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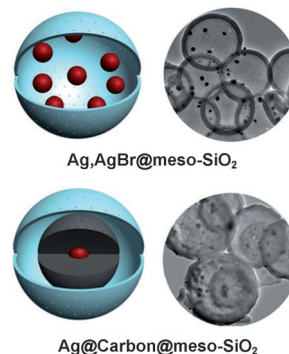


Colloidal Spheres

T. Yang, J. Liu,* Y. Zheng, M. J. Monteiro, S. Z. Qiao*

Facile Fabrication of Core–Shell-Structured Ag@Carbon and Mesoporous Yolk–Shell-Structured Ag@Carbon@Silica by an Extended Stöber Method

Layer upon layer: A facile extended Stöber method has been developed for the synthesis of diverse metal–carbon spheres, a category that includes core–shell-structured Ag@carbon, rattle-type Ag,AgBr@meso-SiO₂ and yolk–shell-structured Ag@carbon@meso-SiO₂ (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201300523

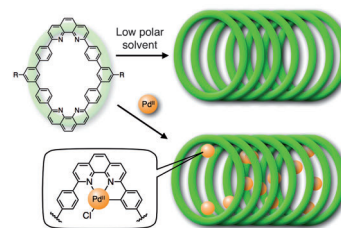


Self-Assembly

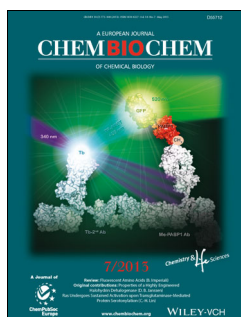
M. Kuritani, S. Tashiro, M. Shionoya*

Organic and Organometallic Nanofibers Formed by Supramolecular Assembly of Diamond-Shaped Macrocyclic Ligands and Pd^{II} Complexes

Stacked rings: A diamond-shaped macrocycle with two inward phenanthroline ligands and outward long alkyl chains, and its Pd^{II} complex form organic and organometallic fibrous aggregates, respectively, as revealed by NMR, UV/Vis, AFM, and TEM measurements. The most likely structures are face-to-face stacked macrocycles, generating nanotubes.



Chem. Asian J.
DOI: 10.1002/asia.201300209

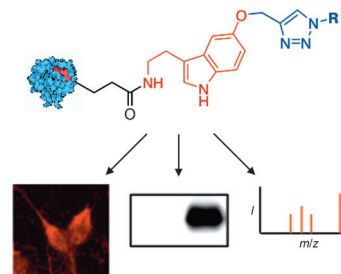


Protein-Modifications

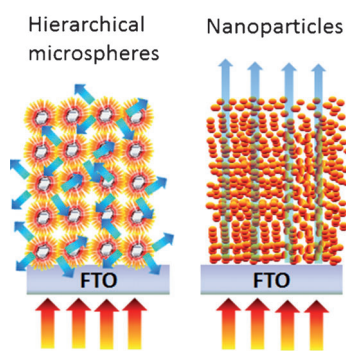
J. C.-Y. Lin, C.-C. Chou, S. Gao, S.-C. Wu, K.-H. Khoo, C.-H. Lin*

An in Vivo Tagging Method Reveals that Ras Undergoes Sustained Activation upon Transglutaminase-Mediated Protein Serotonylation

Don't interrupt! Protein serotonylation has been implicated in living cells, yet its role remains poorly defined because of the lack of characterization tools. We synthesized a serotonin derivative to enable selective tagging of serotonylation and to investigate its effect on Ras; the latter displayed undisrupted interaction with Raf-1 at the Ras binding domain.



ChemBioChem
DOI: 10.1002/cbic.201300050



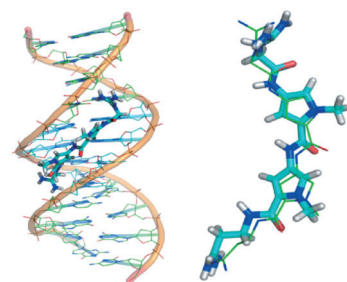
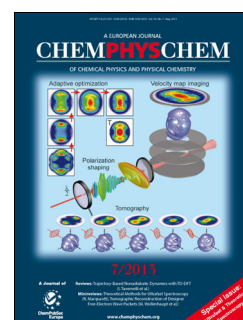
ChemPhysChem
DOI: 10.1002/cphc.201201092

Solar Cells

S. Hoang, T. Q. Ngo, S. P. Berglund, R. R. Fullon, J. G. Ekerdt, C. B. Mullins*

Improvement of Solar Energy Conversion with Nb-Incorporated TiO_2 Hierarchical Microspheres

Leading light: Niobium-modified TiO_2 hierarchical microspheres are synthesized solvothermally and characterized for water photo-oxidation and dye-sensitized solar cell (DSSC) applications. DSSCs employing TiO_2 and Nb-incorporated TiO_2 hierarchical structures demonstrate improved light-harvesting efficiency, especially in the long-wavelength region (see picture; FTO = F-doped tin oxide).



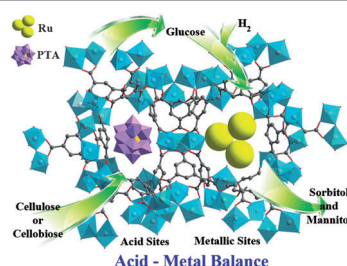
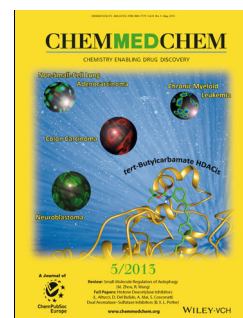
ChemMedChem
DOI: 10.1002/cmdc.201200536

Drug Design

L. La Pensée, S. Sabbani, R. Sharma, I. Bhamra, E. Shore, A. E. Chadwick, N. G. Berry, J. Firman, N. C. Araujo, L. Cabral, M. L. S. Cristiano, C. Bateman, O. Janneh, A. Gavrilu, Y. H. Wu, A. Hussain, S. A. Ward, P. A. Stocks, R. Cosstick, P. M. O'Neill*

Artemisinin–Polypyrrole Conjugates: Synthesis, DNA Binding Studies and Preliminary Antiproliferative Evaluation

Greater than the sum of its parts: Artemisinins are currently in phase I–II clinical trials against breast, colorectal and non-small-cell lung cancers. In an attempt to offer increased specificity, a series of hybrid artemisinin–polypyrrole minor groove binder conjugates are described. DNA binding/modelling studies and preliminary biological evaluation give insights into their mechanism of action and the potential of this strategy.



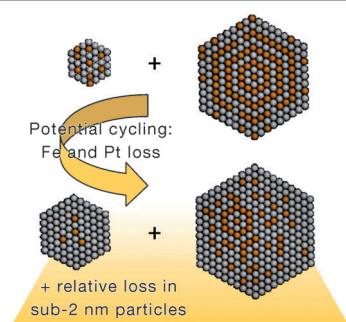
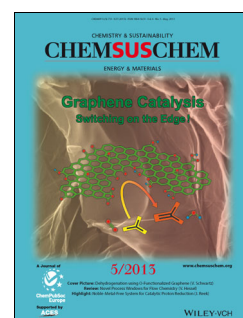
ChemSusChem
DOI: 10.1002/cssc.201200914

Renewables

J. Chen,* S. Wang, J. Huang, L. Chen,* L. Ma, X. Huang

Conversion of Cellulose and Cellobiose into Sorbitol Catalyzed by Ruthenium Supported on a Polyoxometalate/Metal–Organic Framework Hybrid

Acid/Metal Balance: Bifunctional catalysts containing ruthenium and polyoxometalates as active species with a metal-organic framework as support and encapsulation matrix, respectively, are synthesized. Excellent yields in sorbitol are obtained in the conversion of cellobiose and ball-milled cellulose. The evaluation of the balance between the hydrogenation and hydrolysis functions of these bifunctional catalysts reveals that by carefully balancing the ratio of acid site density and the number of metal surface atoms a maximum conversion can be achieved.



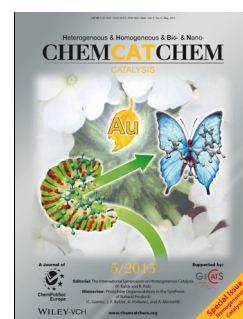
ChemCatChem
DOI: 10.1002/cctc.201200614

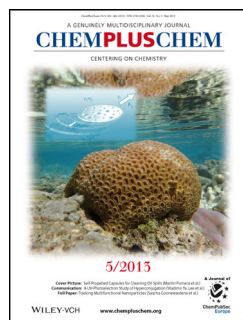
Electrocatalysis

L. Chen, M. C. Y. Chan, F. Nan, C. Bock,* G. A. Botton, P. H. J. Mercier, B. R. MacDougall

Compositional and Morphological Changes of Ordered $\text{Pt}_x\text{Fe}_y/\text{C}$ Oxygen Electroreduction Catalysts

Pulling the platinum card: Changes in the O_2 reduction (ORR) activity and the structure of carbon-supported Pt_xFe_y catalysts upon electrochemical stress testing are investigated. The dissolution of Pt induced by potential cycling clearly contributes to the observed decrease in the Pt surface area and mass ORR activity for the $\text{Pt}_x\text{Fe}_y/\text{C}$ catalysts.



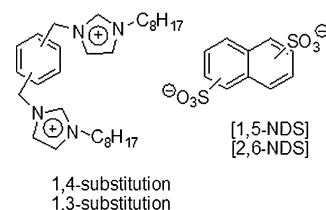


Diimidazolium Salts

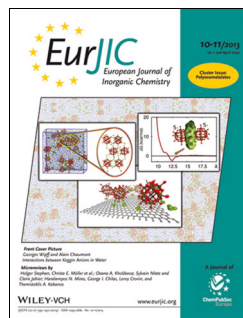
F. D'Anna,* P. Vitale, F. Ferrante, S. Marullo, R. Noto*

The Gelling Ability of Some Diimidazolium Salts: Effect of Isomeric Substitution of the Cation and Anion

A phase it's going through: Gel phases formed by geminal diimidazolium salts have been investigated as a function of the isomeric substitution on both cation and anion (see figure; NDS = naphthalenedisulfonate). The cation structure rules gelling behavior, whereas the anion structure determines the gel-phase properties.



ChemPlusChem
DOI: 10.1002/cplu.201300016

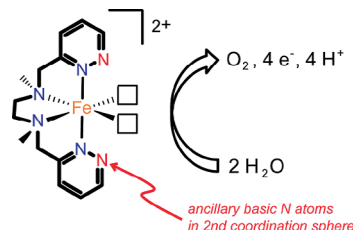


Water-Oxidation Catalysis

W. A. Hoffert, M. T. Mock, A. M. Appel, J. Y. Yang*

Incorporation of Hydrogen-Bonding Functionalities into the Second Coordination Sphere of Iron-Based Water-Oxidation Catalysts

The structural, electrochemical, and catalytic properties of a family of iron-containing homogeneous water oxidation catalysts with pendant heteroatoms are studied. Slightly faster O₂ evolution relative to a parent compound is observed when the solvent pH is matched to the pK_a of the pendant nitrogen base, which might be attributable to interactions with substrate water.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201301499

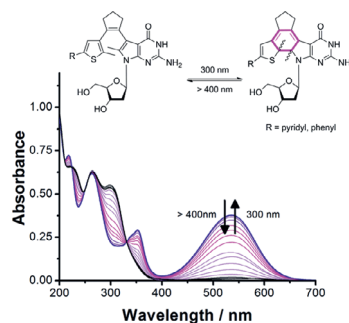


Photochromic Nucleosides

M. Singer, A. Nierth, A. Jäschke*

Photochromism of Diarylethene-Functionalized 7-Deazaguanosines

We present photochromic nucleosides related to guanosine that contain different thiophene-cyclopentenyl moieties. These compounds form part of a new class of diarylethenes that switch reversibly by light. In addition to optical stimulation, these switches respond to light-independent stimuli, such as the presence of acid or complexation with metal ions.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201300261

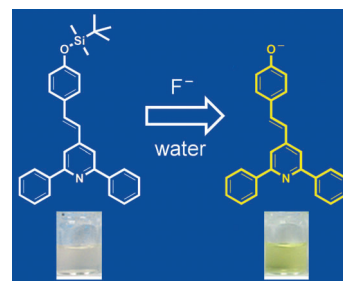


Fluoride Sensing

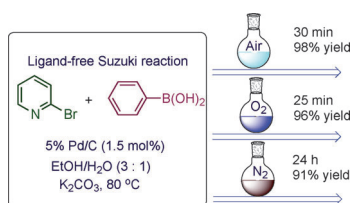
S. Elsayed, A. Agostini, L. E. Santos-Figueroa, R. Martínez-Máñez,* F. Sancenón

An Instantaneous and Highly Selective Chromofluorogenic Chemodosimeter for Fluoride Anion Detection in Pure Water

The fast and the fluoride: A pyridine derivative functionalized with *tert*-butyldimethylsilyl ether has been synthesized and used as a selective chromofluorogenic fluoride sensor in water/cetyltrimethylammonium bromide solutions. The chromofluorogenic response arises from the fluoride-induced hydrolysis of the silyl ether moiety, which generates a coloured and highly emissive phenolate anion.



ChemistryOpen
DOI: 10.1002/open.201300010



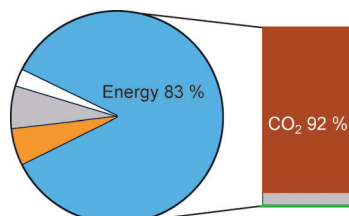
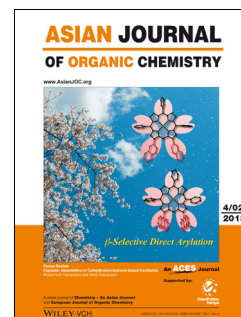
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201300053

Suzuki Reaction

X. Rao, C. Liu,* Y. Xing, Y. Fu, J. Qiu, Z. Jin

Oxygen-promoted Palladium-on-Carbon-catalyzed Ligand-free Suzuki Reaction for the Synthesis of Heterobiaryls in Aqueous Media

Breathing space: A fast and efficient protocol for the synthesis of heterobiaryls by a Pd/C-catalyzed, ligand-free, aqueous Suzuki reaction has been developed. The results demonstrate that the Pd/C-catalyzed heterogeneous Suzuki reaction is promoted by oxygen.



ChemViews magazine
DOI: 10.1002/chemv.201300022

Greenhouse Gases

Greenhouse Gas Emissions and the Chemical Industry

Anthropological greenhouse gas (GHG) emissions in 2010 came primarily from energy related sources. Long-term data show that the European Union (EU) chemicals industry, including the pharmaceutical industry, significantly reduced its GHG emissions on a consistent basis between 1990 and 2010 while increasing productivity.

