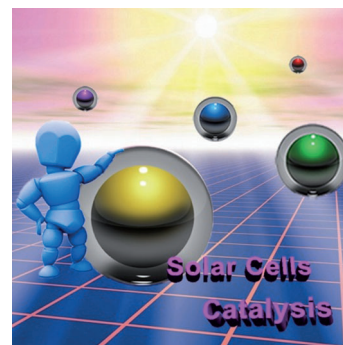


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M. R. Kim, Z. Xu,* G. Chen, D. Ma*

Hybrid nanomaterials, such as core-shell nanoparticles, have attracted great attention due to their extraordinary properties beyond those of their single-component counterparts. This review focuses on recent advances in the synthesis of semiconductor and metallic core-shell nanostructures and their potential applications in photovoltaics and catalysis, respectively.

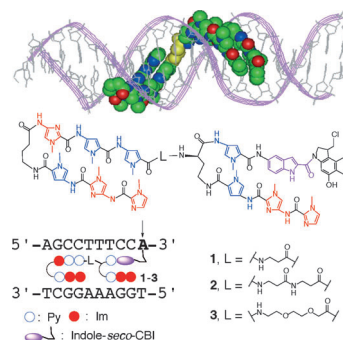


Chem. Eur. J.
DOI: 10.1002/chem.201402277



R. D. Taylor, Y. Kawamoto, K. Hashiya, T. Bando,* H. Sugiyama*

Py–Im the sky: Tandem-hairpin *N*-methylpyrrole (Py)–*N*-methylimidazole (Im) polyamide *seco*-CBI conjugates were designed with various linker units and compared against hairpin Py–Im polyamides. High-resolution denaturing gel electrophoresis by using 205 base-pair (bp) DNA fragments was used to compare their alkylating reactivities and selectivities.

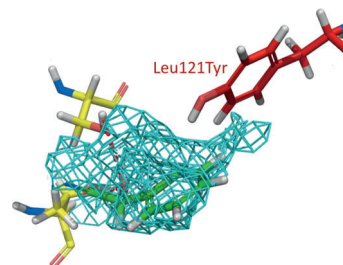


Chem. Asian J.
DOI: 10.1002/asia.201402331

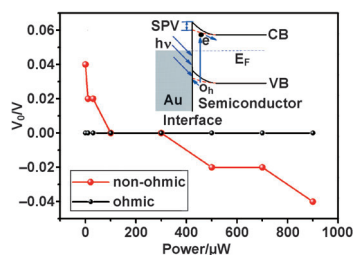


J. von Langermann, D. M. Nedrud, R. J. Kazlauskas*

A tight squeeze: The unnatural substrate mandelonitrile reacts approximately four times more rapidly with variants of hydroxynitrile lyase that contain smaller active sites. Modeling indicated that the substitutions in these variants reduce the size of the substrate-binding site and favor a productive orientation of the substrate.



ChemBioChem
DOI: 10.1002/cbic.201402081



ChemPhysChem

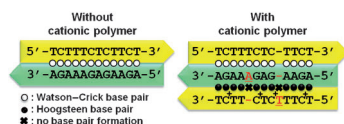
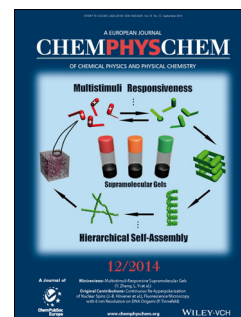
DOI: 10.1002/cphc.201402201

Photodetectors

R. Li, J. Yang, N. Huo, C. Fan, F. Lu, T. Yan, Z. Wei,* J. Li*

Effect of Electrical Contact on the Performance of Bi_2S_3 Single Nanowire Photodetectors

Based on high-quality Bi_2S_3 single nanowires, two kinds of photodetectors with different electrical contacts (ohmic contact and non-ohmic contact) are fabricated and investigated in detail (see figure).



ChemMedChem

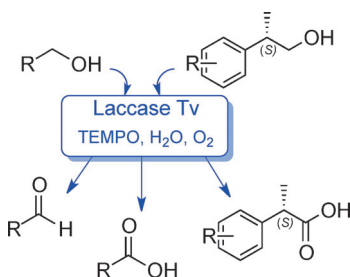
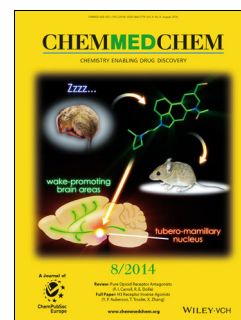
DOI: 10.1002/cmdc.201402157

DNA Polymorphism

D. Miyoshi,* Y.-m. Ueda, N. Shimada, S.-i. Nakano, N. Sugimoto, A. Maruyama*

Drastic Stabilization of Parallel DNA Hybridizations by a Polylysine Comb-Type Copolymer with Hydrophilic Graft Chain

Morphing in to something new: The parallel conformation involved in both the DNA duplex and the DNA triplex is significantly stabilized by a polylysine copolymer. The cationic polymer is able to induce a structural transition in DNA from an antiparallel duplex to a parallel triplex even with mismatches in the third strand hybridization.



ChemSusChem

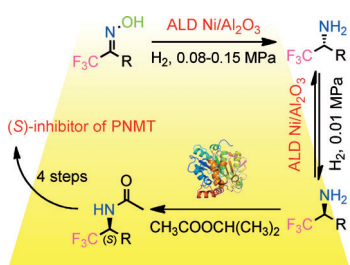
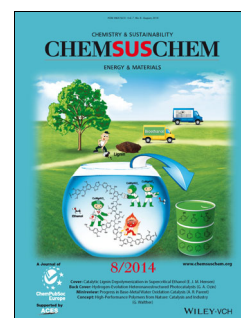
DOI: 10.1002/cssc.201402136

Plastics

P. Galletti,* M. Pori, F. Funicello, R. Soldati, A. Ballardini, D. Giacomini*

Laccase-Mediator System for Alcohol Oxidation to Carbonyls or Carboxylic Acids: Toward a Sustainable Synthesis of Profens

Enzyme exploitation: Laccase from *Trametes versicolor* (TvL) is used in a chemoenzymatic system with 2,2,6,6-tetramethylpiperidine-N-oxyl (TEMPO) in water for the environmentally friendly oxidation of primary alcohols into the corresponding carboxylic acids or aldehydes and of selected secondary alcohols to ketones.



ChemCatChem

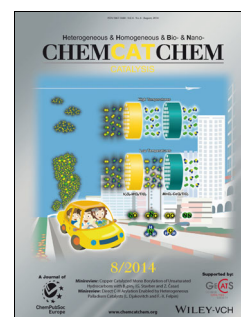
DOI: 10.1002/cctc.201402114

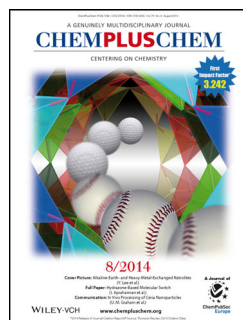
Biocatalysis

G. Cheng, Q. Wu, Z. Shang, X. Liang,* X. Lin*

Stereoselective Transformations of α -Trifluoromethylated Ketoximes to Optically Active Amines by Enzyme–Nanometal Cocatalysis: Synthesis of (S)-Inhibitor of Phenylethanolamine N-Methyltransferase

No inhibitions: One-pot cascade chemoenzymatic synthesis of chiral α -trifluoromethylated amines from ketoximes is performed by using catalysts prepared by atomic-layer deposition (ALD) method combined with *Candida antarctica* lipase B. The obtained amine was treated as an important raw material for total synthesis of an (S)-inhibitor of phenylethanolamine N-methyltransferase (PNMT).



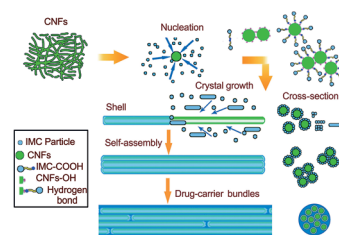


Drug Delivery

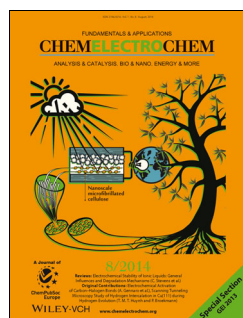
J. Gao, Q. Li, W. Chen, Y. Liu, H. Yu*

Self-Assembly of Nanocellulose and Indomethacin into Hierarchically Ordered Structures with High Encapsulation Efficiency for Sustained Release Applications

Long-lasting effects: A hierarchical structure of cellulose nanofibers and indomethacin has been fabricated through self-assembly and recrystallization under the combined effects of solvent and processing method (see figure). Such hybrid films possess a high loading capacity and encapsulation efficiency, and show a sustained drug release period over 30 days.



ChemPlusChem
DOI: 10.1002/cplu.201300434

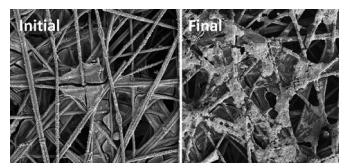


Biotemplating

M. D. Yates, B. E. Logan*

Biotemplated Palladium Catalysts Can Be Stabilized on Different Support Materials

Sustainable electrode fabrication: The biotemplated synthesis of catalytic porous electrodes is a sustainable process and, according to the results of durability tests under electrochemical and mechanical stress, these electrodes (e.g. the Pd/carbon paper electrode shown in the picture) are durable enough to replace catalytic electrodes based on synthetic materials in certain applications.



ChemElectroChem
DOI: 10.1002/celc.201402124

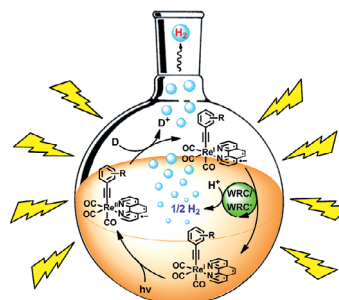


Photocatalysis

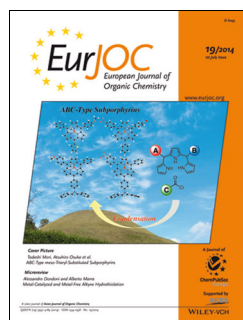
M. Oberholzer, B. Probst, D. Bernasconi, B. Spingler, R. Alberto*

Photosensitizing Properties of Alkynylrhenium(I) Complexes $[\text{Re}(-\text{C}\equiv\text{C}-\text{R})(\text{CO})_3(\text{N}\text{N}\text{N})]$ ($\text{N}\text{N}\text{N} = 2,2'$ -bipy, phen) for H_2 Production

Upon irradiation, luminescent alkynylrhenium(I) complexes $[\text{Re}(-\text{C}\equiv\text{C}-\text{R})(\text{CO})_3(\text{N}\text{N}\text{N})]$ ($\text{N}\text{N}\text{N} = \text{bipy}, \text{phen}$) allow for TONs up to 400 (H/Re) in photocatalytic proton reduction in the presence of a sacrificial electron donor and cobalt-based water reduction catalyst. The acetylene group induces a redshift in the UV/Vis spectrum, ensuring a more efficient conversion of solar light into chemical energy.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201402142

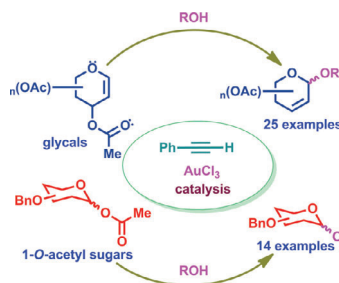


Glycosylation

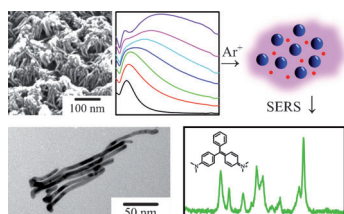
R. Roy, P. Rajasekaran, A. Mallick, Y. D. Vankar*

Gold(III) Chloride and Phenylacetylene: A Catalyst System for the Ferrier Rearrangement, and O-Glycosylation of 1-O-Acetyl Sugars as Glycosyl Donors

The Ferrier rearrangement of glycals, and the glycosylation of 1-O-acetyl sugars using an AuCl_3 /phenylacetylene catalyst system are described. Relay catalysis was observed when phenylacetylene was used in combination with AuCl_3 . The efficient production of glycosides was achieved in shortened reaction times.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201402606



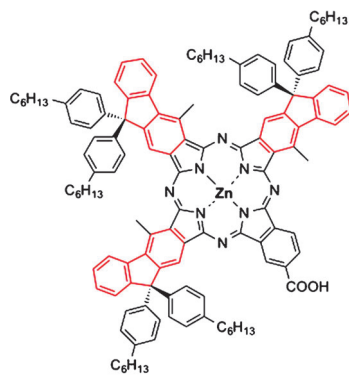
ChemistryOpen
DOI: 10.1002/open.201402009

Molecular Sensors

A. La Porta, M. Grzelczak, L. M. Liz-Marzán*

Gold Nanowire Forests for SERS Detection

Controlling growth: Gold nanowires constitute excellent and versatile substrates for SERS detection in solution and from the gas phase. Detection of malachite green in water and of 1-naphthalenethiol from the gas phase are demonstrated as proof-of-concept applications of these 3D SERS substrates.



FcS1

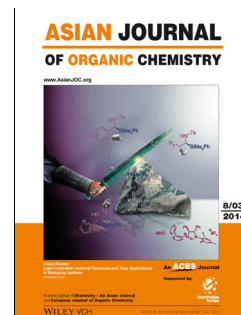
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201402117

Dye-Sensitized Solar Cells

S. Yamamoto, T. Ikeuchi, S. Mori, M. Kimura*

Light-Harvesting in the Near-Infrared Region: Dye-Sensitized Solar Cells Sensitized with Asymmetric Ring-Expanded Zinc(II) Phthalocyanines

Seeing red: The ring-expanded zinc phthalocyanine sensitizer **FcS1** can convert red and near-infrared light regions between 600–860 nm into electronic energy in dye-sensitized solar cells. The inclusion of fused rings resulted in tailored HOMO and LUMO energy levels and extension of the π -electron system.



ChemViews magazine
DOI: 10.1002/chemv.201400051

Preservation Sciences

V. Köster

Career: As a Chemist at a Museum

Dr. Stefan Röhrs has worked as a scientist at the Musées de France and The British Museum, and is now at the National Museums of Berlin. In an interview he talks about his career path into the museum, what he enjoys most about his job, and what the challenges are.

