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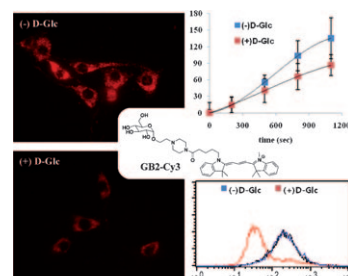


## Biosensors

H. Y. Lee, J. J. Lee, J. Park, S. B. Park\*

Development of Fluorescent Glucose Bioprobes and Their Application on Real-Time and Quantitative Monitoring of Glucose Uptake in Living Cells

**Sugar it up:** Fluorescent glucose bioprobes (GB-Cy3) have been developed and applied to the real-time and quantitative visualization of glucose uptake in living cells using confocal laser scanning microscopy, fluorescence microscopy, and flow cytometry analysis (see graphic). Moreover, GB2-Cy3 can be utilized in high-content screening for the discovery of novel therapeutic agents in metabolic diseases.



Chem. Eur. J.  
DOI: 10.1002/chem.201002560

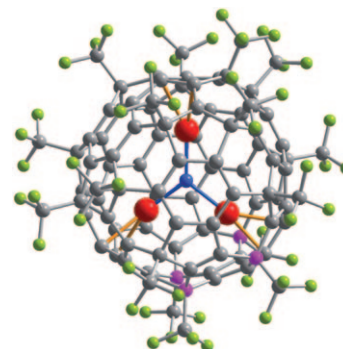


## Endohedral Fullerenes

S. Yang,\* C. Chen, M. A. Lansikh, N. B. Tamm, E. Kernitz, S. I. Troyanov\*

New Isomers of Trifluoromethylated Derivatives of Metal Nitride Cluster Fullerene:  $Sc_3N@C_{80}(CF_3)_n$  ( $n = 14$  and  $16$ )

**The behavior of  $Sc_3N$  cluster** inside the trifluoromethylated  $C_{80}$  ( $I_h$ ) fullerene cage was examined by structure elucidation of two new  $CF_3$  derivatives, these are  $Sc_3N@C_{80}(CF_3)_{14}$  and  $Sc_3N@C_{80}(CF_3)_{16}$  (see picture; Sc red, N blue, C gray and violet, F green). The most significant structural features of  $Sc_3N@C_{80}(CF_3)_{14,16}$  isomers are the multiple  $CF_3$  additions to the THJ positions of the carbon cage and a high degree of  $Sc_3N$  ordering combined with large angular deviations from trigonal symmetry owing to Sc coordination to the cage.



Chem. Asian J.  
DOI: 10.1002/asia.201000661

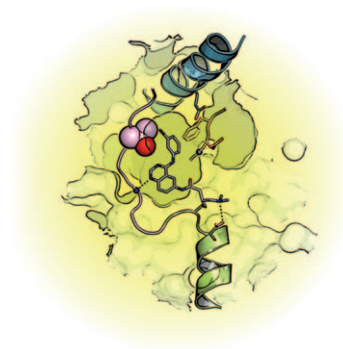


## Fluorescence Spectroscopy

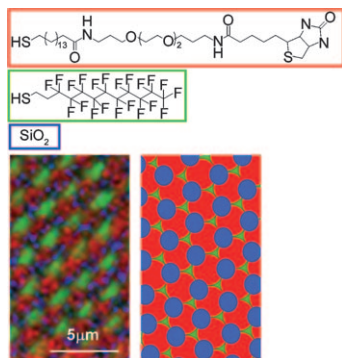
S. Klüter, J. R. Simard, H. B. Rode, C. Grütter, V. Pawar, H. C. A. Raaijmakers, T. A. Barf, M. Rabiller, W. A. L. van Otterlo, D. Rauh\*

Characterization of Irreversible Kinase Inhibitors by Directly Detecting Covalent Bond Formation: A Tool for Dissecting Kinase Drug Resistance

**Dissecting the mechanisms of kinase drug resistance:** We describe a straightforward assay system, which allowed real-time detection of irreversible kinase inhibition without requiring ATP or time-dependent  $IC_{50}$  measurements. This assay system provided an effective tool for dissecting drug-resistance mechanisms resulting from point mutations at the gatekeeper position.



ChemBioChem  
DOI: 10.1002/cbic.201000352



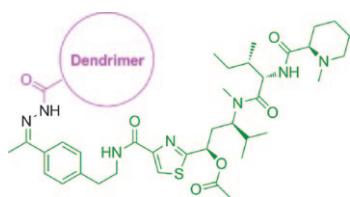
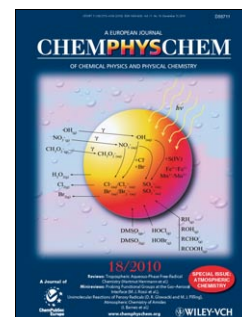
ChemPhysChem  
DOI: 10.1002/cphc.201000737

## Trifunctional Patterns

R. Ogaki, F. Lyckegaard, P. Kingshott\*

High-Resolution Surface Chemical Analysis of a Trifunctional Pattern Made by Sequential Colloidal Shadowing

**Layer cake:** Up to three chemistries can be periodically patterned at alternative positions on a single substrate by using a combination of colloidal assembly, self assembled monolayers and PVD (see picture). High-resolution imaging of the patterned surface is carried out by time of flight secondary ion mass spectrometry with submicron-sized patterned features.



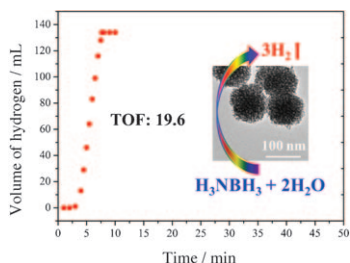
ChemMedChem  
DOI: 10.1002/cmdc.201000377

## Antitumor Agents

W. C. Floyd, III, G. K. Datta, S. Imamura, H. M. Kieler-Ferguson, K. Jerger, A. W. Patterson, M. E. Fox, F. C. Szoka,\* J. M. J. Fréchet,\* J. A. Ellman\*

Chemotherapeutic Evaluation of a Synthetic Tubulysin Analogue–Dendrimer Conjugate in C26 Tumor Bearing Mice

**Conjugate to ameliorate!** Polymeric drug delivery using a synthetic tubulysin analogue in C26 tumor bearing mice is described. A single dose of this conjugate (shown) resulted in a 90% increase in the average lifespan of the mice as compared to groups given a phosphate-buffered saline control or the free tubulysin analogue. Moreover, 37% of the mice given the polymeric formulation were tumor free at the conclusion of the study.



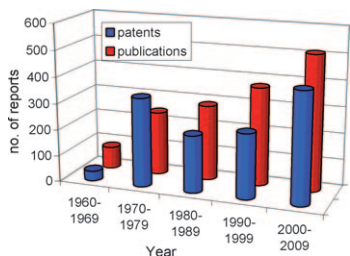
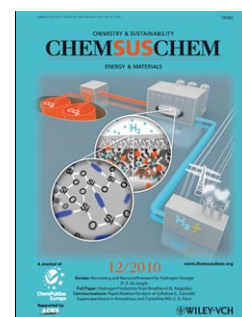
ChemSusChem  
DOI: 10.1002/cssc.201000229

## Hydrogen Generation

C.-Y. Cao, C.-Q. Chen, W. Li, W.-G. Song,\* W. Cai\*

Nanoporous Nickel Spheres as Highly Active Catalyst for Hydrogen Generation from Ammonia Borane

**Primal sphere:** Nanoporous nickel spheres are prepared by an ethylene glycol-mediated process. The spheres have a large surface area, can be dispersed in water easily, and show a high catalytic activity towards the hydrolytic dehydrogenation of ammonia borane at room temperature.



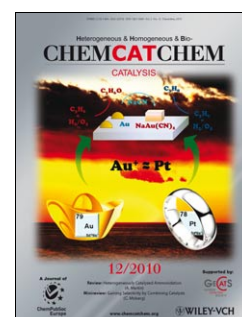
ChemCatChem  
DOI: 10.1002/cctc.201000173

## Heterogeneous Catalysis

A. Martin,\* V. N. Kalevaru

Heterogeneously Catalyzed Ammoxidation: A Valuable Tool for One-Step Synthesis of Nitriles

**Give N to Me:** Ammoxidation is a partial oxidation with selective insertion of nitrogen into an activated methyl group in the  $\alpha$ -position to double bonds of olefinic, aromatic, or heteroaromatic hydrocarbons to produce nitriles. Many major industrial products are manufactured in this way. Herein, reaction examples, catalysts, mechanistic views, and market information are comprehensively reviewed.



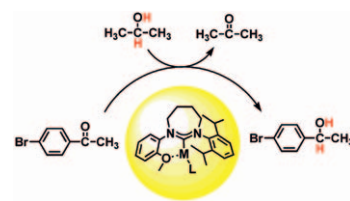


## Functionalised N-Heterocyclic Carbenes

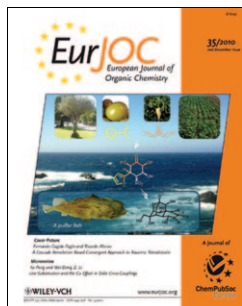
A. Binobaid, M. Iglesias, D. Beetstra, A. Dervisi, I. Fallis, K. J. Cavell\*

Donor-Functionalised Expanded Ring N-Heterocyclic Carbenes: Highly Effective Ligands in Ir-Catalysed Transfer Hydrogenation

Performances of a number of Rh<sup>I</sup> and Ir<sup>I</sup> complexes of unsymmetrical *o*-methoxyphenyl donor-functionalised NHCs with differing carbene ring sizes were tested in catalytic transfer hydrogenation. Rh<sup>I</sup> complexes displayed no activity. However, the corresponding Ir<sup>I</sup> complexes were found to be extremely effective catalysts, exhibiting excellent turnover frequencies and catalyst stability.



*Eur. J. Inorg. Chem.*  
DOI: 10.1002/ejic.201000680

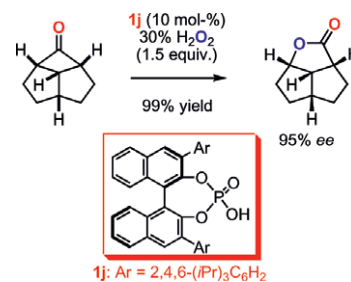


## Asymmetric Organocatalysis

S. Xu, Z. Wang, X. Zhang, K. Ding\*

Asymmetric Baeyer–Villiger Oxidation of 2,3- and 2,3,4-Substituted Cyclobutanones Catalyzed by Chiral Phosphoric Acids with Aqueous H<sub>2</sub>O<sub>2</sub> as the Oxidant

Asymmetric Baeyer–Villiger oxidation of tricyclic cyclobutanone and a variety of racemic bicyclic cyclobutanone derivatives has been realized by the catalysis of 1,1'-bi-2-naphthol (BINOL)-derived chiral phosphoric acid with high yields and excellent enantioselectivities using 30% aqueous H<sub>2</sub>O<sub>2</sub> as the oxidant.



*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.201001130

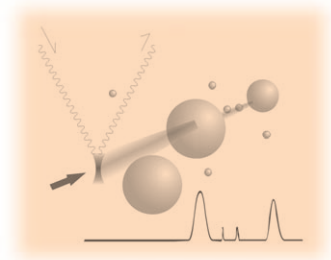


## Particle measurement

K. Weidendorfer, J. Hinrichs\*

Online Particle Size Measurement in Microgel Particle Suspensions: Principles and Data Analysis

Microgel particles possess an inner network structure. Measurement of their particle size is relevant for fundamental research and control of industrial processes. The main objective was to adapt a measurement system to the microgel particle suspension and to convert the measured chord length distribution to the related particle size distribution.



*Chem. Ing. Tech.*  
DOI: 10.1002/cite.201000014