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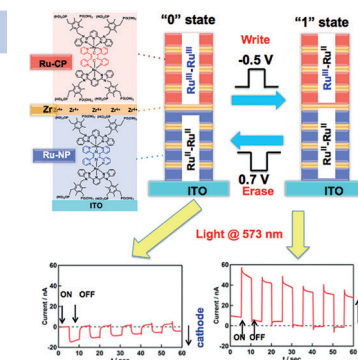


### Molecular Devices

T. Nagashima, H. Ozawa, T. Suzuki, T. Nakabayashi, K. Kanaizuka, M. Haga\*

Photoresponsive Molecular Memory Films Composed of Sequentially Assembled Heterolayers Containing Ruthenium Complexes

**Committed to memory:** Heteromolecular layered assembly of two Ru complexes having different redox potentials, was constructed by use of  $Zr^{IV}$  coordination bonding. Charge trapping in the outer layer occurred as a result of potential gradient in the heterolayer films (see graphic). Since the photocurrent direction determined whether the charge was trapped or not in the outer layer, the film acts as a new memory device.



Chem. Eur. J.  
DOI: 10.1002/chem.201503591

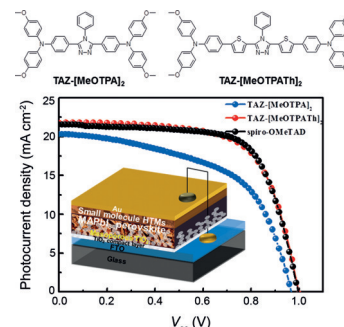


### Solar Cells

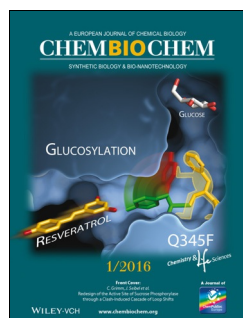
H. Choi, H. Jo, S. Paek, K. Koh, H. M. Ko, J. K. Lee,\* J. Ko\*

Efficient Hole-Transporting Materials with Triazole Core for High-Efficiency Perovskite Solar Cells

**Giving and receiving:** Donor–acceptor–donor type hole-transporting materials comprising a triazole core and two electron-rich triphenylamine derivatives were successfully synthesized and characterized. Their performance in n-i-p type perovskite solar cells reached high power conversion efficiencies of up to 14.4%.



Chem. Asian J.  
DOI: 10.1002/asia.201501178

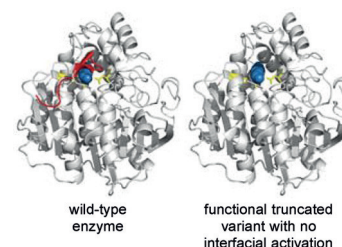


### Protein Engineering

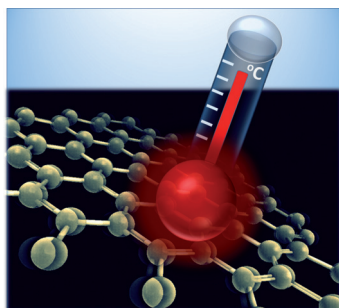
Y. Wikmark, K. Engelmark Cassimjee, R. Lihammar, J.-E. Bäckvall\*

Removing the Active-Site Flap in Lipase A from *Candida antarctica* Produces a Functional Enzyme without Interfacial Activation

**Removal of the mobile region** (15 residues) covering the active site of *Candida antarctica* Lipase A led to a functional enzyme that shows the same stability, activity, and stereoselectivity as the wild-type enzyme. Interfacial activation, which is a feature of the wild-type enzyme, was not observed in the truncated variant.



ChemBioChem  
DOI: 10.1002/cbic.201500471



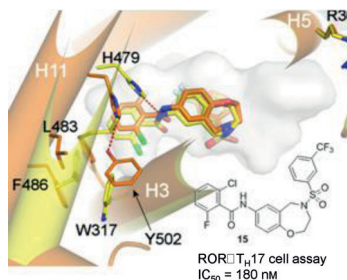
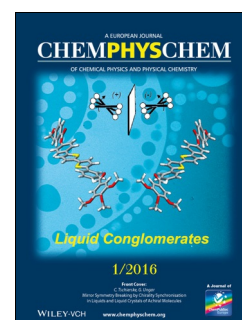
ChemPhysChem  
DOI: 10.1002/cphc.201500753

## Thermometry

H. Zhou, M. Sharma, O. Berezin, D. Zuckerman, M. Y. Berezin\*

Nanothermometry: From Microscopy to Thermal Treatments

**Hot or cold?** The review highlights the general mechanisms and principles behind temperature measurements using nanothermometers within a physiologically relevant temperature range (20–80 °C) in cells and in vivo.



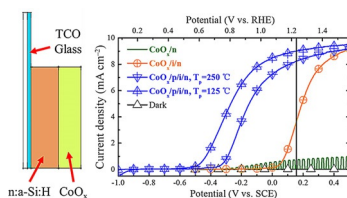
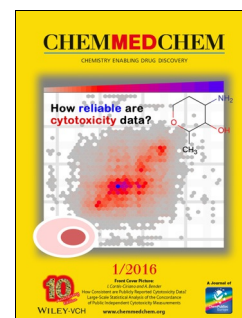
ChemMedChem  
DOI: 10.1002/cmdc.201500432

## Autoimmune Diseases

R. I. Olsson, Y. Xue, S. von Berg, A. Aagaard, J. McPheat, E. L. Hansson, J. Bernström, P. Hansson, J. Jirholt, H. Grindebacke, A. Leffler, R. Chen, Y. Xiong, H. Ge, T. G. Hansson, F. Narjes\*

Benzoxazepines Achieve Potent Suppression of IL-17 Release in Human T-Helper 17 (T<sub>H</sub>17) Cells through an Induced-Fit Binding Mode to the Nuclear Receptor RORγ

**ROR out!** Novel benzoxazepine-based ligands for RORγ, the nuclear receptor responsible for development and differentiation of human T-helper 17 (T<sub>H</sub>17) cells, inhibit interleukin-17 (IL-17) secretion with nanomolar potency. A cocrystal structure of an inverse agonist bound to the RORγ ligand-binding domain revealed that both an induced fit, as well as a hydrogen bond to His479 are necessary to disrupt the agonist conformation of the receptor.



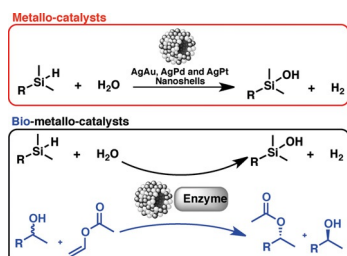
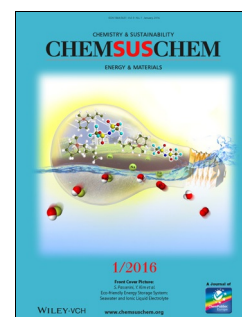
ChemSusChem  
DOI: 10.1002/cssc.201501004

## Water Oxidation

W. Qin, N. Wang, T. Yao, S. Wang, H. Wang, Y. Cao, S. (Liu)\* C. Li\*

Enhancing the Performance of Amorphous-Silicon Photoanodes for Photoelectrocatalytic Water Oxidation

**Multi-functional layers:** Hydrogenated amorphous Si (a-Si:H) covered with a thin layer of CoO<sub>x</sub> is applied as photoanode for photoelectrochemical water splitting. The thin layer of CoO<sub>x</sub> effectively protects a-Si:H from the corrosive electrolyte and quantitative oxidation of water to oxygen was observed. A high applied bias photon-to-current efficiency of 2.34% is achieved for a-Si:H photoanode using an intrinsic absorber in a p-i-n configuration.



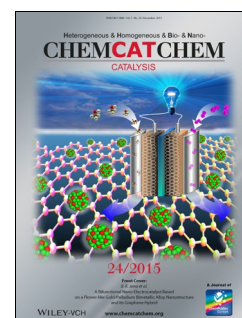
ChemCatChem  
DOI: 10.1002/cctc.201500812

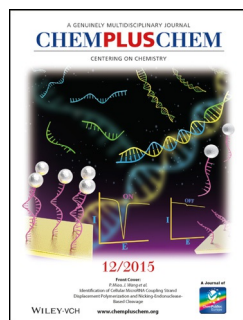
## Nanocatalysis

C. M. Kisukuri, D. J. Palmeira, T. S. Rodrigues, P. H. C. Camargo,\* L. H. Andrade\*

Bimetallic Nanoshells as Platforms for Metallo- and Biometallo-Catalytic Applications

**Little balls of double trouble:** Bimetallic nanoshells (AgAu, AgPt, and AgPd) were efficiently employed as a platform for the preparation of catalysts displaying both metal and enzymatic activities.



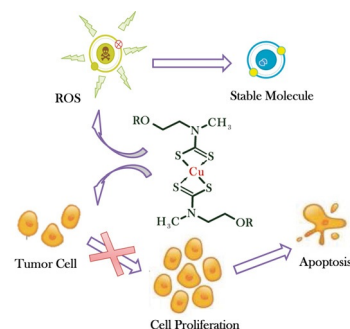


### Glycoconjugates

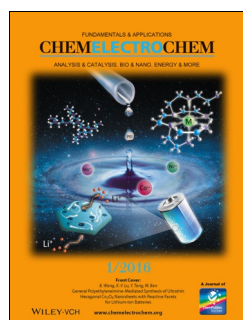
R. Turnaturi, V. Oliveri, M. Viale, M. Monticone, G. Vecchio\*

Antiproliferative and Antioxidant Activity of Glycoconjugates of Dithiocarbamates and Their Copper(II) and Zinc(II) Complexes

**Family ties:** Dithiocarbamate (DTC) glycoconjugates were synthesized, characterized, and compared to the parent DTC. Their copper(II) and zinc(II) complexes were investigated by electrospray ionization mass spectrometry and UV/Vis spectroscopy. The *in vitro* cytotoxic and apoptotic activities of DTC derivatives were assessed in human cancer cell lines, also in the presence of metal ions (see scheme). Moreover, their superoxide dismutase-like activity was determined.



ChemPlusChem  
DOI: 10.1002/cplu.201500289

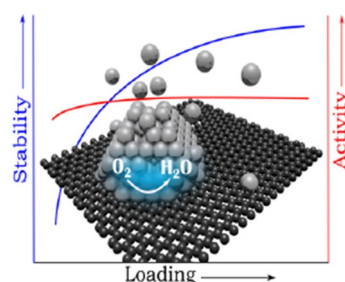


### Fuel Cells

G. P. Keeley,\* S. Cherevko, K. J. J. Mayrhofer\*

The Stability Challenge on the Pathway to Low and Ultra-Low Platinum Loading for Oxygen Reduction in Fuel Cells

**Safety in numbers:** There is a constant drive to minimise the loading of precious metals in fuel cell components, but it is found that this causes a significant loss of stability because of the inability of ultra-thin catalyst layers to retain dissolved metal. This constraint means the development of improved catalyst materials and layers for achieving ultra-low noble-metal loading in fuel cells and energy conversion devices has to be reconsidered.



ChemElectroChem  
DOI: 10.1002/celc.201500425

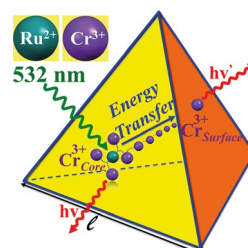


### Energy Transfer in Nanocrystals

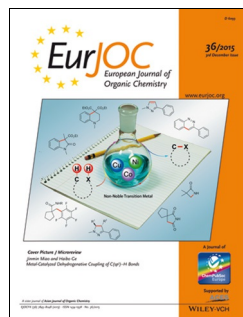
E. Previtera, A. Tissot, A. Hauser\*

Directional Energy Transfer in Nanocrystals of [Ru(2,2'-bipyridine)<sub>3</sub>][NaCr(oxalate)<sub>3</sub>]

The complex sequence of events from the first energy-transfer step in [Ru(bpy)<sub>3</sub>][NaCr(ox)<sub>3</sub>] (bpy = 2,2-bipyridine, ox = oxalate) nanocrystals after the initial excitation of [Ru(bpy)<sub>3</sub>]<sup>2+</sup> as sensitizer to [Cr(ox)<sub>3</sub>]<sup>3-</sup> in the core of nanocrystals to directional energy migration within the <sup>2</sup>E state to the surface chromophores is elucidated.



Eur. J. Inorg. Chem.  
DOI: 10.1002/ejic.201501204

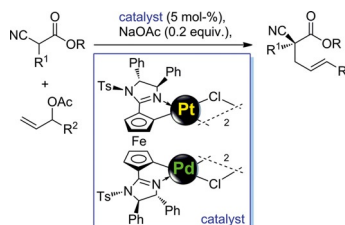


### Bimetallic Catalysis

M. Weiss, J. Holz, R. Peters\*

Regioselective Asymmetric Allylic Alkylation Reaction of  $\alpha$ -Cyanoacetates Catalyzed by a Heterobimetallic Platina-/Palladacycle

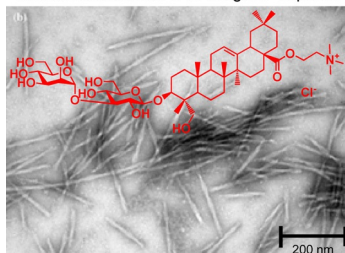
A Pt<sup>II</sup>/Pd<sup>II</sup> heterobimetallic catalyst has been used for stereo- and regioselective allylation reactions of  $\alpha$ -cyanoacetate pronucleophiles with allylic acetates. In the planar chiral ferrocene-based mixed pallada-/platina-cyclo both metals likely cooperate by simultaneous activation of both substrates. Enantioselectivities are higher than for the corresponding bis-palladacycle catalyst, which shows the impact of the Pt center.



Eur. J. Org. Chem.  
DOI: 10.1002/ejoc.201501290



Helical micelles in a TEM image of saponin



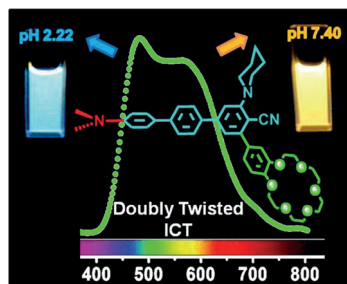
ChemistryOpen  
DOI: 10.1002/open.201500149

## Saponin Synthesis

B. W. Greatrex, A. M. Daines, S. Hook, D. H. Lenz, W. McBurney, T. Rades, P. M. Rendle\*

Synthesis, Formulation, and Adjuvanticity of Monodesmosidic Saponins with Oleanolic Acid, Hederagenin and Gypsogenin Aglycones, and some C-28 Ester Derivatives

**Super saponins!** Saponins are known to be good adjuvants for vaccines that consist of subunit antigens. A series of oleanolane saponins were prepared from oleanolic acid, and their formulation and immunostimulatory properties were investigated. C-28 ester derivatives formed an array of nanostructures including helical micelles when neat and in solution, and some of the saponins demonstrated moderate in vivo activity.



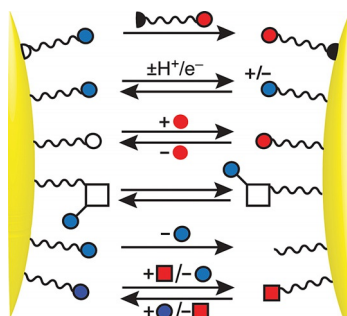
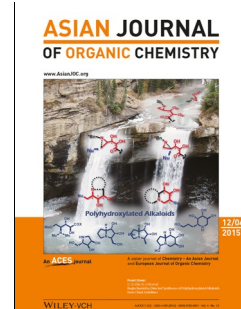
Asian J. Org. Chem.  
DOI: 10.1002/ajoc.201500435

## Chemosensors

S. Umar, A. K. Jha, A. Goel\*

Donor-Acceptor Fluorescent Molecular Rotors Appended with Benzocrown Ethers as Doubly Twisted Intramolecular Charge Transfer Based Ratiometric Acidic pH Sensors

**Do the twist:** A unique benzocrown-ether-based molecular rotor was synthesized, which emitted dual fluorescence due to a doubly twisted intramolecular charge transfer (DT-ICT) state. The dual fluorescence property of the molecular rotor was explored to develop a ratiometric acidic pH sensor.



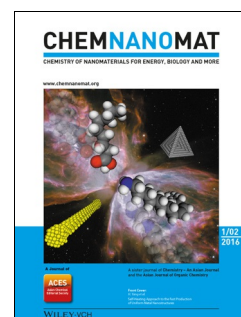
ChemNanoMat  
DOI: 10.1002/cnma.201500146

## Stimuli-Responsive Nanoparticles

W. Edwards, E. R. Kay\*

Manipulating the Monolayer: Responsive and Reversible Control of Colloidal Inorganic Nanoparticle Properties

**There and back again:** Many properties of colloidal nanoparticles are strongly influenced by the surface-bound molecular monolayer. Emerging strategies for manipulating nanoparticle-bound molecules to achieve stimuli-responsive and reversible nanoparticle property control are reviewed. The outstanding challenges in arriving at predictable and universal methods are discussed.



ChemViews magazine  
DOI: 10.1002/chemv.201500109

## Chemistry in Everyday Life

Cut Flower Preservatives

Take part in this quiz and learn how chemistry can help keep flowers fresh for a longer time.

