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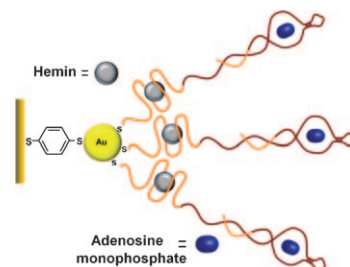


Surface Plasmon Resonance

G. Pelosof, R. Tel-Vered, X.-Q. Liu, I. Willner*

Amplified Surface Plasmon Resonance-Based DNA Biosensors, Aptasensors, and Hg^{2+} Sensors Using Hemin/G-Quadruplexes and Au Nanoparticles

Extra sensory: Thiolated nucleic acid hairpin nanostructures that contain "caged" G-quadruplex sequences and single-stranded recognition domains were immobilized on Au surfaces or Au nanoparticles linked to Au surfaces (see scheme). The structures were implemented in the ultrasensitive and selective surface plasmon resonance detection of DNA, adenosine monophosphate, and Hg^{2+} ions.



Chem. Eur. J.
DOI: 10.1002/chem.201100601

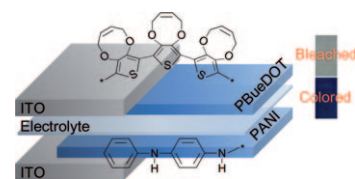


Polymers

J.-H. Kang, Z. Xu, S.-M. Paek, F. Wang, S.-J. Hwang, J. Yoon,*
J.-H. Choy*

A Dual-Polymer Electrochromic Device with High Coloration Efficiency and Fast Response Time: Poly(3,4-(1,4-butylene-(2-ene)dioxy)-thiophene)-Polyaniline ECD

Dual to the death: A dual-polymer electrochromic device composed of poly(3,4-(1,4-butylene-(2-ene)dioxy)thiophene) and polyaniline electrodes in combination with a hydrophobic lithium electrolyte has been developed that takes advantage of synergetic effects in electrochromic properties such as coloration efficiency and color-switching rate.



Chem. Asian J.
DOI: 10.1002/asia.201000763

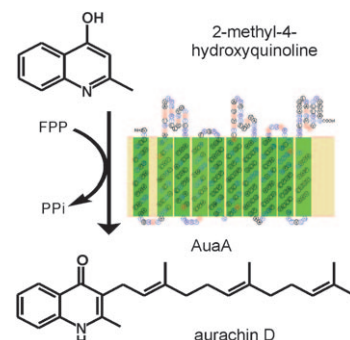


Farnesyltransferase

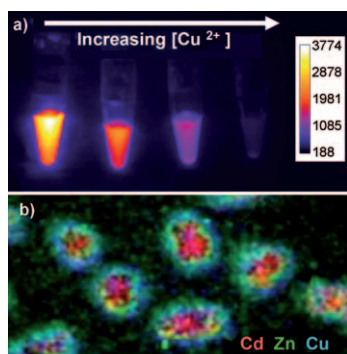
E. Stec, D. Pistorius, R. Müller, S.-M. Li*

AuaA, a Membrane-Bound Farnesyltransferase from *Stigmatella aurantiaca*, Catalyzes the Prenylation of 2-Methyl-4-hydroxyquinoline in the Biosynthesis of Aurachins

To strut and prenylate: In the biosynthesis of aurachins in the myxobacterium *Stigmatella aurantiaca*, membrane-bound prenyltransferase AuaA catalyzes the formation of aurachin D by transferring a farnesyl moiety from FPP to position C3 of 2-methyl-4-hydroxyquinoline. With improved catalysis rates, this unusual enzyme could have useful biotechnological applications.



ChemBioChem
DOI: 10.1002/cbic.201100188



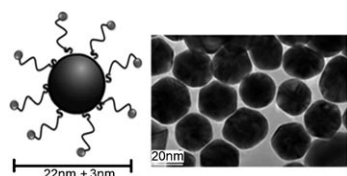
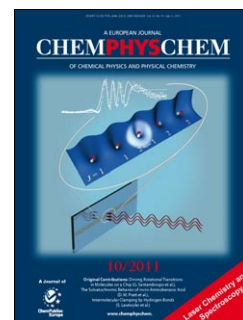
ChemPhysChem
DOI: 10.1002/cphc.201100266

Quantum Dots

G. Beaune, S. Tamang, A. Bernardin, P. Bayle-Guillemaud, D. Fenel, G. Schoehn, F. Vinet, P. Reiss,* I. Texier*

Luminescence of Polyethylene Glycol Coated CdSeTe/ZnS and InP/ZnS Nanoparticles in the Presence of Copper Cations

Copper cations quench luminescence of CdSeTe/ZnS nanoparticles coated with polyethylene glycol (PEG; see picture a), and quenching is enhanced for small nanoparticles with a thin PEG coating. It is attributed to the formation of Cu_xS surface traps, on the basis of co-localization of Zn and Cu ions on the Cd-containing core, as evidenced by energy-filtered TEM imaging (picture b).



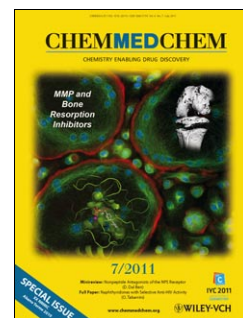
ChemMedChem
DOI: 10.1002/cmdc.201100177

Antiviral Agents

A. R. Bastian, Kantharaju, K. McFadden, C. Duffy, S. Rajagopal, M. R. Contarino, E. Papazoglou, I. Chaiken*

Cell-Free HIV-1 Virucidal Action by Modified Peptide Triazole Inhibitors of Env gp120

Virus interrupted! Initial entry of HIV-1 into host cells remains a compelling and yet elusive target for developing agents to prevent infection. Here, we report the ability of modified, site-specific peptide triazole inhibitors that target HIV-1 gp120 to physically disrupt virus particles in the absence of host cells.



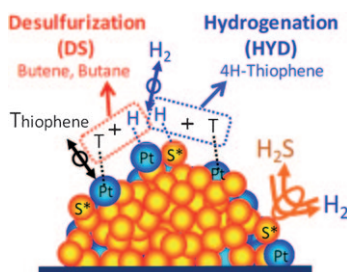
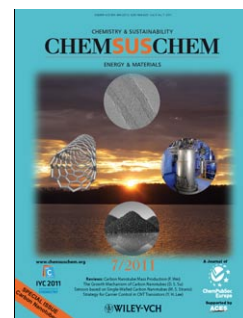
ChemSusChem
DOI: 10.1002/cssc.201100064

Photocatalysis

K. Nagai,* T. Abe, Y. Kaneyasu, Y. Yasuda, I. Kimishima, T. Iyoda, H. Imai

A Full-Spectrum Visible-Light-Responsive Organophotocatalyst Film for Removal of Trimethylamine

A visible-light-responsive photocatalyst membrane, comprising only organic materials, degrades trimethylamine, a typical volatile organic compound, to CO_2 with a quantum efficiency of ca. 40%. The organic materials are phthalocyanine (p-type) and a perylene derivative (n-type), coated onto a Nafion membrane that serves as mechanical support and adsorbent material. The membrane uses natural light and ambient oxygen.



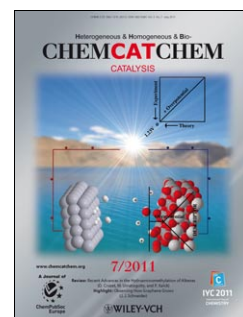
ChemCatChem
DOI: 10.1002/cctc.201100027

Clusters

H. Wang, E. Iglesia*

Mechanism and Site Requirements of Thiophene Hydrodesulfurization Catalyzed by Supported Pt Clusters

All aboard the cluster train: Sulfur vacancies on Pt cluster surfaces are required for kinetically relevant steps in thiophene desulfurization and hydrogenation. Turnover rates increase with increasing Pt cluster size and are higher on Pt than on Ru clusters because weaker metal-sulfur bonds favor vacancy formation during catalytic cycles, the density of which depends on sulfur chemical potentials set by temperature and H_2S/H_2 ratios.



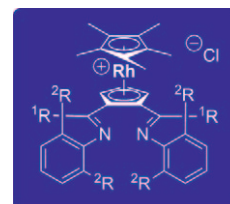


Rhodocenium Metalloligands

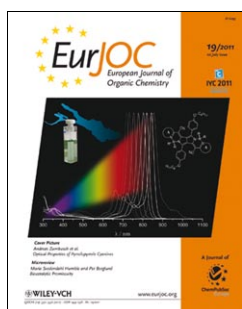
D. Eisenstecken, B. Enk, H. Kopacka, K. Wurst, T. Müller, F. Pevny, R. F. Winter,* B. Bildstein*

Redox-Responsive Rhodocenium [O,O]-, [N,O]-, [N,N]-, and [N,C,N]-Metalloligands

Four new families of pentamethylrhodocenium salts that bear two nitrogen or oxygen functional groups were easily accessible by the reaction of doubly functionalized pentafulvenes with potassium hydride followed by transmetalation with $[\text{Cp}^*\text{RhCl}_2]_2$. The electrochemical behaviour and structural properties of these novel metallocene metalloligands in solution and in the solid state were studied.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201100226

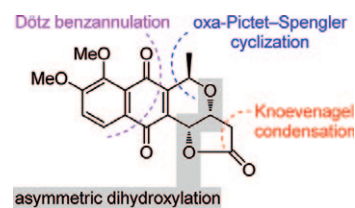


Natural Product Synthesis

M. Mahlau, R. A. Fernandes, R. Brückner*

First Synthesis of the Pyrano-Naphthoquinone Lactone (–)-Arizonin C1

The tetracyclic natural product (–)-arizonin C1 has been synthesized in nine steps. The key steps were a Dötz benzannulation, a deconjugating Knoevenagel reaction, a Sharpless dihydroxylation ($er > 99:1$), a condensation with acetaldehyde (oxa-Pictet–Spengler cyclization), and oxidation/epimerization.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201100599

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