



On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a

computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

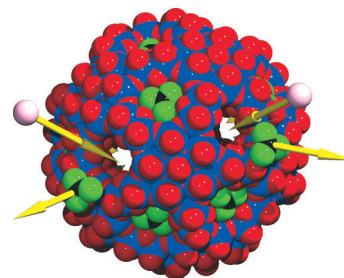


Nanocontainers

A. Müller,* P. Gouzerh*

Capsules with Highly Active Pores and Interiors: Versatile Platforms at the Nanoscale

Spherical porous capsules offer new exciting approaches in chemistry, materials sciences, and in context of physical and biological phenomena. The underlying concepts are reported in this article with particular emphasis on metal oxide based capsules of the $\{M_{132}\}$ Keplerate type (see figure) which display an unmatched range of properties and offer unique opportunities for investigating a variety of basic aspects of nanoscience.



Chem. Eur. J.
DOI: 10.1002/chem.201305010

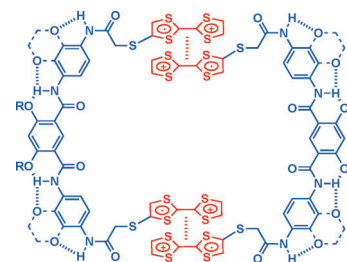


Macrocyclization

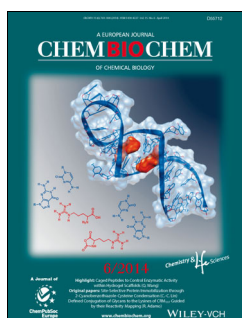
W.-K. Wang, Y.-Y. Chen, H. Wang,* D.-W. Zhang, Y. Liu,* Z.-T. Li*

Tetrathiafulvalene-Based Macrocycles Formed by Radical Cation Dimerization: The Role of Intramolecular Hydrogen Bonding and Solvent

A dime(rization) a dozen: Inherently weak dimerization of tetrathiafulvalene (TTF) radical cations can be strengthened remarkably if two TTF units are attached to a hydrogen-bonding-driven aromatic amide foldamer segment and oxidized to TTF^+ . The dimerization can lead to the formation of a uni- or bimolecular noncovalent macrocycle, depending on the polarity of the solvent.



Chem. Asian J.
DOI: 10.1002/asia.201301729

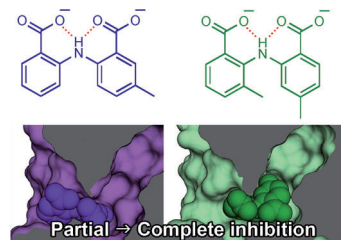


Drug Design

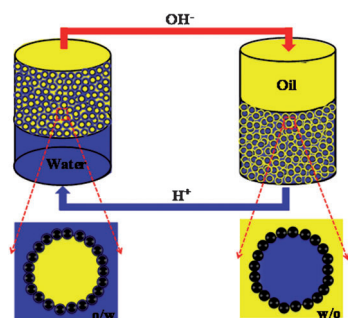
G. L. Evans,* S. A. Gamage, E. M. M. Bulloch, E. N. Baker, W. A. Denny, J. S. Lott*

Repurposing the Chemical Scaffold of the Anti-Arthritic Drug Lobenzarit to Target Tryptophan Biosynthesis in *Mycobacterium tuberculosis*

Restraint pays dividends: Lobenzarit (LBZ) features a bifurcated hydrogen bond that restrains its anionic groups to one side of the molecule. This intramolecular H bond is critical for the inhibitory potency of LBZ-like compounds against anthranilate phosphoribosyl-transferase, a potential target for new antituberculosis agents. Small modifications to the scaffold resulted in complete rather than partial enzyme inhibition.



ChemBioChem
DOI: 10.1002/cbic.201300628



ChemPhysChem

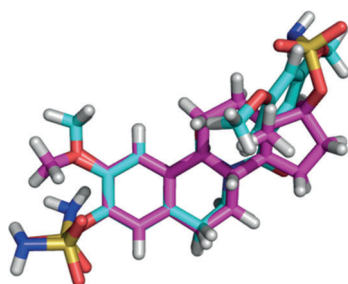
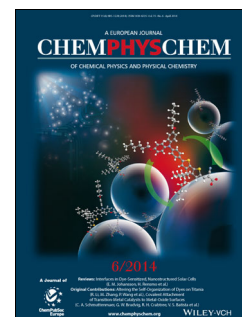
DOI: 10.1002/cphc.201300962

Nanocatalysts

Y. Yu, L. Fu, F. Zhang, T. Zhou, H. Yang*

Pickering-Emulsion Inversion Strategy for Separating and Recycling Nanoparticle Catalysts

Pick'em out: This Concept article introduces a novel method for in situ recycling of sub-micrometer-sized solid catalysts based on the pH-triggered inversion of Pickering emulsions. Previous investigations are covered aiming at bridging current knowledge and what needs to be achieved in the future.



ChemMedChem

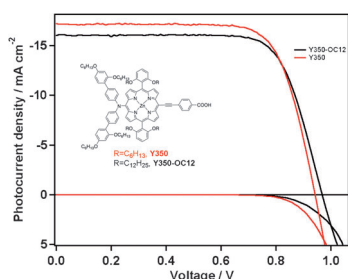
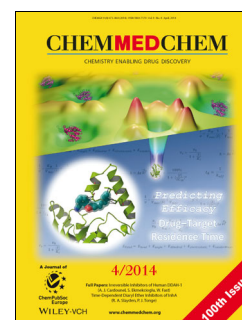
DOI: 10.1002/cmdc.201400017

Antitumor Agents

M. P. Leese, F. L. Jourdan, M. R. Major, W. Dohle, M. P. Thomas, E. Hamel, E. Ferrandis, M. F. Mahon, S. P. Newman, A. Purohit, B. V. L. Potter*

Synthesis, Anti-tubulin and Antiproliferative SAR of Steroidomimetic Dihydroisoquinolinones

Steroid-oids: Steroidomimetic dihydroisoquinolinones (DHIQs) were evaluated against two cancer cell lines. Carbonyl-linked DHIQs exhibit significant in vitro antiproliferative activity, show excellent activity against tubulin polymerisation, and compete at the colchicine binding site of tubulin. Crystal structure analysis and molecular modelling both suggest a preferred "steroid-like" conformation as a result of intramolecular electrostatic repulsion for this compound class.



ChemSusChem

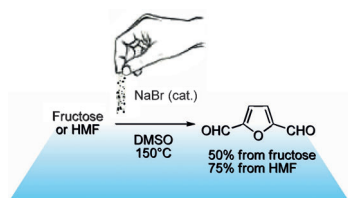
DOI: 10.1002/cssc.201301271

Solar Cells

C. Yi, F. Giordano, N.-L. Cevey-Ha, H. N. Tsao, S. M. Zakeeruddin,* M. Grätzel*

Influence of Structural Variations in Push–Pull Zinc Porphyrins on Photovoltaic Performance of Dye-Sensitized Solar Cells

Dying to live: Subtle molecular structural variations in two zinc porphyrin dyes significantly influence the performance of dye-sensitized solar cell devices. By utilizing the dyes in combination with a cobalt-based redox electrolyte, a high power conversion efficiency (PCE) under simulated solar light is achieved. When using spiro-OMeTAD as the hole-transporting material in solid-state solar cells, the highest PCE for such a device until now is observed.



ChemCatChem

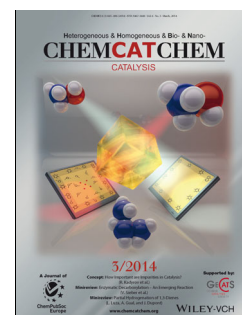
DOI: 10.1002/cctc.201400023

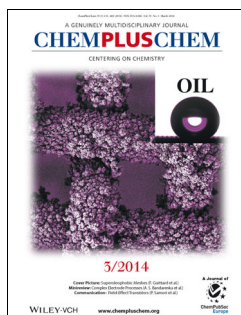
Biomass Conversion

C. Laugel, B. Estrine,* J. Le Bras,* N. Hoffmann, S. Marinkovic, J. Muzart

NaBr/DMSO-Induced Synthesis of 2,5-Diformylfuran from Fructose or 5-(Hydroxymethyl)furfural

With a pinch of salt: The association of NaBr as a catalyst and DMSO as a solvent allows the synthesis of 2,5-diformylfuran from 5-(hydroxymethyl)furfural (HMF) or fructose in 75 or 50% yield, respectively. This transformation occurs through the formation of 5-(bromomethyl)furan-2-carbaldehyde followed by a Kornblum-type reaction.



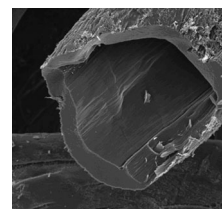


Carbon Fibers

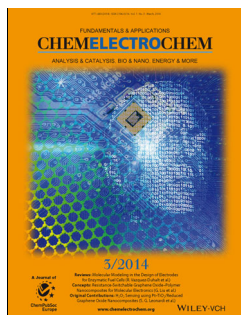
W. Shen,* T. Hu, P. Wang, H. Sun, W. Fan*

Hollow Porous Carbon Fiber from Cotton with Nitrogen Doping

Cotton on to carbon: Porous carbon fiber with a hollow structure and oxygen-containing groups has been prepared from cotton (see figure). Nitrogen-containing groups can be incorporated into the carbon matrix through urea decomposition during carbonization. The carbon fiber shows high adsorption capacities of CO₂ owing to its surface hydrophilic groups and developed pore structure.



ChemPlusChem
DOI: 10.1002/cplu.201300359

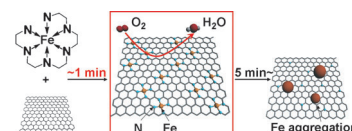


Graphene

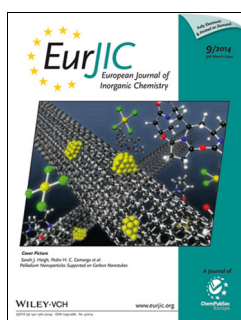
K. Kamiya, H. Koshikawa, H. Kiuchi, Y. Harada, M. Oshima, K. Hashimoto,* S. Nakanishi*

Iron–Nitrogen Coordination in Modified Graphene Catalyzes a Four-Electron-Transfer Oxygen Reduction Reaction

Transfer lounge: iron–nitrogen (Fe/N)-modified graphene is synthesized through short-duration heat treatment and possesses both the complete sp² graphitic structure and a high density of Fe/N coordination structures. The Fe/N-modified graphene exhibits a higher number of electrons for oxygen reduction reactions than equivalent catalysts that have been subjected to long periods of heat treatment.



ChemElectroChem
DOI: 10.1002/celc.201300181

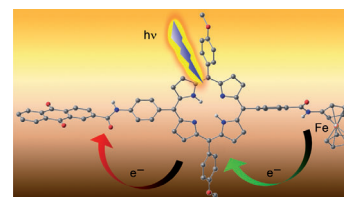


Foldamers

S. H. Choi, M. Ivancic, I. A. Guzei, S. H. Gellman*

Structural Characterization of Peptide Oligomers Containing (1R,2S)-2-Aminocyclohexanecarboxylic Acid (*cis*-ACHC)

Three types of peptide oligomers that contain *cis*-2-aminocyclohexanecarboxylic acid (*cis*-ACHC) were analyzed by two-dimensional NMR spectroscopy and X-ray crystallography. Folded conformations do not appear to be populated in solution. Crystallographic data reveal extended conformations with specific preferences for *cis*-ACHC residues.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201400118

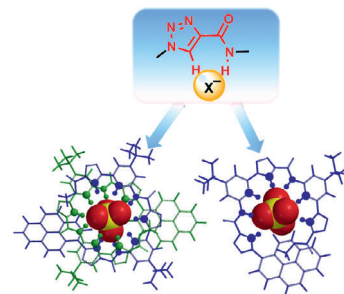


Bioinspired Synthesis

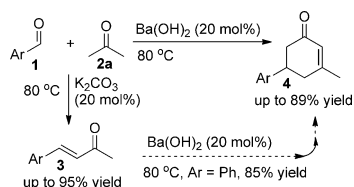
B. I. Roman, J.-C. Monbaliu, L. M. De Coen, S. Verhasselt, B. Schuddinck, E. Van Hoeylandt, C. V. Stevens*

Feruloylbenzotriazole and Weinreb Amide as Bioinspired Building Blocks: A Reactivity Study towards O-, N-, S-, and C-Nucleophiles

Feruloylbenzotriazole and Weinreb amide were converted into an array of biologically relevant molecules by addition of O-, N-, S-, and C-nucleophiles. The relevance of this bioinspired approach is illustrated by the synthesis of a number of natural products or analogues, such as zingerone, (heteroaryl) chalcones, and curcuminoids.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201301895



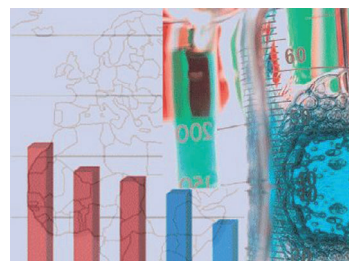
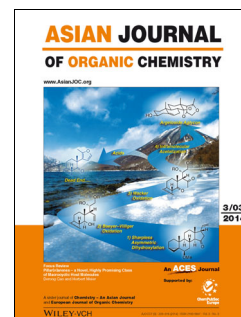
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201400017

Synthetic Methods

H. Tao, J. Duan, P. Li*

Inorganic-Base-Catalysed Synthesis of α,β -Unsaturated Ketones and 3,5-Disubstituted Cyclohex-2-en-1-ones

Drop the base: A barium-hydroxide-catalysed domino reaction between aldehydes and acetone that furnishes 3,5-disubstituted cyclohex-2-enone is described. A similar potassium-carbonate-catalysed reaction between aldehydes and acetone that affords α,β -unsaturated methyl ketones, which can be easily transformed into cyclohexenones in the presence of barium hydroxide is also presented.



ChemViews magazine
DOI: 10.1002/chemv.201400013

Chemical technology

F. Weinreich

Chemical Technology of the 1930s

In the 1930s, ammonia produced by the Haber–Bosch process was an important source of nitrogen and ozonation was used to kill airborne bacteria. The technology needed to meet these and other demands was detailed in the 2nd edition of Ullmann's Encyclopedia of Industrial Chemistry. Images and text were collated by ChemViews Magazine, to give a snapshot of industrial chemistry in this era.

