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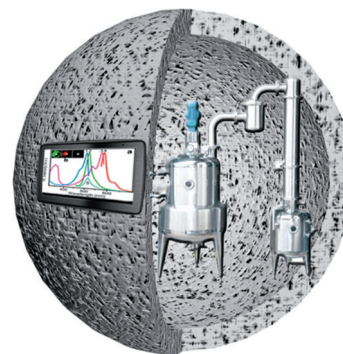


### Catalysis

M. Pérez-Lorenzo, B. Vaz, V. Salgueiriño, M. A. Correa-Duarte\*

Hollow-Shelled Nanoreactors Endowed with High Catalytic Activity

**Sleepy hollows wake up:** The design of different hollow-shelled nanoreactors is reviewed, analyzing the effects of both the shells and the active metal nanoparticles on the overall catalytic efficiency. Attention is focused on the methods used to prepare these hybrid nanocomposites and their different applications. Future perspectives on innovative architectures and further uses in catalysis are also addressed.



Chem. Eur. J.  
DOI: 10.1002/chem.201301802

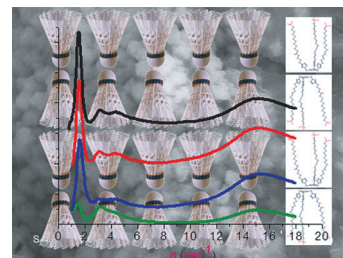


### Self-Assembly

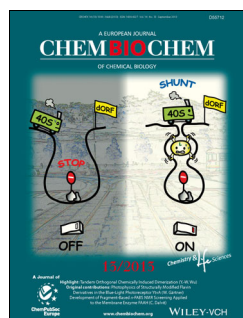
A. Monge-Marcet, X. Cattoën, P. Dieudonné, R. Pleixats,\*  
M. Wong Chi Man\*

Nanostructuring of Ionic Bridged Silsesquioxanes

**Tidy up!** Organosilicas that feature imidazolium units tend to self-organize during the sol-gel process thanks to the self-assembly of long alkylene chains.



Chem. Asian J.  
DOI: 10.1002/asia.201300538

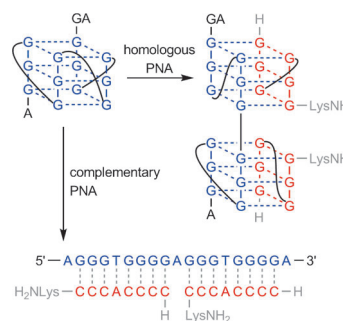


### Quadruplexes

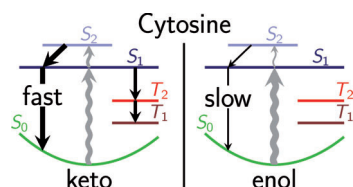
A. Gupta, L.-L. Lee, S. Roy, F. A. Tanious, W. D. Wilson, D. H. Ly,  
B. A. Armitage\*

Strand Invasion of DNA Quadruplexes by PNA: Comparison of Homologous and Complementary Hybridization

**That makes two... or four:** Peptide nucleic acid oligomers can invade DNA G quadruplexes to form heteroduplexes or heteroquadruplexes depending on the DNA target: a quadruplex derived from an oncogene promoter is more effectively targeted by a quadruplex-forming homologous PNA, whereas one based on the human telomeric repeat sequence is more readily targeted by a duplex-forming complementary PNA.



ChemBioChem  
DOI: 10.1002/cbic.201300263



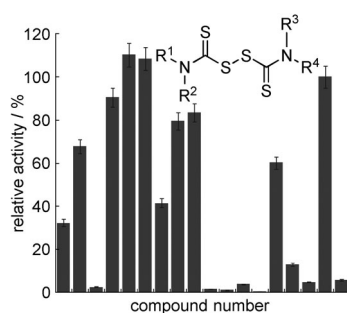
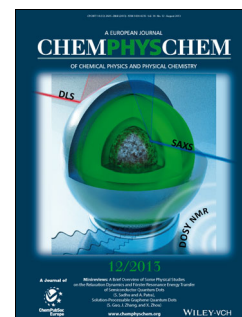
ChemPhysChem

DOI: 10.1002/cphc.201300370

## Intersystem Crossing

S. Mai, P. Marquetand,\* M. Richter, J. González-Vázquez, L. González  
Singlet and Triplet Excited-State Dynamics Study of the Keto and Enol Tautomers of Cytosine

**Alcohol makes you slow...** The keto makes you ultrafast! The results of ab initio molecular dynamics studies on cytosine are presented, including for the first time the enol tautomer, which shows a significantly slower relaxation mechanism than the keto form (see picture). The simulations include intersystem crossing to the triplet states, which play an important role in the keto form, but seem to be less accessible in the enol tautomer.



ChemMedChem

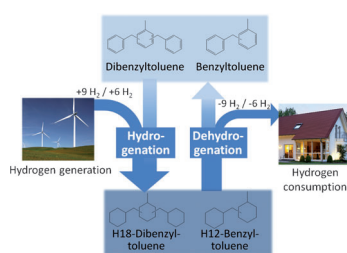
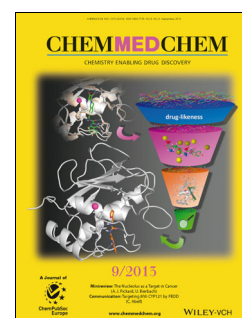
DOI: 10.1002/cmdc.201300215

## Drug Discovery

R. A. Kulkarni, S. M. Stanford, N. A. Vellore, D. Krishnamurthy,  
M. R. Bliss, R. Baron, N. Bottini, A. M. Barrios\*

Thiuram Disulfides as Pseudo-irreversible Inhibitors of Lymphoid Tyrosine Phosphatase

**Not just LYP service:** In conjunction with the discovery that disulfiram inhibits the activity of lymphoid tyrosine phosphatase (LYP), a series of thiuram disulfides were investigated as LYP inhibitors. The most potent among these was found to be a time-dependent pseudo-irreversible inhibitor with a  $K_i$  value of 1.1  $\mu\text{M}$  and a  $k_{\text{inact}}$  value of 0.004  $\text{s}^{-1}$ .



ChemSusChem

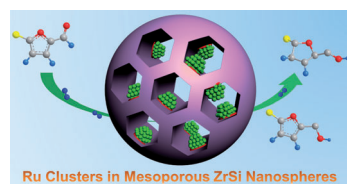
DOI: 10.1002/cssc.201300426

## Hydrogen Storage

N. Brückner, K. Obesser, A. Bösmann, D. Teichmann, W. Arlt,  
J. Dungs, P. Wasserscheid\*

Evaluation of Industrially Applied Heat-Transfer Fluids as Liquid Organic Hydrogen Carrier Systems

**Hydrogen storage solved!** Liquid organic hydrogen carrier (LOHC) systems offer a very attractive method for the decentralized storage of renewable excess energy. Industrially well-established heat-transfer oils (typically sold under trade names, e.g., Marlotherm) are proposed as a new class of LOHC systems.



ChemCatChem

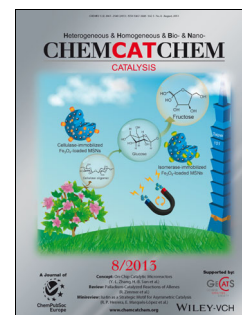
DOI: 10.1002/cctc.201300316

## Hydrogenation

J. Chen, F. Lu,\* J. Zhang, W. Yu, F. Wang, J. Gao, J. Xu\*

Immobilized Ru Clusters in Nanosized Mesoporous Zirconium Silica for the Aqueous Hydrogenation of Furan Derivatives at Room Temperature

**Ru lonesome tonight?** Immobilized ruthenium clusters (50 Ru atoms) in nanosized mesoporous zirconium silica were synthesized by using an impregnation method starting from an aqueous solution of  $\text{RuCl}_3$ . The Ru cluster catalysts were thermally stable at 500  $^\circ\text{C}$  and showed remarkable activity for the hydrogenation of furan derivatives in water at room temperature under 5 bar hydrogen pressure.



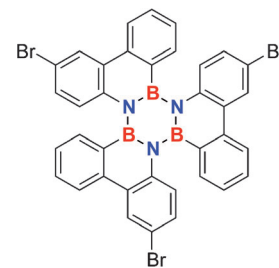


### Electrophilic Substitution

M. Müller, C. Maichle-Mössmer, P. Sirsch, H. F. Bettinger\*

Is There B–N Bond-Length Alternation in 1,2:3,4:5,6-Tris(biphenylene)borazines?

**All things being equal:** The electrophilic aromatic bromination of 1,2:3,4:5,6-tris(biphenylene)borazine yields the tribromo derivative that has only small bond-length alternation (BLA) according to X-ray crystallography and state-of-the-art computations (see scheme). A re-investigation of the structure of the parent 1,2:3,4:5,6-tris(biphenylene)borazine compound by experiment and theory reveals positional disorder of the borazine core.



ChemPlusChem  
DOI: 10.1002/cplu.201300110

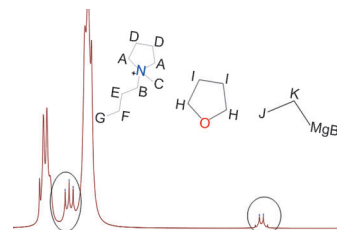


### Grignard Reagents

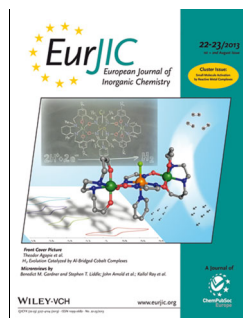
D. Luder, A. Kraysberg, Y. Ein-Eli\*

Catalyst-Free Electrochemical Grignard Reagent Synthesis with Room-Temperature Ionic Liquids

**Electrochemical synthesis of EtMgBr** in ionic-liquid media is demonstrated. A linear dependence of product concentration on total charge passage is also confirmed. This process could be used in many applications ranging from an industrial bulk GR synthesis in a controlled flowing framework or electrolyte synthesis for magnesium batteries before and even during discharge.



ChemElectroChem  
DOI: 10.1002/celc.201300065

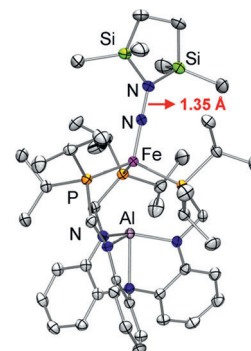


### Dinitrogen Activation

P. A. Rudd, N. Planas, E. Bill, L. Gagliardi, C. C. Lu\*

Dinitrogen Activation at Iron and Cobalt Metallalumatrane

An alumatrane ligand is used to support electron-rich ferrate(1–) and cobaltate(1–) centers within anionic metallalumatrane complexes. These complexes activate dinitrogen weakly. In the case of ferrate, the bound dinitrogen can be converted into a disilylhydrazido(2–) ligand.



Eur. J. Inorg. Chem.  
DOI: 10.1002/ejic.201300272



### β-Diketone Tautomerism

P. Cornago,\* P. Cabildo, D. Sanz, R. M. Claramunt, M. C. Torralba,\* M. R. Torres, J. Elguero

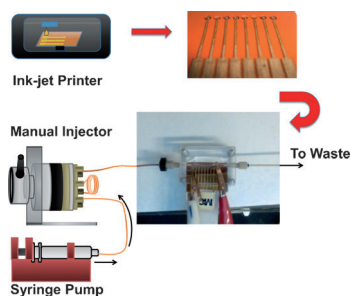
Structures of Hemi-Curcuminoids in the Solid State and in Solution

Hemi-curcuminoids are curcumin derivatives in which one styryl moiety is missing but the β-diketone functionality is maintained. Five such derivatives have been prepared, and the X-ray molecular structures for all of them have been determined. The tautomerism of the five compounds has been studied by NMR in the solid state and in solution. An enol–enol proton transfer barrier has been determined.



Eur. J. Org. Chem.  
DOI: 10.1002/ejoc.201300488





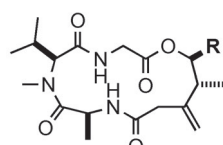
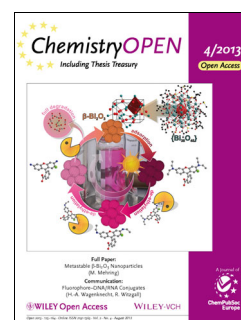
ChemistryOpen  
DOI: 10.1002/open.201300018

### Protein Detection

C. E. Krause, B. A. Otieno, A. Latus, R. C. Faria, V. Patel, J. S. Gutkind, J. F. Rusling\*

Rapid Microfluidic Immunoassays of Cancer Biomarker Proteins Using Disposable Inkjet-Printed Gold Nanoparticle Arrays

**Off-line amplification:** A low-cost inkjet-printed gold nanoparticle immunoarray was integrated into a microfluidic device for multiple protein determinations. The use of heavily labeled magnetic beads allows optimization either for ultrasensitive detection of biomarker proteins (low  $\text{fg mL}^{-1}$  levels) or for rapid 8 min assays within clinically relevant detection ranges.



R	cytotoxicity ( $\text{EC}_{50}$ )
	45 nM
	350 nM
	5,700 nM

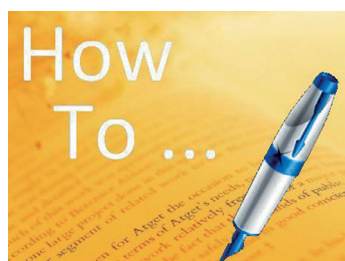
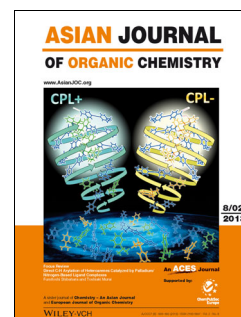
Asian J. Org. Chem.  
DOI: 10.1002/ajoc.201300111

### Antillatoxin Analogues

K. Okura, M. Inoue\*

The Orientation of the Terminal  $t\text{Bu}$  Group of Antillatoxin is Important for Potent Toxicity: Design, Synthesis and Biological Evaluation of Conformationally Restricted Analogues of Antillatoxin

**What's your poison?** Antillatoxin is a cyclic peptide and a potent cytotoxin. We designed two epimeric C8,C9-dihydroantillatoxins in which the  $t\text{Bu}$ -substituted side-chain of antillatoxin is conformationally restricted without changing the overall shape and chemical properties of the molecule. Structural and biological studies of antillatoxin and the two dihydroantillatoxins uncovered the orientation of the terminal  $t\text{Bu}$  group that is crucial for its potent toxicity.



ChemViews magazine  
DOI: 10.1002/chemv.201300105

### Science Writing

Richard Threlfall

Mind your Language! A Very Brief Guide to Language Usage in Scientific Writing (2)

Nowadays, having great results is not enough unless you can communicate your results clearly; learn how using simple language can help you to get your message across to the reader/editor/reviewer. In this ongoing series, Richard Threlfall, Managing Editor, Asian Journal of Organic Chemistry, gives some insider tips on how to improve the language of your article.

