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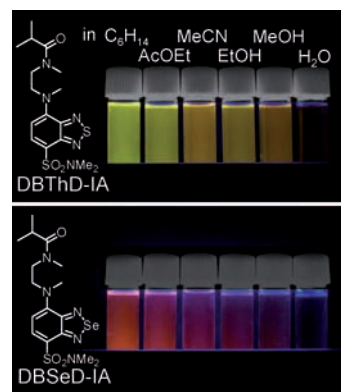


Fluorophores

S. Uchiyama,* K. Kimura, C. Gota, K. Okabe, K. Kawamoto, N. Inada, T. Yoshihara, S. Tobita*

Environment-Sensitive Fluorophores with Benzothiadiazole and Benzoselenadiazole Structures as Candidate Components of a Fluorescent Polymeric Thermometer

Sensitive fluorophores: Two new environment-sensitive fluorophores, DBThD-IA and DBSeD-IA (see figure), are reported. Their photophysical and photochemical properties have been investigated by UV/Vis absorption, fluorescence, and phosphorescence spectroscopy, analysis of the fluorescence lifetimes and optoacoustic signals, and by performing photolysis experiments. DBThD-IA has successfully been used to develop a photostable fluorescent nanogel thermometer.



Chem. Eur. J.
DOI: 10.1002/chem.201200597

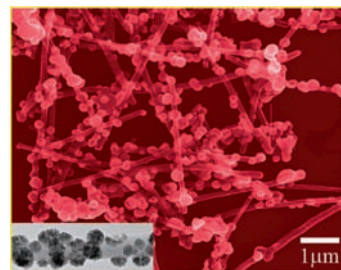


Hybrid Materials

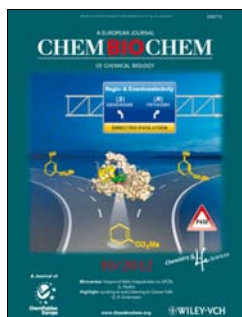
Y. Wang, J. Park, B. Sun, H. Ahn, G. Wang*

Wintersweet-Flower-Like CoFe_2O_4 /MWCNTs Hybrid Material for High-Capacity Reversible Lithium Storage

Stop and smell the flowers: A new hybrid material resembles wintersweet flower buds on branches, in which CoFe_2O_4 nanoclusters are anchored along carbon nanotubes. The hybrid material shows a high performance for reversible lithium storage, especially a high rate capability. This strategy could also be applied to synthesize other metal oxide/carbon nanotube hybrid materials as high-capacity anode materials for lithium ion batteries.



Chem. Asian J.
DOI: 10.1002/asia.201200257

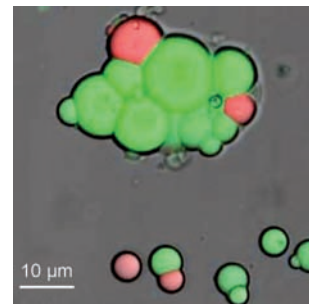


Origin of Life

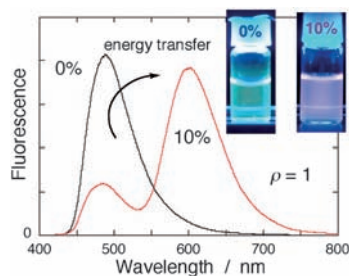
P. Carrara, P. Stano, P. L. Luisi*

Giant Vesicles "Colonies": A Model for Primitive Cell Communities

In the beginning: Artificial colonies, formed by the interaction between poly(arginine) and giant anionic vesicles, are models of primitive cell communities. Vesicle colonies display interesting and novel properties, such as an enhanced membrane permeability, vesicle fusion, accretion and stable anchoring to solid supports.



ChemBioChem
DOI: 10.1002/cbic.201200133



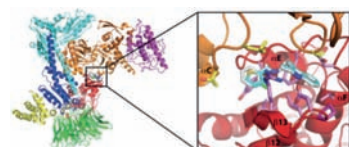
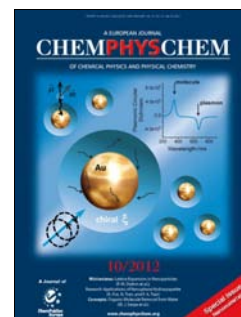
ChemPhysChem
DOI: 10.1002/cphc.201200191

Fluorescence

H. Yao,* K. Ashiba

Efficient Excitation-Energy Transfer in Ion-Based Organic Nanoparticles with Versatile Tunability of the Fluorescence Colours

Color-tune: Ion-based organic nanoparticles consisting of thiocyanine and ethidium dyes exhibit an efficient excitation-energy transfer from thiocyanine (donor) to ethidium (acceptor), resulting in a strong fluorescence with tunable color.



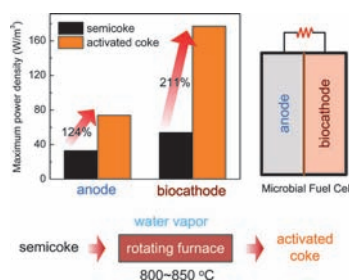
Computer-Aided Drug Design

A. W. Baggett, Z. Cournia, M. S. Han, G. Patargias, A. C. Glass, S.-Y. Liu, B. J. Nolen*

Structural Characterization and Computer-Aided Optimization of a Small-Molecule Inhibitor of the Arp2/3 Complex, a Key Regulator of the Actin Cytoskeleton

Acting on actin: The Arp2/3 complex is a macromolecular assembly that nucleates branched actin filaments. Small-molecule inhibitors that block Arp2/3 complex function provide powerful tools for studying the cytoskeleton and could eventually see clinical use. Herein we report the crystal structure of the inhibitor CK-666 bound to Arp2/3 complex and use computer-aided optimization to alter CK-666, increasing its potency threefold.

ChemMedChem
DOI: 10.1002/cmdc.201200104



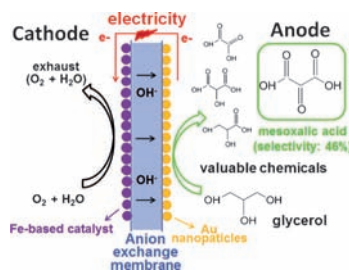
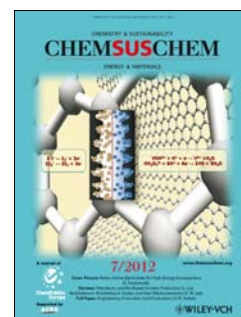
ChemSusChem
DOI: 10.1002/cssc.201100718

Microbial Fuel Cells

J. Wei, P. Liang, K. Zuo, X. Cao, X. Huang*

Carbonization and Activation of Inexpensive Semicoke-Packed Electrodes to Enhance Power Generation of Microbial Fuel Cells

Combining char with microbes: A novel and simple modification method, carbonization and activation, has been developed to enhance the performance of an inexpensive semicoke electrode to be used in microbial fuel cells. The activated coke (modified semicoke) produces a 124% and 211% increase in power density when they were used as anode and biocathode materials, respectively.



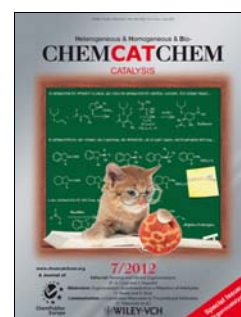
ChemCatChem
DOI: 10.1002/cctc.201200017

Fuel Cells

L. Xin, Z. Zhang, Z. Wang, W. Li*

Simultaneous Generation of Mesoxalic Acid and Electricity from Glycerol on a Gold Anode Catalyst in Anion-Exchange Membrane Fuel Cells

Gold rush: The efficient cogeneration of mesoxalic acid (with a selectivity of 46%) and electricity (with a peak power density of 57.9 mWcm⁻² at 80 °C) has been achieved from the electrocatalytic oxidation of glycerol on an Aunanoparticle anode catalyst in anion-exchange membrane fuel cells.



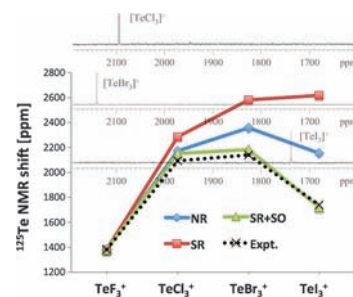


Tellurium Compounds

T. A. Engesser, P. Hrobárik,* N. Trapp, P. Eiden, H. Scherer, M. Kaupp,* I. Krossing*

$[\text{TeX}_3]^+$ Cations Stabilized by the Weakly Coordinating $[\text{Al}(\text{OR}^f)_4]^-$ Anion: FIR Spectra, Raman Spectra, and Evaluation of an Abnormal Halogen Dependence of the ^{125}Te NMR Chemical Shifts

$\text{TeX}_3[\text{Al}(\text{OR}^f)_4]$ have been synthesized and characterized by ^{125}Te NMR in solution and by X-ray diffraction, Raman, and IR spectroscopy in the solid state ($\text{X} = \text{Cl}, \text{Br}, \text{I}$; $\text{R}^f = \text{C}(\text{CF}_3)_3$). The vibrational analysis shows a very weak contact of $[\text{TeX}_3]^+$ to the anion. The observed "abnormal halogen dependence" of the ^{125}Te NMR chemical shifts results from an interplay of relativistic and solvent effects.



ChemPlusChem
DOI: 10.1002/cplu.201200025

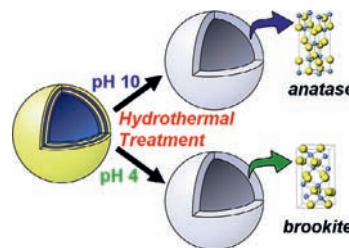


Hollow Spheres

K. Katagiri,* H. Inami, K. Koumoto, K. Inumaru, K. Tomita, M. Kobayashi, M. Kakihana

Preparation of Hollow TiO_2 Spheres of the Desired Polymorphs by Layer-by-Layer Assembly of a Water-Soluble Titanium Complex and Hydrothermal Treatment

Hollow titania spheres with anatase and brookite phases were selectively fabricated by hydrothermal treatment of hollow capsules formed by a polyionic water-soluble Ti complex and a cationic polyelectrolyte.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201200421

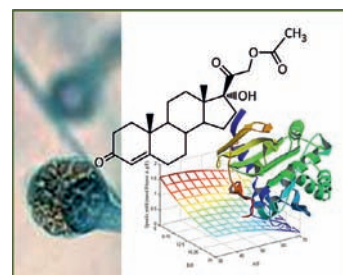


Supported Catalysts

P. G. Quintana, M. Guillén, M. Marciello, F. Valero, J. M. Palomo, A. Baldessari*

Immobilized Heterologous *Rhizopus Oryzae* Lipase as an Efficient Catalyst in the Acetylation of Cortisolone

The regioselective acetylation of cortisolone was achieved by using an immobilized heterologous *Rhizopus oryzae* lipase. The mild reaction conditions and low environmental impact make the biocatalytic procedure a convenient way to prepare the monoacetyl derivative of this biologically active steroid.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201200178



Chemical Education

Jonathan Rose

Laurie Starkey on the Challenges of Teaching Organic Chemistry

Organic chemistry courses have a reputation for being difficult and are typically the first truly challenging course that most students encounter. L. Starkey, California State Polytechnic University, USA, shares her experiences in teaching organic chemistry and the methods she uses to increase engagement in her lectures.



ChemViews magazine
DOI: 10.1002/chemv.201200055