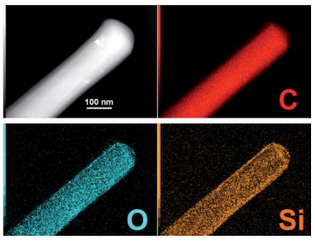
Carbon Nanotubes

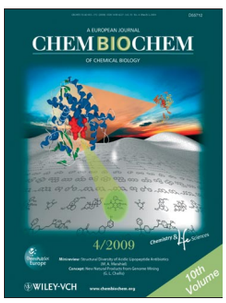
M. Pumera,* T. Sasaki, B. Šmíd

Ultrathin Organically Modified Silica Layer Coated Carbon Nanotubes: Fabrication, Characterization and Electrical Insulating Properties

Nice coat! Organically modified silica (ormosil) is used for the ultrathin nanoprecise coating of individual multiwall carbon nanotubes using a soft-chemistry approach. The coating layer has a uniform thickness of about 3 nm. The ormosil coating demonstrates the favorable electrical insulating properties of individual multiwall carbon nanotubes.



Chem. Asian J.
DOI: **10.1002/asia.200900008**

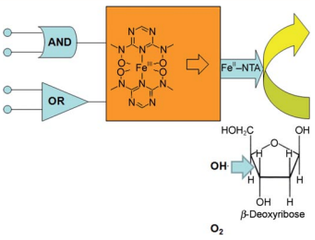


Logic Gates

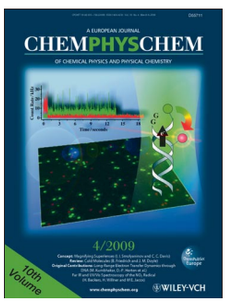
J. Zhou, G. Melman, M. Pita, M. Ornatska, X. Wang, A. Melman,* E. Katz*

Biomolecular Oxidative Damage Activated by Enzymatic Logic Systems: Biologically Inspired Approach

Logical, responsible, practical: Enzymatic logic gates that process chemical input signals were used to trigger the release of redox-active iron ions, which produce reactive oxygen species in a catalytic cascade, and thus result in oxidative damage in biomolecules. Functional coupling between enzymatic logic gates and oxidative damage systems resulted in "smart" biochemical ensembles that are activated upon receiving a certain pattern of biochemical signals.



ChemBioChem
DOI: **10.1002/cbic.200800833**

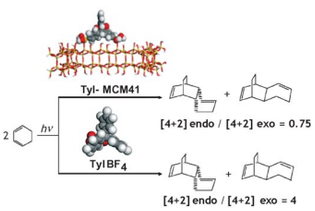


Photocatalyst

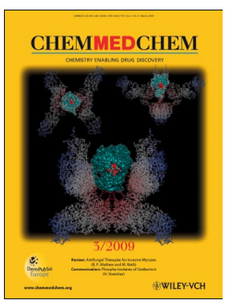
A. Corma,* M. T. Navarro, F. Rey, V. R. Ruiz, M. J. Sabater*

Direct Synthesis of a Photoactive Inorganic–Organic Mesostructured Hybrid Material and its Application as a Photocatalyst

A direct route: Silylated triphenylmethanol is incorporated into mesoporous material MCM-41 through a direct synthesis method. Under acidic conditions, this inorganic–organic hybrid generates trityl cations to give the photoactive material Tyl-MCM41. Tyl-MCM41 promotes the photosensitized dimerization of 1,3-cyclohexadiene with an unprecedented selectivity towards the formation of the *exo* product (see scheme).



ChemPhysChem
DOI: **10.1002/cphc.200800724**

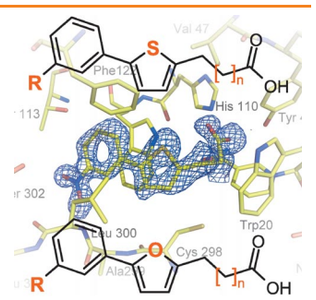


Drug Design

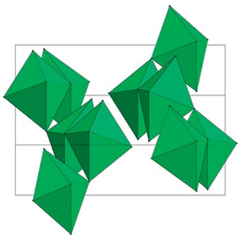
M. Eisenmann, H. Steuber, M. Zentgraf, M. Altenkämper, R. Ortmann, J. Perruchon, G. Klebe,* M. Schlitzer*

Structure-Based Optimization of Aldose Reductase Inhibitors Originating from Virtual Screening

Virtual screening discovered two prospective hits as potential leads for aldose reductase inhibition. Based on their crystal structures with the enzyme, a systematic optimization has been performed to reveal a first structure–activity relationship. A central thiophen moiety and a terminal nitro group exhibit the best binding properties.



ChemMedChem
DOI: **10.1002/cmdc.200800410**



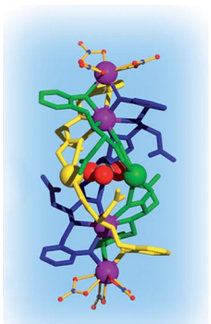
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200801216**

Cu/ZnO Catalyst Precursors

M. Behrens,* F. Girgsdies, A. Trunschke, R. Schlögl

Minerals as Model Compounds for Cu/ZnO Catalyst Precursors: Structural and Thermal Properties and IR Spectra of Mineral and Synthetic (Zincian) Malachite, Rosasite and Aurichalcite and a Catalyst Precursor Mixture

Minerals, single-phase synthetic samples and a typical phase mixture employed as a precursor for Cu/ZnO catalysts are compared and their structural, thermal and IR spectroscopic properties studied. A comprehensive characterisation of this phase mixture is attempted, and the implications of the precursor chemistry (phase composition, Cu/Zn ratio) on the final catalyst are discussed



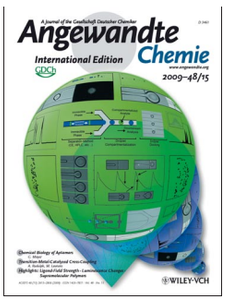
Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200900838**

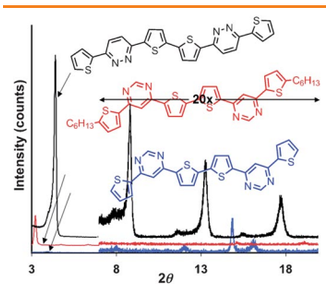
Heptameric Lanthanum Clusters

X.-L. Tang, W.-H. Wang, W. Dou, J. Jiang, W.-S. Liu,*
W.-W. Qin, G.-L. Zhang, H.-R. Zhang, K.-B. Yu, L.-M. Zheng

Olive-Shaped Chiral Supramolecules: Simultaneous Self-Assembly of Heptameric Lanthanum Clusters and Carbon Dioxide Fixation

Cluster's last stand: Six chiral reduced Schiff base ligands containing amino acids and seven La^{III} ions self-assemble to form a novel heptameric lanthanum supramolecule with the aid of the CO_3^{2-} ion (see picture). The cluster exists as a single chiral triple helix. The CO_3^{2-} ion, which is derived from atmospheric CO_2, adopts a rare μ_3-tridentate bridging mode that links three La^{III} ions, thus allowing the cluster to efficiently fix CO_2.





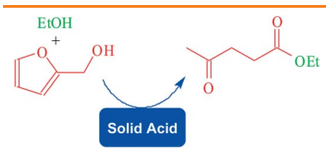
Chem. Eur. J.
DOI: **10.1002/chem.200802424**

Semiconductors

R. P. Ortiz, J. Casado, V. Hernández, J. T. L. Navarrete,*
J. A. Letizia, M. A. Ratner, A. Facchetti,* T. J. Marks*

Thiophene-Diazine Molecular Semiconductors: Synthesis, Structural, Electrochemical, Optical, and Electronic Structural Properties; Implementation in Organic Field-Effect Transistors

New transportation: New thiophene-based semiconductors have been produced and studied by electrochemistry, various spectroscopic methods, and structural and morphological techniques in conjunction with model chemistry. Their electrical properties have been analyzed by implementation in field-effect transistor devices (see figure).



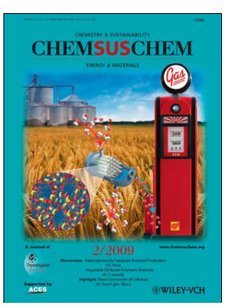
ChemSusChem
DOI: **10.1002/cssc.200800216**

Solid Acid Catalysts

J.-P. Lange,* W. D. v. d. Graaf, R. J. Haan

Conversion of Furfuryl Alcohol into Ethyl Levulinate using Solid Acid Catalysts

Cellulosic biofuel: Ethyl levulinate is a promising biofuel that can be obtained from lignocellulosic residues. A byproducts, furfural, can be converted into ethyl levulinate in an acid-based process. Here, the use of solid acid catalysts for the conversion of furfuryl alcohol into ethyl levulinate is reported.



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