R. Domingos, F. Hartl,* W. J. Buma,* S. Woutersen*

Elucidating the Structure of Chiral Molecules by using Amplified Vibrational Circular Dichroism: From Theory to Experimental Realization

Zooming in on chirality is now possible by controlled manipulation of the “electronics” of a chiral molecule and observation of its locally enhanced vibrational circular dichroism (VCD). We review the theoretical foundations of amplified VCD and discuss its first experimental observations, with a prospective view on future applications.



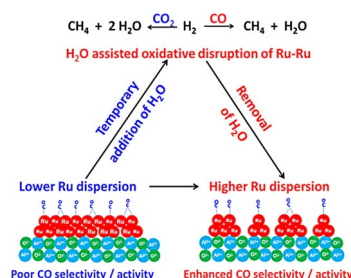
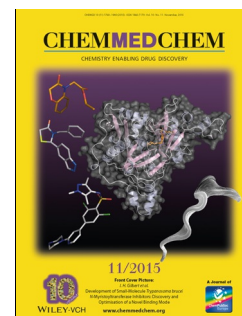
ChemMedChem
DOI: 10.1002/cmdc.201500381

Drug Delivery

K. Oumzil, S. Benizri, G. Tonelli, C. Staedel, A. Appavoo, M. Chaffanet, L. Navailles, P. Barthélémy*

pH-Cleavable Nucleoside Lipids: A New Paradigm for Controlling the Stability of Lipid-Based Delivery Systems

Orthoester nucleoside lipids (ONLs) reported here are the first examples of pH-cleavable lipids that generate hexadecanol in the bilayers resulting in destabilization of vesicles under weak acidic conditions. Stable nucleic acid lipid particles (SNALPs) formulated with ONLs and siRNAs can effectively release their nucleic acid payload in response to an intracellular acidic environment. pH-cleavable ONLs releasing fatty alcohols represent a promising approach for the intracellular delivery of drug cargos.



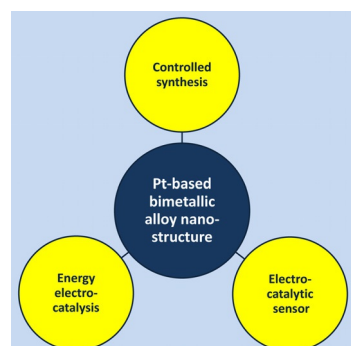
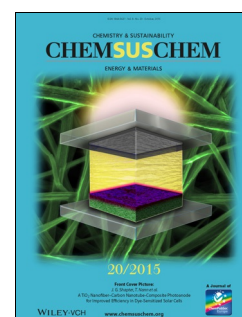
ChemSusChem
DOI: 10.1002/cssc.201500883

Carbon Dioxide Chemistry

A. M. Abdel-Mageed, D. Widmann, S. Eckle, R. J. Behm*

Improved Performance of Ru/ γ -Al₂O₃ Catalysts in the Selective Methanation of CO in CO₂-Rich Reformate Gases upon Transient Exposure to Water-Containing Reaction Gas

Wet or dry? Temporal addition of water to the dry reaction gas mixture during selective CO methanation over Ru/ γ -Al₂O₃ catalyst improves the selectivity and activity for CO methanation due to water-induced dispersion of Ru nanoparticles.



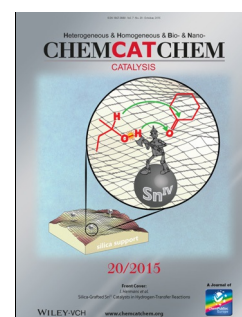
ChemCatChem
DOI: 10.1002/cctc.201500471

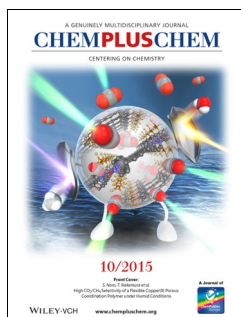
Electrocatalysis

J. Lai, R. Luque, G. Xu*

Recent Advances in the Synthesis and Electrocatalytic Applications of Platinum-Based Bimetallic Alloy Nanostructures

Alloys on my mind: Pt-based bimetallic alloy nanomaterials with a low Pt loading can exhibit promising catalytic properties with exciting electrochemical applications. An effective structure control of Pt-based bimetallic alloy nanomaterials is critical to achieve enhanced catalytic properties. This review article focuses on recent advances in the controllable synthesis and electrocatalytic applications of Pt-based bimetallic alloy nanostructures.



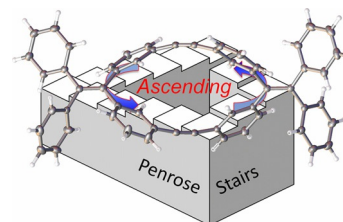


Aggregation-Induced Emission

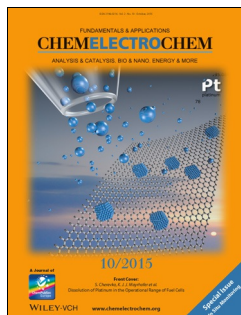
Z. He, E. Wang, J. W. Y. Lam, Y. Li, Z. Lin, B. Z. Tang*

An Aggregation-Induced Emission-Active Macrocycle: Illusory Topology of the Penrose Stairs

Stairs of illusion: A flexible macrocycle incorporating two tetraphenylethene (TPE) units linked by acetylene bridges has been synthesized by one-step, modified Sonogashira coupling. The macrocycle expresses the molecular illusory topology of Penrose stairs (see figure). Two mirrored configurations (*P,P,R,R*) and (*M,M,S,S*) were found and they could be interconverted via stepwise epimerization of the TPE units.



ChemPlusChem
DOI: 10.1002/cplu.201500199

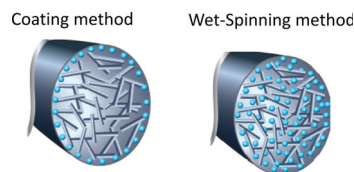


Microfibers

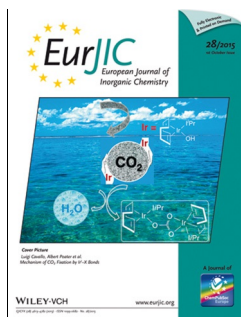
C. Mateo-Mateo, A.-S. Michardière, S. Gounel, I. Ly, J. Rouhana, P. Poulin,* N. Mano*

Wet-Spun Bioelectronic Fibers of Imbricated Enzymes and Carbon Nanotubes for Efficient Microelectrodes

A special arrangement: A scalable, single-step, wet-spinning approach that allows the fabrication of microfibers into which enzymes and carbon nanotubes are imbricated in the core of the fiber is reported. A sevenfold increase in current density and a significantly improved stability can be achieved by using the present protocol compared to a usual surface-coating method.



ChemElectroChem
DOI: 10.1002/celc.201500371

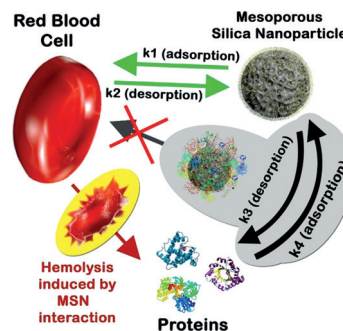


Nanomedicine

D. S. T. Martinez,* A. J. Paula, L. C. Fonseca, L. A. V. Luna, C. P. Silveira, N. Durán, O. L. Alves*

Monitoring the Hemolytic Effect of Mesoporous Silica Nanoparticles after Human Blood Protein Corona Formation

The potential toxicity of protein-corona-coated nanoparticles is mitigated as a result of the steric and electrostatic barriers generated by adsorbed proteins, which largely prevents new interactions between the bare surface of the nanoparticles and red blood cell (RBC) membranes.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201500573

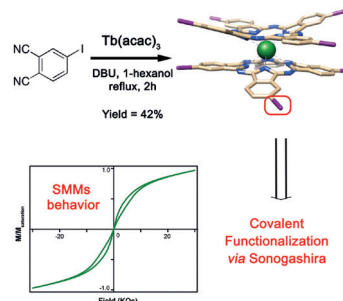


Single-Molecule Magnets

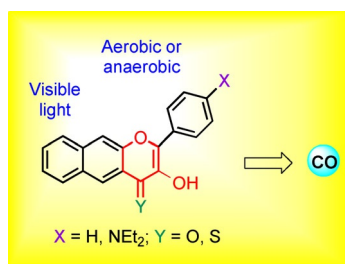
F. Bertani, N. Cristiani, M. Mannini, R. Pinalli, R. Sessoli, E. Dalcanele*

Iodinated Bis(phthalocyaninato)terbium(III) Complexes: Versatile Platforms for Functionalization of Single-Molecule Magnets through Sonogashira Reaction

Iodinated TbPc₂ have been synthesized and their single-molecule magnetic behavior has been studied by measuring their magnetic susceptibility. Incorporation of iodine in the molecular structure of the complex has allowed further functionalization through Sonogashira reaction. In this way, a wide range of LnPc₂ derivatives bearing different functionalities can be easily obtained.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501015



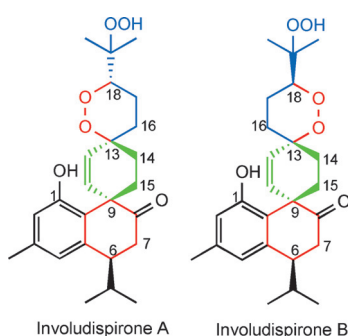
ChemistryOpen
DOI: 10.1002/open.201500167

Photochemistry

S. N. Anderson, J. M. Richards, H. J. Esquer, A. D. Benninghoff, A. M. Arif, L. M. Berreau*

A Structurally-Tunable 3-Hydroxyflavone Motif for Visible Light-Induced Carbon Monoxide-Releasing Molecules (CORMs)

Inspired by nature! A family of new 3-hydroxyflavone derivatives was prepared and found to exhibit quantitative carbon monoxide (CO) release upon illumination with visible light under various conditions. These compounds exhibit many features that are desirable in next-generation visible-light-induced CO-releasing molecules for potential biological applications.



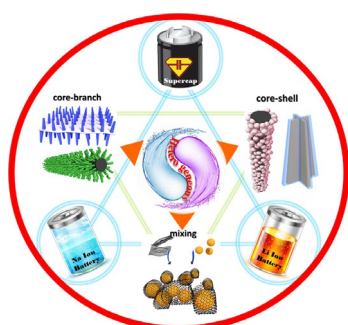
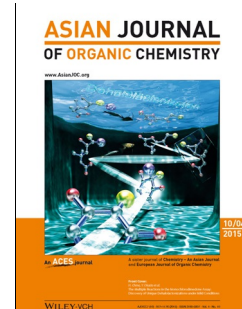
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201500360

Involudispirones A and B

Q.-M. Li, J.-G. Luo, H.-J. Zhao, W.-Y. Yu, X.-B. Wang, M.-H. Yang, J. Luo, H.-B. Sun, Y.-J. Chen, Q.-L. Guo, L.-Y. Kong*

Involudispirones A and B: Sesterterpenes Containing a Dispiro Ring from *Stahlianthus involucrat*

Get invol-ved: Involudispirones A (**1**) and B (**2**), a pair of cytotoxic sesterterpene stereoisomers containing a 1,2-dioxadispiro[5.2.5.2]hexadecane ring, were isolated from the rhizomes of *Stahlianthus involucrat*. Their structures and absolute configurations were established on the basis of spectroscopic data and chemical conversion.



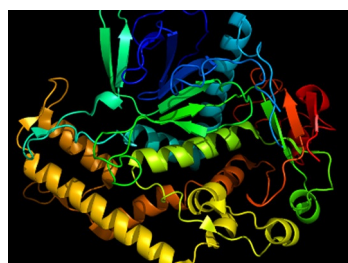
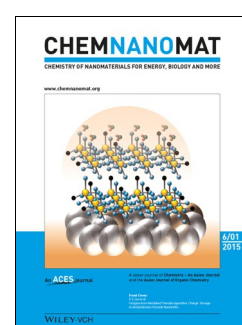
ChemNanoMat
DOI: 10.1002/cnma.201500091

Electrode Materials

C. Zhu, P. Yang, D. Chao, W. Mai, H. J. Fan*

Heterogeneous Nanostructures for Sodium Ion Batteries and Supercapacitors

Two is better than one: Heterogeneous nanostructured electrodes offer many advantages over their single-materials counterparts. This Focus Review concentrates on applications in sodium ion batteries and supercapacitors as well as in integrated multifunctional energy devices. Advantageous nanoarchitectures of the electrode design for high electrochemical performance are highlighted.



ChemViews magazine
DOI: 10.1002/chemv.201500075

Bioanalytics

D. Bradley

Biosensors for Protein Toxins

Protein toxins are notoriously difficult and time-intensive to test for. US researchers have developed electrochemical aptamer biosensors that can detect both the botulinum and ricin neurotoxins. The single-step convenience of their method allows for analysis in minutes rather than days.

