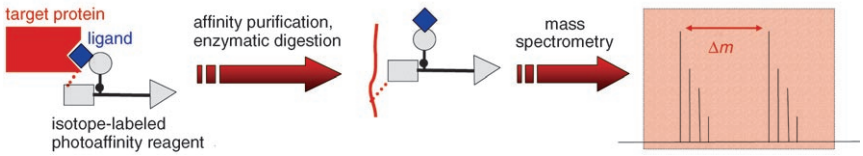
VIP *The following Communications have been judged by at least two referees to be "very important papers" and will be published online at www.angewandte.org soon:*

Meeting Reviews

Books

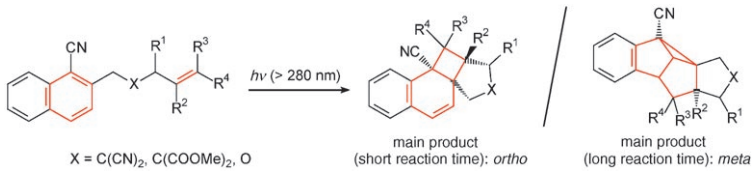
Highlights



The target proteins of bioactive low-molecular-weight ligands can be discovered by the use of multifunctional photoaffinity labels in combination with mass spectrometry. The reagents contain a biotin label for affinity purification of the protein–ligand complex and a stable isotope label to facilitate its mass spectrometric identification (see scheme).

Photoaffinity Reagents

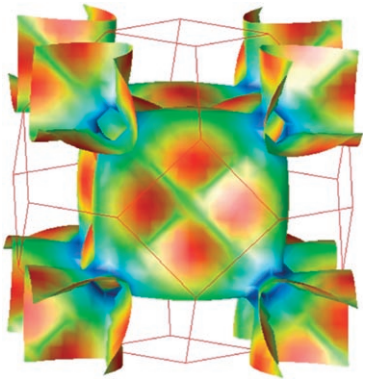
Contents



A question of time: The intramolecular *meta* photocycloaddition of naphthalene was only recently discovered, even though the corresponding additions to a simple benzene derivative have been known for a long time. The most important factor in the formation of the *meta* adduct is the irradiation time. The special features of the naphthalene structure finally give the opportunity for the stereoselective control of a *meta* photocycloaddition.

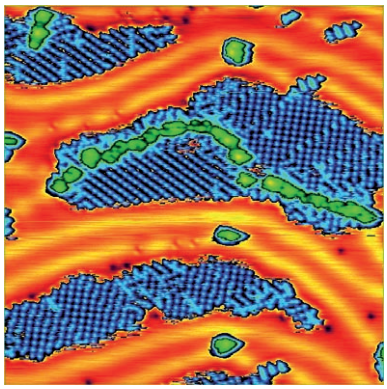
Reviews

The right spin: Spintronics makes use of the electron spin, rather than just its charge. The subdiscipline of magnetoelectronics deals with devices based on ferromagnetic materials. The illustration shows the Fermi surface (distribution of the highest occupied states in reciprocal space; the color indicates the Fermi velocity) of a typical material for magnetoelectronics and spintronics.



Communications

Atoms on the move: NO_2 lifts the Au{111} herringbone surface reconstruction at 78 K through a massively cooperative restructuring step, which involves on the order of 600 NO_2 molecules (blue; see STM image) and 80–100 Au atoms. Mesoscopic island ordering is a precursor to the process, and Au nanoclusters (green/yellow) form as the restructuring proceeds.



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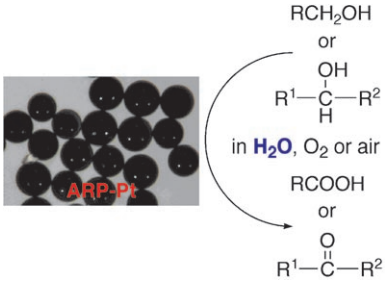
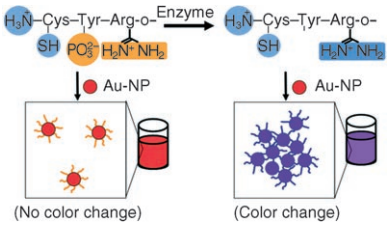


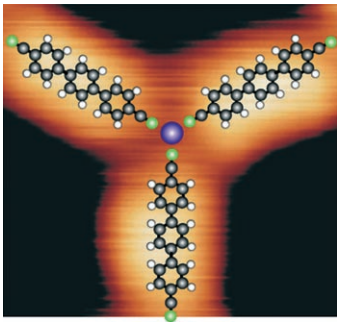
Aerobic exercise: A dispersion of nanoparticles of platinum in an amphiphilic polystyrene–polyethylene glycol resin (ARP-Pt) contains particles with a mean diameter of 5.9 nm and a narrow size distribution throughout the resin. ARP-Pt is a readily recyclable catalyst for the aerobic oxidation of a wide variety of alcohols in water with an oxygen or air atmosphere under heterogeneous conditions (see picture).

Oxidation Catalysts

To change your colors: A colorimetric enzyme assay based on peptide-induced aggregation of gold nanoparticles (Au-NPs) has been developed to sense phosphatase activity. Once the phosphate group is eliminated by alkaline phosphatase, peptide-induced Au-NP aggregation is triggered, resulting in a significant change in absorbance at 650 nm.

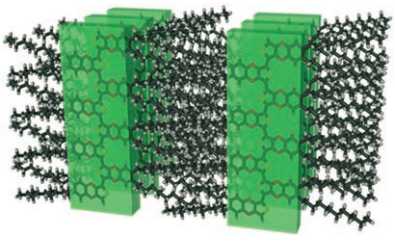


Enzyme Activity



Independent symmetries characterize the evolving network and the metal surface on which the network forms in the surface-assisted assembly of ligands and metal centers to 2D honeycomb networks comprising threefold coordination motifs (see picture, Co purple, N green). This type of coordination, which is rarely encountered in 3D metal–organic frameworks, is promoted by the strict confinement of a 2D environment.

Coordination Chemistry



Colored ribbons: The soluble, electron-rich conjugated title polymer (alkyl = dodecyl) with a regiosymmetric structure was synthesized by Grignard metathesis. The polymer displays strong thermochromism in solution. AFM images of spin-coated films show the formation of nanoribbons, and 2D-WAXS analysis reveals 2D order in the bulk material (see picture). The polymer is thus a promising candidate for device applications.

Conducting Polymers

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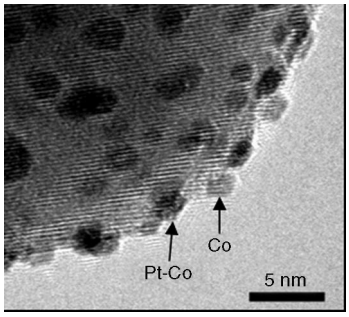
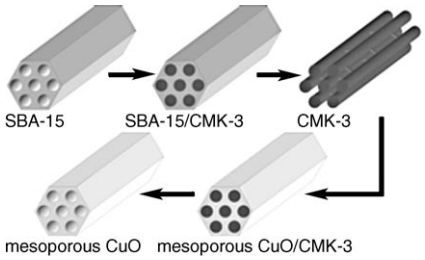
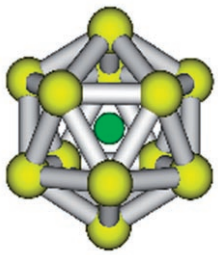


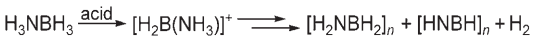
Highly active bimetallic catalysts, Pt–Co nanoparticles supported on yttria-stabilized zirconia (YSZ; see picture) can be prepared in a single step by co-impregnation. This system shows a high catalytic activity for the selective oxidation of CO in the presence of excess hydrogen, especially at temperatures below 423 K.



Order, order: Mesoporous copper oxide was synthesized for the first time by double replication from ordered mesoporous silica SBA-15 via the ordered mesoporous carbon intermediate CMK-3 (see picture). The new material has potentially exciting applications in catalysis or lithium-ion batteries.

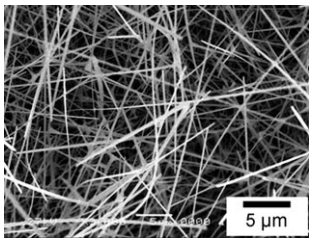


Trapped in a cage: Combined experimental and theoretical evidence shows that the stannaspherene Sn_{12}^{2-} can trap a transition-metal or f-element atom (green) to form a stable endohedral cluster (see figure). The central metal atom induces very little distortion in the icosahedral cage. The clusters can be viewed as "superatoms" for use in materials with tunable magnetic, electronic, and chemical properties.



Liberating hydrogen: Strong Lewis or Brønsted acids react with ammonia–borane (H_3NBH_3) to form an in situ boronium cation, resulting in the formation of a mixture of cyclic and acyclic BNH_x oligomers and the liberation of H_2 (see scheme). A proposed mechanism is supported by an examination of the reaction thermodynamics using density functional theory.

Long and thin: SnO_2 nanowires with tetragonal structure were successfully synthesized by a thermal evaporation method without any conventional metal catalysts. The enhanced electrochemical performance of SnO_2 nanowires is believed to result from the combination of unique nanostructures with a high length/diameter ratio and the absence of traditional metal catalysts.



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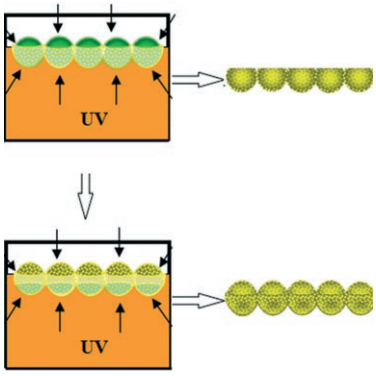
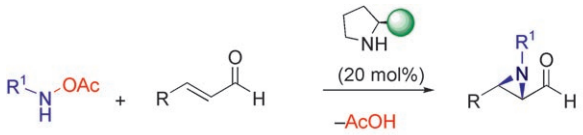
Freestanding porous gold films with arrays of spherical pores or hollow spheres were fabricated photochemically. UV irradiation of a polystyrene-sphere (PS) colloidal crystal template floating on a solution containing $HAuCl_4$ and Na_2SO_3 led to gold deposition, and then PS removal gave a spherical-pore array. Irradiating the shell/sphere structure upside-down on fresh precursor solution gave a hollow-sphere array after PS removal (see picture).

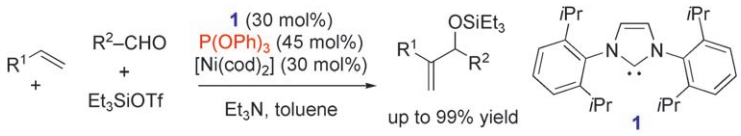


Porous Materials



Simple chiral amines catalyze a highly chemo- and enantioselective aziridination of α,β-unsaturated aldehydes to provide 2-formylaziridines in good yields and with up to 99% *ee*. The synthetic utility of this organocatalytic method was exemplified in a two-step asymmetric synthesis of β-amino acid esters with readily removable protecting groups (see scheme; R^1 = *tert*-butoxycarbonyl, benzyloxycarbonyl).

Asymmetric Catalysis



Give and take: Both a strong electron donor (**1**) and a strong electron acceptor ($P(OPh)_3$) are necessary for a highly selective, nickel-catalyzed coupling reaction between alkenes, aldehydes, and silyl triflates (see scheme; cod = cycloocta-1,5-diene, Tf = trifluoromethanesulfonyl). This synergistic effect may also be useful in other transformations catalyzed by NHC–metal complexes (NHC = N-heterocyclic carbene).

Catalytic Coupling Reactions

On the fluor: Highly regioselective nucleophilic difluoromethylation of 1,2-cyclic sulfates and sulfamidates leads after selective desulfonylation to β-difluoromethylated and β-difluoromethylenated alcohols and amines (see scheme), which are highly useful building blocks in the life sciences.

Fluorine Chemistry

Contents

Supporting information is available on the WWW (see article for access details).

A video clip is available as Supporting Information on the WWW (see article for access details).

Service

Corrigenda

In this Communication, the *x* axis of the main spectrum shown in Figure 4 should read *hν*/meV. The axis of the inset is correct as published.

A Crystalline Microporous Narrow-Bandgap Semiconductor

A. E. C. Palmqvist,* B. B. Iversen, E. Zanghellini, M. Behm, G. D. Stucky ——— **699–704**

Angew. Chem. Int. Ed. **2004**, *43*

DOI 10.1002/anie.200351284

Reference [9a] of this Communication should read as follows:

[9] a) D. Olea, S. S. Alexandre, P. Amo-Ochoa, A. Guijarro, F. de Jesús, J. M. Soler, P. J. de Pablo, F. Zamora, J. Gómez-Herrero, *Adv. Mater.* **2005**, *17*, 1761.

Diameter-Tunable CdTe Nanotubes Templated by 1D Nanowires of Cadmium Thiolate Polymer

H. Niu, M. Y. Gao* ——— **6462–6466**

Angew. Chem. Int. Ed. **2006**, *45*

DOI 10.1002/anie.200601779

