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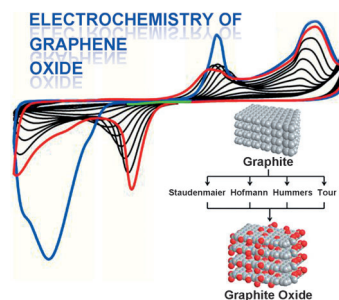


Graphene Materials

A. Y. S. Eng, A. Ambrosi, C. K. Chua, F. Šaněk, Z. Sofer, M. Pumera*

Unusual Inherent Electrochemistry of Graphene Oxides Prepared Using Permanganate Oxidants

Electrochemical devices: Graphene oxides prepared with different oxidants show distinct electrochemistry; those prepared using chlorate exhibit chemically irreversible reductions, whereas graphene oxides prepared through permanganate-based methods exhibit very unusual inherent chemically reversible electrochemistry of their oxygen-containing groups (see figure). These findings have strong implications for energy-storage and sensing devices.



Chem. Eur. J.
DOI: 10.1002/chem.201301889

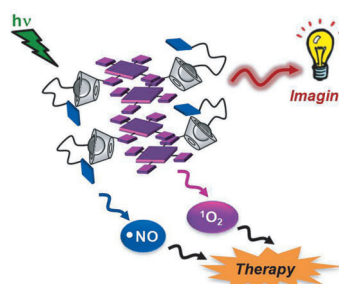


Supramolecular Chemistry

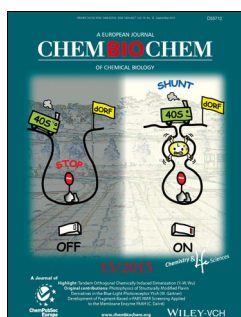
A. Fraix, A. R. Gonçalves, V. Cardile, A. C. E. Graziano, T. A. Theodossiou, K. Yannakopoulou,* S. Sortino*

A Multifunctional Bichromophoric Nanoaggregate for Fluorescence Imaging and Simultaneous Photogeneration of RNOS and ROS

A sweet way to tackle cancer: A supramolecular nanoaggregate based on a porphyrin- β -cyclodextrin conjugate and a tailored NO photodonor is effectively internalized by cancer cells, can be easily mapped inside cells due to its satisfactory red fluorescence emission, and induces a good level of cellular death under the exclusive control of visible light stimuli, probably due to the combined action of RNOS and ROS.



Chem. Asian J.
DOI: 10.1002/asia.201300463

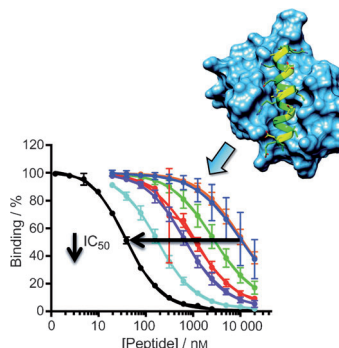


Apoptosis

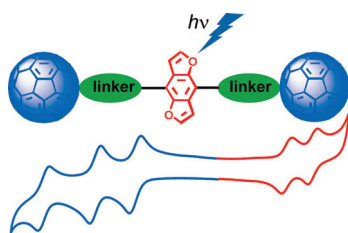
B. J. Smith,* E. F. Lee, J. W. Checco, M. Evangelista, S. H. Gellman, W. D. Fairlie*

Structure-Guided Rational Design of α/β -Peptide Foldamers with High Affinity for BCL-2 Family Prosurvival Proteins

Killer design: A BH3-mimetic oligomer composed of α - and β -amino acids was used as a starting point for computational design approaches to improve binding affinity for antiapoptotic targets. A 250-fold gain in affinity for Mcl-1 was achieved through simple modification of side chains and configuration of α residues.



ChemBioChem
DOI: 10.1002/cbic.201300351



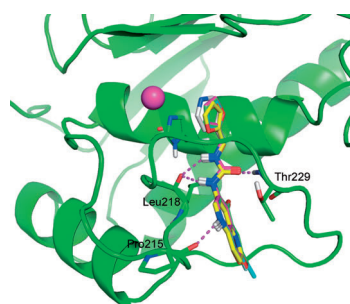
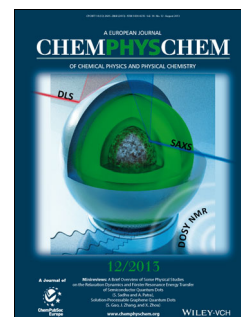
ChemPhysChem
DOI: 10.1002/cphc.201300378

Photochemistry

H. Li, C. Schubert, P. O. Dral, R. D. Costa, A. La Rosa, J. Thüning, S.-X. Liu,* C. Yi, S. Filippone, N. Martín, S. Decurtins, T. Clark, D. M. Guldi*

Probing Charge Transfer in Benzodifuran- C_{60} Dumbbell-Type Electron Donor-Acceptor Conjugates: Ground- and Excited-State Assays

Dumbbell arrays: A benzodifuran (BDF) donor is for the first time fused to two C_{60} molecules by different linkers to form triads 1–3 (see figure). Their redox behavior, absorption, fluorescence emission, and photoinduced intramolecular charge-transfer events have been investigated experimentally and theoretically. The lifetime of the resulting charge-separated state varies distinctly with the polarity of the solvents and the distance between the BDF and C_{60} units.



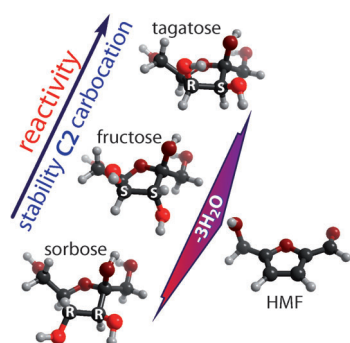
ChemMedChem
DOI: 10.1002/cmdc.201300186

Virtual Screening

A. D. Pizio, A. Laghezza, P. Tortorella, M. Agamennone*

Probing the S1' Site for the Identification of Non-Zinc-Binding MMP-2 Inhibitors

Leave the Zn alone: This work reports the first attempt to identify non-zinc-binding MMP-2 inhibitors through a virtual screening protocol established expressly to take advantage of unexplored interactions in the S1' site. The identified active compounds should ensure lower toxicity and higher selectivity than traditional ligands.



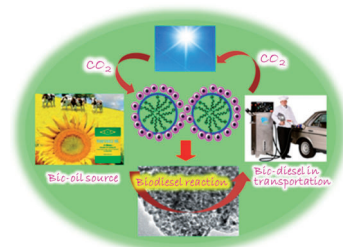
ChemSusChem
DOI: 10.1002/cssc.201300345

Platform Chemicals

R.-J. van Putten, J. N. M. Soetedjo, E. A. Pidko, J. C. van der Waal, E. J. M. Hensen, E. de Jong,* H. J. Heeres*

Dehydration of Different Ketoses and Aldoses to 5-Hydroxymethylfurfural

Ketose dries out: Hexose dehydration to 5-hydroxymethylfurfural is studied using different ketoses and aldoses. The reactivity of the different ketoses is found to be a function of the hydroxyl group orientation at the C3 and C4 positions. The results point to a dehydration mechanism involving cyclic intermediates. For aldoses, no influence of the hydroxyl group orientation is observed, indicating a different rate-determining step.



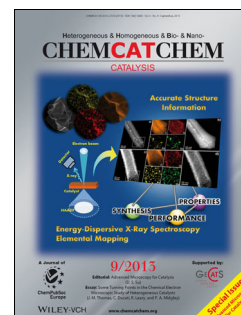
ChemCatChem
DOI: 10.1002/cctc.201300192

Biodiesel Production

S. K. Das, S. A. El-Safty*

Development of Mesoscopically Assembled Sulfated Zirconia Nanoparticles as Promising Heterogeneous and Recyclable Biodiesel Catalysts

Fasten your nanoparticles! Monodisperse nanoparticles are used as building blocks for a mesoscopic ZrO_2 nanoarchitecture by using the template as a fastening agent. Successive integration of the sulfate functionality into the porous framework makes the material a heterogeneous and recyclable catalyst for biodiesel production with a maximum biodiesel yield of 100%.



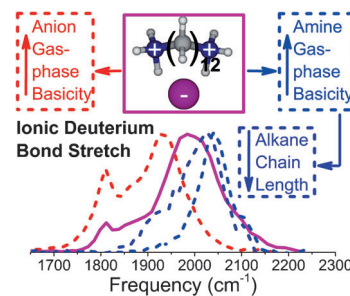


Ionic Hydrogen Bonds

M. Demireva, J. Oomens, G. Berden, E. R. Williams*

The Ionic Hydrogen/Deuterium Bonds between Diammoniumalkane Dications and Halide Anions

In a bind: Halide-anion binding to diammoniumalkanes has been investigated by using infrared multiple-photon dissociation spectroscopy to determine the effects of gas-phase basicity and constraints in binding angle on the strength and character of the ionic hydrogen/deuterium bond (see figure).



ChemPlusChem

DOI: 10.1002/cplu.201300084

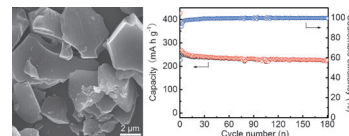


Sodium-Ion Batteries

X. Zhou, Y.-G. Guo*

Highly Disordered Carbon as a Superior Anode Material for Room-Temperature Sodium-Ion Batteries

Organized chaos: A highly disordered carbon composite is synthesized through self-assembly and subsequent pyrolysis. When evaluated as an anode material for room-temperature sodium-ion batteries, the as-obtained carbon delivers superior electrochemical characteristics in terms of reversible capacity, cycling performance, and rate capability.



ChemElectroChem

DOI: 10.1002/celec.201300071

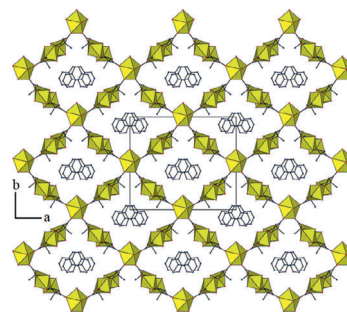


Uranyl Complexes

P. Thuéry*

2,2'-Bipyridine and 1,10-Phenanthroline as Coligands or Structure-Directing Agents in Uranyl–Organic Assemblies with Polycarboxylic Acids

Seven uranyl complexes with oxalic, citraconic, 1,2,3,4-cyclobutanetetracarboxylic, citric and D-(–)-citramalic acids were obtained under hydrothermal conditions in the presence of 2,2'-bipyridine or 1,10-phenanthroline. The crystal structures evidence the different roles played by the nitrogen-containing molecules.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.201300502

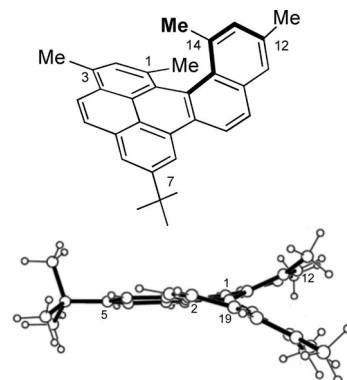


Pyrene-Based Helicenes

J.-Y. Hu, X. Feng, A. Paudel, H. Tomiyasu, U. Rayhan, P. Thuéry, M. R. J. Elsegood, C. Redshaw, T. Yamato*

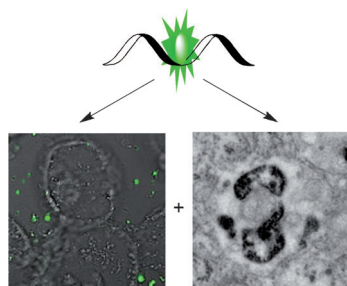
Synthesis, Structural, and Photophysical Properties of the First Member of the Class of Pyrene-Based [4]Helicenes

A convenient route to a new class of pyrene-based [4]helicenes is presented along with their optoelectronic properties. The introduction of two methyl groups in the fjord region of the [4]helicene gives a more distorted structure and leads to a remarkable redshift of the absorption band.



Eur. J. Org. Chem.

DOI: 10.1002/ejoc.201300487



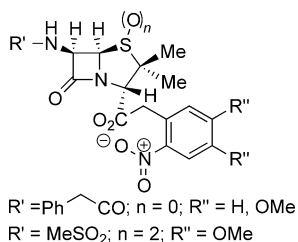
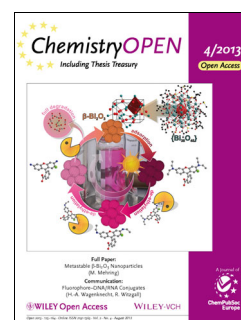
ChemistryOpen
DOI: 10.1002/open.201300017

Imaging

C. Holzhauser, S. Kracher, M. M. Rubner, W. Schmucker, H.-A. Wagenknecht,* R. Witzgall*

Photochemically Active Fluorophore–DNA/RNA Conjugates for Cellular Imaging of Nucleic Acids by Readout in Electron Microscopy

A two-way street: The photochemically active chromophore–nucleic acid conjugates presented herein allow not only imaging by fluorescence microscopy but additionally are able to photoinduce 3,3'-diaminobenzidine (DAB) polymerization for staining to enable additional readout with electron microscopy.



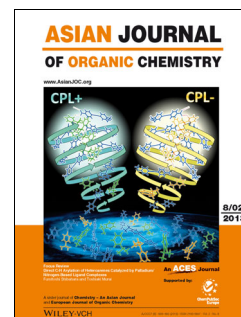
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201300108

β -Lactam Antibiotics

C. Brulé, J. Grugier, A. Brans, B. Joris, E. Sauvage, G. Dive, J. Marchand-Brynaert*

2-Nitrobenzyl Esters of Penam and Cephem Derivatives as Inhibitors of Penicillin-Binding Proteins

Ace in the pack: 2-Nitrobenzyl esters of penams, which contain the characteristic core of penicillin-based antibiotics, are acylating inhibitors of penicillin-binding proteins R39 and BlaR-CTD. Docking experiments are in agreement with the experimental data and show that the 2-nitro group of the esters could play the role of a carboxylate group in interactions with the proteins.



ChemViews magazine
DOI: 10.1002/chemv.201300091

Ethanol Metabolism

From Sip to Slip: How Our Bodies Process Alcohol

Find out what happens to alcohol once it has been consumed and why alcohol affects some people more than others. This Clever Picture shows how quickly alcohol is absorbed into our blood and summarizes the chemistry behind how we metabolize ethanol.

