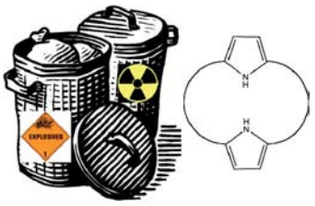
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Supramolecular Receptors

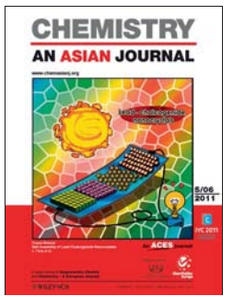
B. M. Rambo,* J. L. Sessler*

Oligopyrrole Macrocycles: Receptors and Chemosensors for Potentially Hazardous Materials

Sequestering, removal, and detection of hazardous materials: The ability to bind and subsequently sense radioactive and explosive materials is critical in protecting the environment and could prove useful in a variety of security-related applications. Oligopyrroles provide a versatile receptor platform that can be exploited for these purposes, as well as for the recognition of certain potentially hazardous anionic species. The unique electronic features of oligopyrroles make them particularly useful as colorimetric and fluorimetric chemosensors.



Chem. Eur. J.
DOI: **10.1002/chem.201100050**

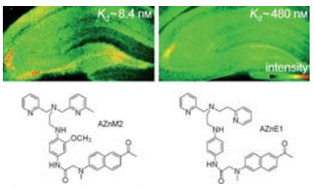


Fluorescent Probes

I. A. Danish, C. S. Lim, Y. S. Tian, J. H. Han, M. Y. Kang, B. R. Cho*

Two-Photon Probes for Zn^{2+} Ions with Various Dissociation Constants. Detection of Zn^{2+} Ions in Live Cells and Tissues by Two-Photon Microscopy

A-tissue a-tissue, we all fall down: A series of Zn^{2+}-ion selective two-photon fluorescent probes with a wide range of dissociation constants (K_d^{TP} = 8 nM–12 μM) were developed to be able to detect the Zn^{2+} ions in live cells and intact tissues at a depth of > 80 μm without the drawbacks of mistargeting and photobleaching.



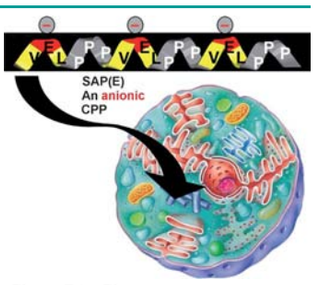
Chem. Asian J.
DOI: **10.1002/asia.201000720**

Peptides

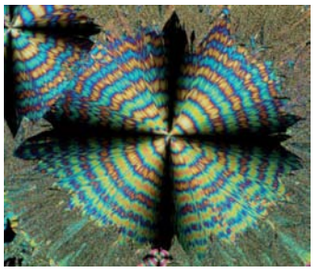
I. Martín, M. Teixidó,* E. Giralt*

Design, Synthesis and Characterization of a New Anionic Cell-Penetrating Peptide: SAP(E)

A SAP delivery: SAP(E) is an amphipathic proline-rich peptide derived from sweet arrow peptide (SAP) and adopts a defined PPII secondary structure in solution. Despite its overall negative charge it can be internalized into different cell lines without toxicity (see scheme). By making use of the noncationic nature of SAP(E) intracellular delivery of new cargoes might be possible.



ChemBioChem
DOI: **10.1002/cbic.201000679**



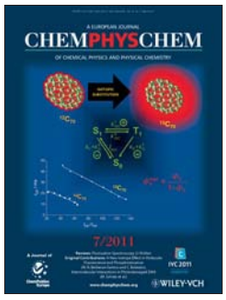
ChemPhysChem
DOI: **10.1002/cphc.201000963**

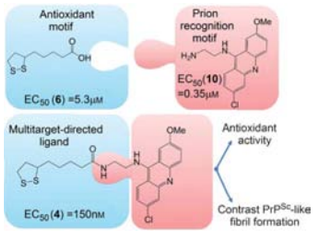
Crystal Growth

A. Shtukenberg,* E. Gunn, M. Gazzano,* J. Freudenthal, E. Camp, R. Sours, E. Rosseeva, B. Kahr*

Bernauer's Bands

Twisted crystals: Ferdinand Bernauer proposed in "*Gedrillte" Kristalle* (1929), that a great number of simple, crystalline substances grow from solution or from the melt as polycrystalline spherulites with helically twisting radii that give rise to concentric optical bands between crossed polarizers (see picture). In fact, rhythmic precipitation and helical twisting often coexist, complicating optical analyses and presenting Bernauer with difficulties in the characterization and classification of the objects of his interest.





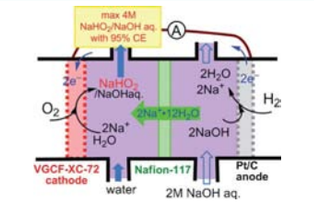
ChemMedChem
DOI: **10.1002/cmdc.201100072**

Drug Discovery

S. Bongarzone, H. N. A. Tran, A. Cavalli, M. Roberti, M. Rosini, P. Carloni, G. Legname, M. L. Bolognesi*

Hybrid Lipoic Acid Derivatives to Attack Prion Disease on Multiple Fronts

Attack from all sides! The presence of a prion recognition motif (**10**) along with an antioxidant fragment (**6**) could potentially lead to compounds with multiple mechanisms of action against prion disease. Our studies identified lipoyl acridine derivative **4**, which inhibits PrP^{Sc} accumulation, delays fibril formation, and decreases oxidative stress.



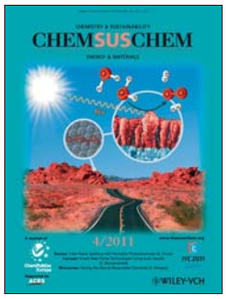
ChemSusChem
DOI: **10.1002/cssc.201000263**

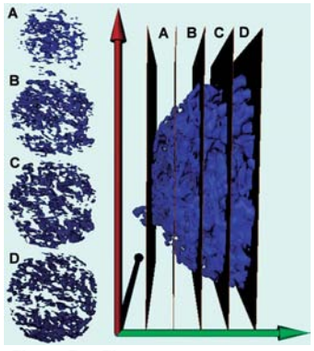
Fuel Cells

I. Yamanaka,* T. Onisawa, T. Hashimoto, T. Murayama

A Fuel-Cell Reactor for the Direct Synthesis of Hydrogen Peroxide Alkaline Solutions from H_2 and O_2

Divided we stand: A divided fuel-cell system is effective for the selective formation of hydrogen peroxide (see picture). The theoretical concentration of H_2O_2 is 4.3 M, but the solution is diluted to below 4.0 M to prevent deposition of Na_2O_2 at the cathode.





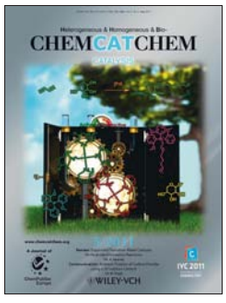
ChemCatChem
DOI: **10.1002/cctc.201000403**

Tomography

F. Nan, C. Song, J. Zhang, R. Hui, J. Chen, C. Fairbridge, G. A. Botton*

STEM HAADF Tomography of Molybdenum Disulfide with Mesoporous Structure

Not so heavy in the dark: Scanning transmission electron microscopy with high-angle annular dark field tomography to give spatial information on nanometre scale has been used to investigate the porous structure of a MoS_2 catalyst developed for heavy oil refining, offering direct view of individual porous particles in three-dimensions.

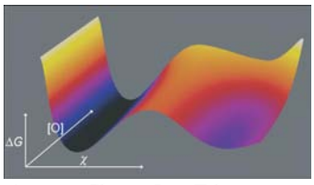


Protein Folding

D. Aioanei, S. Lv, I. Tessari, A. Rampioni, L. Bubacco, H. Li, B. Samorì, M. Brucale*

Single-Molecule-Level Evidence for the Osmophobic Effect

Chemical chaperones: Protecting osmolytes play a crucial role in preventing protein denaturation in harsh environmental conditions of living organisms. Experimental evidence is provided for a mechanism of protein-fold stabilization by these molecules that is in accord with the hypothesis of a backbone-based osmophobic effect. (In picture: ΔG = free energy, [O] = osmolyte concentration, χ = unfolding reaction coordinate.)



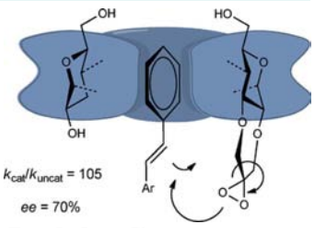
Angew. Chem. Int. Ed.
DOI: **10.1002/anie.201006714**

Enzyme Models

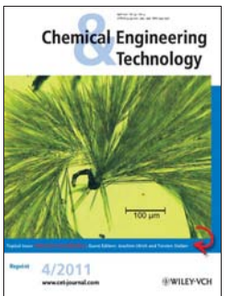
T. H. Fenger, L. G. Marinescu, M. Bols*

Cyclodextrin Ketones with the Catalytic Group at the Secondary Rim and Their Effectiveness in Enzyme-Like Epoxidation of Stilbenes

A cyclodextrin bearing a ketone on the secondary face can catalyze the epoxidation of stilbenes with cavity induced rate increases of 100–200 and stereoselectivity.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201001696**

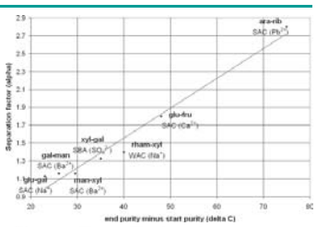


Industrial-Scale Chromatography

P. Saari*, M. Hurme

Process Synthesis Principles in the Chromatographic Separation of Sugars from Biomass Hydrolysates

The processing of sugar solutions is an important activity in sugar platform biorefineries. Industrial-scale chromatography offers an interesting alternative for the recovery of various monosaccharides in biomass hydrolysates. The systematics in the selection of a suitable ion exchange resin for separation are described.



Chem. Eng. Technol.
DOI: **10.1002/ceat.201000201**

