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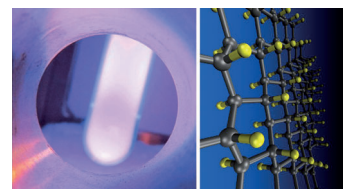


### Graphene

A. Y. S. Eng, Z. Sofer, P. Šimek, J. Kosina, M. Pumera\*

Highly Hydrogenated Graphene through Microwave Exfoliation of Graphite Oxide in Hydrogen Plasma: Towards Electrochemical Applications

**Glowing Graphene:** The reduction and hydrogenation of graphenes through graphite oxide exfoliation in microwave hydrogen plasma is investigated. The method is seen to produce reduced graphenes that exhibit similarities in morphology, defect density, and oxygen contents to thermally reduced graphenes. These highly hydrogenated graphenes exhibit fast heterogeneous electron transfer.



Chem. Eur. J.  
DOI: 10.1002/chem.201303164

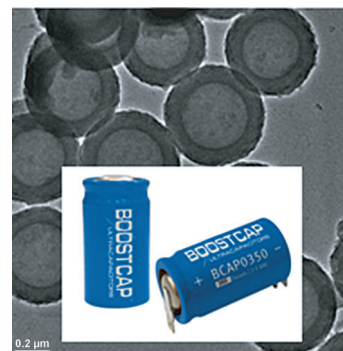


### Mesoporous Materials

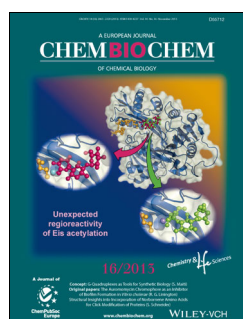
X. Chen,\* K. Kierzek, K. Wenelska, K. Cendrowski, J. Gong, X. Wen, T. Tang,\* P. K. Chu,\* E. Mijowska

Electrochemical Characteristics of Discrete, Uniform, and Monodispersed Hollow Mesoporous Carbon Spheres in Double-Layered Supercapacitors

**I'm so hollow:** Hollow mesoporous carbon spheres with controllable diameters are fabricated by chemical vapor deposition and used as electrode materials in supercapacitors. The performance of hollow carbon spheres with a wall thickness of 25 nm synthesized at 700 °C is the best, as manifested by their highest specific capacitance in a wide range of charging–discharging rates.



Chem. Asian J.  
DOI: 10.1002/asia.201300093

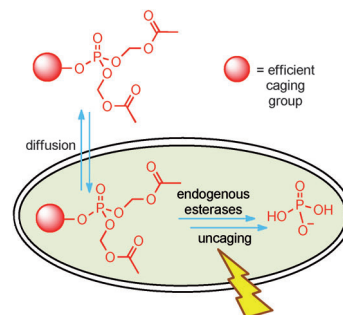


### Caged Compounds

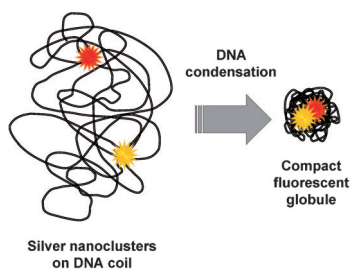
C. Herbivo, Z. Omran, J. Revol, H. Javot,\* A. Specht\*

Synthesis and Characterization of Cell-Permeable Caged Phosphates that Can Be Photolyzed by Visible Light or 800 nm Two-Photon Photolysis

**Life of Pi:** Membrane-permeable photolabile precursors of Pi, capable of releasing Pi efficiently either after visible light irradiation or after two-photon excitation at 800 nm, have been developed. These “caged-Pi” molecules are capable of intracellular accumulation, without requiring injection. This allows for a considerable pool of intracellularly available Pi, suitable for studying any living cell.



ChemBioChem  
DOI: 10.1002/cbic.201300425



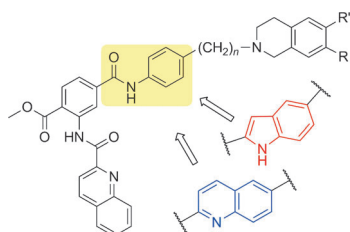
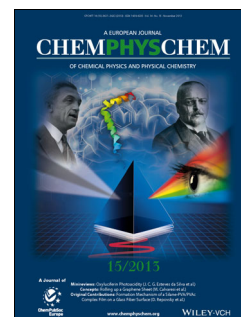
ChemPhysChem  
DOI: 10.1002/cphc.201300673

## Nanoclusters

I. L. Volkov, R. R. Ramazanov, E. V. Ubyvovk, V. I. Rolich, A. I. Kononov,\* N. A. Kasyanenko

Fluorescent Silver Nanoclusters in Condensed DNA

**Stable structures:** fluorescent DNA-shelled silver nanoclusters with enhanced stability are reported (see picture).



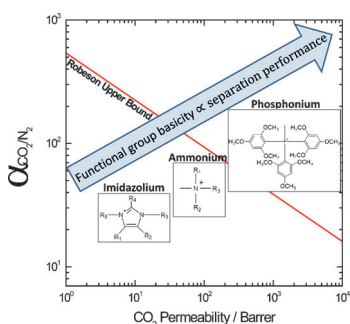
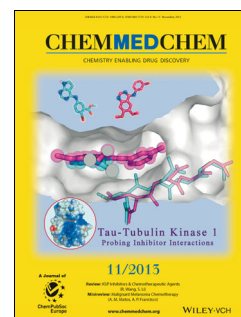
ChemMedChem  
DOI: 10.1002/cmdc.201300319

## Anticancer Drug Discovery

S. Bauer, C. Ochoa-Puentes, Q. Sun, M. Bause, G. Bernhardt, B. König,\* A. Buschauer\*

Quinoline Carboxamide-Type ABCG2 Modulators: Indole and Quinoline Moieties as Anilide Replacements

**ABC, it's easy as 1 2 3!** Bioisosteric replacement of the anilide core by an indole moiety considerably increased stability and gave potent and selective ABCG2 (BCRP) inhibitors. Some compounds are superior to the reference substances fumitremorgin C and Ko143 in terms of potency and efficacy and are the most potent ABCG2 modulators reported so far.



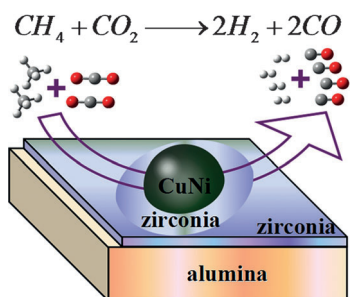
ChemSusChem  
DOI: 10.1002/cssc.201300286

## Carbon Dioxide Separation

L. Xiong, S. Gu, K. O. Jensen, Y. S. Yan\*

Facilitated Transport in Hydroxide-Exchange Membranes for Post-Combustion CO<sub>2</sub> Separation

**Star performer:** Increasing the basicity of the functional group in hydroxide-exchange membranes shows an improvement in CO<sub>2</sub> separation performance. The newly introduced phosphonium functional group exhibits the best performance of the various functional groups tested.



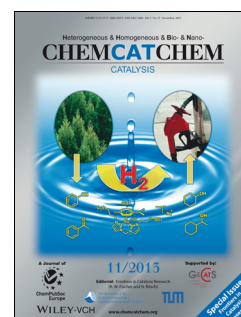
ChemCatChem  
DOI: 10.1002/cctc.201300227

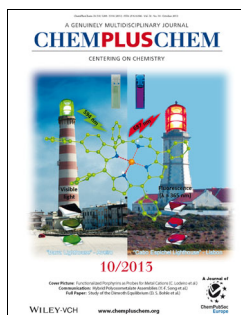
## Methane Reforming

H. Liu, C. Guan, X. Li, L. Cheng, J. Zhao, N. Xue, W. Ding\*

The Key Points of Highly Stable Catalysts for Methane Reforming with Carbon Dioxide

**A reformed character:** Efficient catalysts based on CuNi alloy nanoparticles for methane reforming with carbon dioxide to produce syngas have been produced. Modification of the catalyst by coating with zirconia was applied before and after supporting the CuNi alloy. The catalyst shows excellent coking and particle sintering resistance, is highly stable, and completely inhibits the growth of carbon nanotubes.



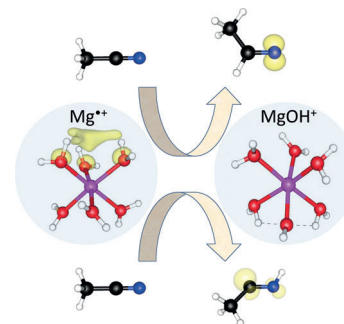


### Ion–Molecule Reactions

T.-W. Lam, C. van der Linde, A. Akhgarnusch, Q. Hao, M. K. Beyer,\*  
C.-K. Siu\*

Reduction of Acetonitrile by Hydrated Magnesium Cations  
 $\text{Mg}^+(\text{H}_2\text{O})_n$  ( $n \approx 20\text{--}60$ ) in the Gas Phase

**Electron squeeze-out:** The redox chemistry of the  $\text{Mg}^+$  ion with  $\text{CH}_3\text{CN}$  in aqueous media has been demonstrated at the molecular level. The valence electron of  $\text{Mg}^+$  is solvated out by water (see figure) and can reduce the  $\text{CH}_3\text{CN}$  molecule to form  $\text{CH}_3\text{CN}^{\cdot-}$ , followed by a spontaneous proton transfer to give  $\text{CH}_3\text{CNH}^{\cdot}$  or  $\text{CH}_3\text{CHN}^{\cdot}$ .



ChemPlusChem  
DOI: 10.1002/cplu.201300170

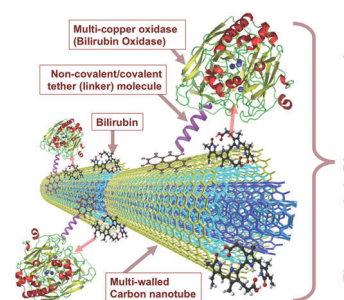


### Bioelectrochemistry

R. J. Lopez, S. Babanova, Y. Ulyanova, S. Singhal, P. Atanassov\*

Improved Interfacial Electron Transfer in Modified Bilirubin Oxidase Biocathodes

**Current affairs:** Polymer-coated multi-wall carbon nanotubes (MWCNTs) are modified with 1-pyrenebutanoic acid, succinimidyl ester, a cross-linker, and by using the bilirubin oxidase (BOx) natural substrate (bilirubin) or its artificial analogues as orientating agent, which provide stable immobilization and efficient orientation of the bilirubin oxidase enzyme. Subsequently, an increase in the electrocatalytic activity of BOx biocathodes is observed.



ChemElectroChem  
DOI: 10.1002/celec.201300085

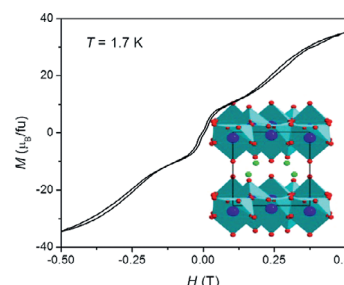


### Layered Lanthanide Hydroxides

B. Monteiro, C. C. L. Pereira, J. T. Coutinho, L. C. J. Pereira, J. Marçalo, M. Almeida\*

A 2D Layered Lanthanide Hydroxide Showing Slow Relaxation of Magnetization –  $\text{Dy}_8(\text{OH})_{20}\text{Cl}_4 \cdot 6\text{H}_2\text{O}$

$\text{Dy}_8(\text{OH})_{20}\text{Cl}_4 \cdot 6\text{H}_2\text{O}$ , a layered lanthanide hydroxide, shows slow magnetic relaxation at low temperatures with a blocking temperature of 3 K and an energy barrier of 36.1 K, a behavior characteristic of single-molecule magnets. This is the first example of a layered rare earth compound with such behavior.



Eur. J. Inorg. Chem.  
DOI: 10.1002/ejic.201300793

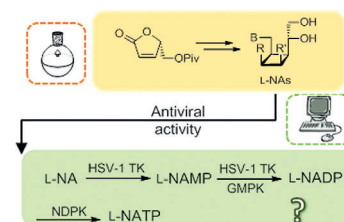


### Nucleoside Analogues

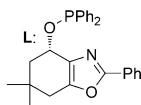
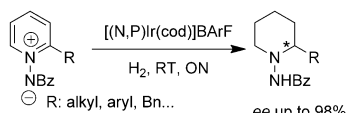
R. Miralles-Llumà, A. Figueras, F. Busqué, A. Alvarez-Larena, J. Balzarini, M. Figueredo, J. Font, R. Alibés,\* J.-D. Maréchal\*

Synthesis, Antiviral Evaluation, and Computational Studies of Cyclobutane and Cyclobutene L-Nucleoside Analogues

Cyclobutane and cyclobutene L-nucleoside analogues have been synthesized and screened for antiviral activity. The mechanism of action of their activation process as anti-herpes simplex virus agents has been investigated by computational approaches.



Eur. J. Org. Chem.  
DOI: 10.1002/ejoc.201301097



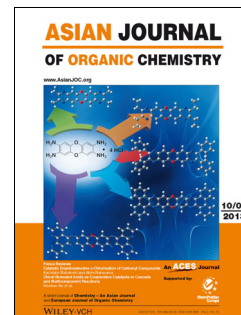
Asian J. Org. Chem.  
DOI: 10.1002/ajoc.201300160

## Asymmetric Hydrogenation

A. Cadu, P. K. Upadhyay, P. G. Andersson\*

Iridium-Catalyzed Asymmetric Hydrogenation of Substituted Pyridines

**Something to hyd:** Asymmetric hydrogenation of *ortho*-substituted pyridines catalyzed by N,P-ligated iridium is demonstrated. The aromaticity of the pyridines was weakened by forming *N*-iminopyridium ylides. The reactions give very high conversions and excellent *ee* of up to 98% after recrystallization. This method lends itself to the synthesis of chiral piperidine building blocks. [BARF] = tetrakis-[3,5-bis(trifluoromethyl)phenyl]borate); Bz = benzoyl; ON = overnight.



ChemViews magazine  
DOI: 10.1002/chemv.201300107

## Photoprotective Materials

David Bradley

Silky Sunscreen

Silk is a protein-based fiber produced by silkworms when they form their cocoons. During the pupal stage, this cocoon protects the silkworm from environmental factors such as ultraviolet light. David Bradley, UK, discusses the research of Xungai Wang et al., Australia, into the source of silk's natural UV protection and how this work could inspire the development of organic photoprotective materials.



## Anzeigenschluss für Stellenanzeigen

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Please send a PDF file (via e-mail or on CD) including all documents to Dr. Anja Hoffmann, [hwp@boehringer-ingelheim-stiftung.de](mailto:hwp@boehringer-ingelheim-stiftung.de), Boehringer Ingelheim Foundation, Schusterstr. 46-48, 55116 Mainz, Germany.

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