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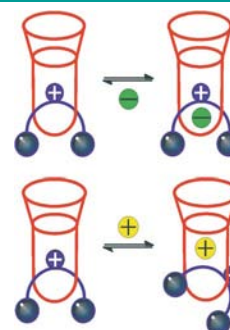


Rotaxanes

A. V. Leontiev, C. A. Jemmett, P. D. Beer*

Anion Recognition and Cation-Induced Molecular Motion in a Heteroditopic [2]Rotaxane

Caught in a bind: A heteroditopic [2]rotaxane with the capability to recognise anions and cations is described. Barium cation complexation effects a molecular displacement of the axle's positively charged pyridinium group from the rotaxane macrocyclic cavity resulting in molecular shuttling behaviour (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201002405

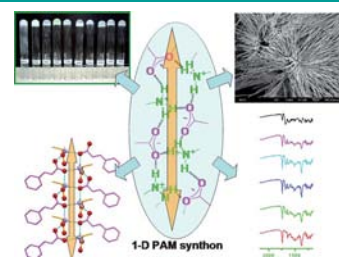


Gelators

P. Sahoo, D. K. Kumar, S. R. Raghavan, P. Dastidar*

Supramolecular Synthons in Designing Low Molecular Mass Gelling Agents: L-Amino Acid Methyl Ester Cinnamate Salts and their Anti-Solvent-Induced Instant Gelation

Salts for gels and pest: Primary ammonium monocarboxylate (PAM) supramolecular synthon (see figure) has been exploited to get an easy access to a new class of chiral gelators derived from L-amino acid methyl esters and cinnamic acid derivatives. Remarkably, 87.5% of the salts tested show gelation abilities. Some of these salts could be used as supramolecular containers for the slow release of pest sex pheromones.



Chem. Asian J.
DOI: 10.1002/asia.201000560

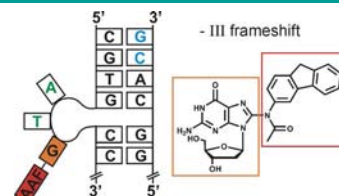


DNA Damage

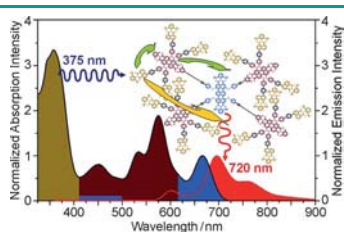
S. Schorr, T. Carell*

Mechanism of Acetylaminofluorene-dG Induced Frameshifting by Polymerase η

Frameshift mutations: Bulky adduct DNA lesions, such as the C8-acetylaminofluorene dG lesion (AAF-dG), induce frameshift mutations if they are placed in special gene sequences. With the help of synthetic AAF-dG lesions inserted into different repetitive frameshift-prone sequences, the molecular basis of the –I, –II, and –III frameshifting events was determined.



ChemBioChem
DOI: 10.1002/cbic.201000579



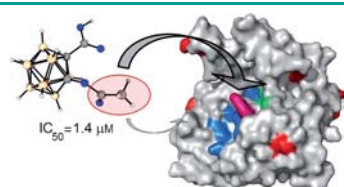
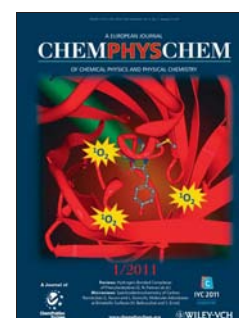
ChemPhysChem
DOI: 10.1002/cphc.201000665

Energy Transfer

E. Fron, L. Puhl, I. Oesterling, C. Li, K. Müllen,
F. C. De Schryver, J. Hofkens, T. Vösch*

Energy Transfer Pathways in a Rylene-Based Triad

Rollercoaster energy: Excitation of the naphthalenemonoimide units in a rylene-based triad leads to efficient migration of the excitation energy towards the central terrylenediimide (see picture).



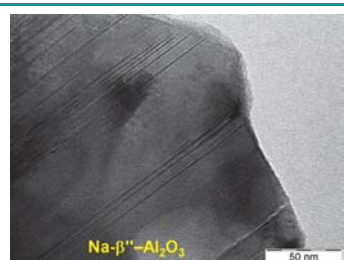
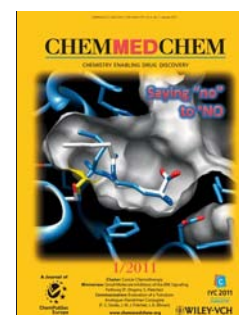
ChemMedChem
DOI: 10.1002/cmdc.201000368

Carbaboranes

M. Scholz, M. Steinhagen, J. T. Heiker, A. G. Beck-Sickinger,
E. Hey-Hawkins*

Asborin Inhibits Aldo/Keto Reductase 1A1

Never a dull moment with borane! Substitution of the phenyl ring in aspirin for an *ortho*-carbaborane to give asborin led to a loss in inhibitory potency against cyclooxygenases (COX); however, asborin inhibits aldo/keto reductase (AKR) instead. This change in drug target can be attributed to both the geometry and the unique electronic properties of the *ortho*-carbaborane pharmacophore.



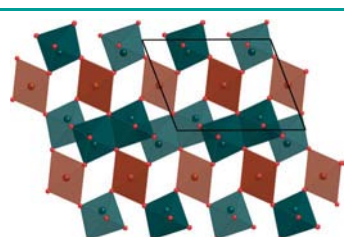
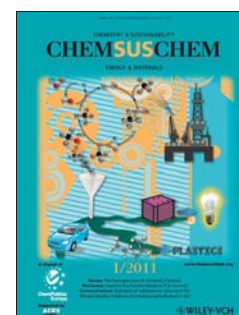
ChemSusChem
DOI: 10.1002/cssc.201000223

Energy Storage

D. La Rosa, G. Monforte, C. D'Urso, V. Baglio, V. Antonucci,
A. S. Aricò*

Enhanced Ionic Conductivity in Planar Sodium-β"-Alumina Electrolyte for Electrochemical Energy Storage Applications

A high-density, planar Na-β"-Al₂O₃ solid electrolyte is prepared by a simple chemical route at temperatures lower than the state-of-the-art, from a nanometer-sized boehmite precursor. The ionic conductivity of the electrolyte is about double that of a commercial sodium-β"-alumina tube in the temperature range of interest for electrochemical energy storage devices.



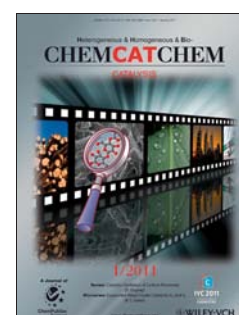
ChemCatChem
DOI: 10.1002/cctc.201000224

Heterogeneous Catalysis

A. Karpov, C. Deissler, C.-K. Dobner, H. Hibst, G. Cox,
N. Brem, S. A. Schunk, R. E. Dinnebier, F. Rosowski*

AgMoVO₆: A Promising Catalyst for Selective Gas-Phase Oxidation of *o*-Xylene

MoVing on up: AgMoVO₆, a new crystalline catalyst for the gas-phase oxidation of *o*-xylene, with a remarkably high selectivity to value products, has been developed by high-throughput experimentation. Doping of the catalyst with elements such as P results in further enhancement of the catalytic properties.



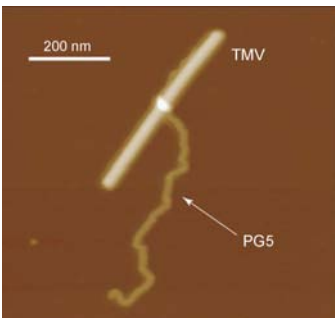


Molecular Objects

B. Zhang, R. Wepf, K. Fischer, M. Schmidt, S. Besse, P. Lindner, B. T. King, R. Sigel, P. Schurtenberger, Y. Talmon, Y. Ding, M. Kröger, A. Halperin, A. D. Schlüter*

The Largest Synthetic Structure with Molecular Precision: Towards a Molecular Object

Pushing the limits: A 200×10^6 Da structurally defined, linear macromolecule (PG5) has a molar mass, cross-section dimension, and cylindrical shape that are comparable to some naturally occurring objects, such as amyloid fibrils or certain plant viruses. The macromolecule is resistant against flattening out on a surface; the picture shows PG5 embracing the tobacco mosaic virus (TMV).



Angew. Chem. Int. Ed.
DOI: 10.1002/anie.201005164

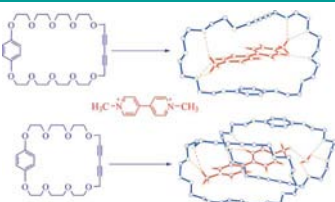


Host–Guest Chemistry

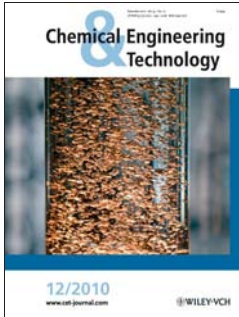
Y. Feng, J. Li, L. Jiang,* Z. Gao, W. Huang, F. Jiang, N. Luo, S. Han, R. Zeng, D. Yang

Efficient Syntheses and Complexation Studies of Diacetylene-Containing Macrocyclic Polyethers

A series of diacetylene-containing crown ethers was synthesized in high yields by employing copper(II)-mediated Eglinton coupling as the key macrocyclization. Complexation results show that macrocycles with tetraethylene glycol and triethylene glycol chains bind a paraquat guest to form [2]- and [3]pseudorotaxane-like complexes, respectively.



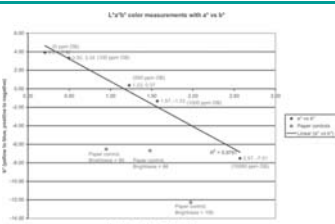
Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201001140



Polymers

Delivering Solvent Based Polymers in Eco-Friendly Water Based Systems

Providing solvent-borne polymer properties in waterborne systems has been a challenge for a long time. Now, many types of solvent-borne polymers can be incorporated in hybrid polymer systems by using a unique polymer processing technique providing a wide range of important properties for coatings, adhesives, and brightening agents in environmentally friendly water-based delivery systems.



Chem. Eng. Tech.
DOI: 10.1002/ceat.201000141