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:

*T. J. Hebden, A. J. S. John, D. G. Gusev, W. Kaminsky, K. I. Goldberg, D. M. Heinekey**
Preparation of a Dihydrogen Complex of Cobalt

*J. S. Chen, T. Zhu, C. M. Li, X. W. Lou**
Building Hematite Nanostructures Using Oriented Attachment

*Y. Matsuki, M. T. Eddy, R. G. Griffin, J. Herzfeld**
Rapid 3D MAS NMR Spectroscopy at Critical Sensitivity

K. Breuker, S. Brüschweiler, M. Tollinger*
Electrostatic Stabilization of Native Protein Structure in the Gas Phase

M. Mastalerz, M. W. Schneider, I. M. Oppel, O. Presly*
A Salicylbisimine Cage Compound with a High Surface Area and Selective CO_2/CH_4 Adsorption

*F. Lockyear, M. A. Parkes, S. D. Price**
Fast and efficient fluorination of small molecules by SF_4^{2+}

X. Zeng, H. Beckers, H. Willner,* J. F. Stanton*
Elusive Diazirinone, N_2CO

J. Baek, P. M. Allen, M. G. Bawendi, K. F. Jensen**
Investigation of the Synthesis of InP Nanocrystals with a High-Temperature and High-Pressure Continuous-Flow Microreactor

*J. H. Schrittwieser, V. Resch, J. Sattler, W.-D. Lienhart, K. Durchschein, A. Winkler, K. Gruber, P. Macheroux, W. Kroutil**
Biocatalytic Enantioselective Oxidative C–C Coupling by Aerobic C–H Activation

*D. V. Gutsulyak, A. van der Est, G. I. Nikonov**
Facile Catalytic Hydrosilylation of Pyridines

V. Miranda-Soto, D. B. Grotjahn, A. L. Cooksy, J. A. Golen, C. E. Moore, A. L. Rheingold*
Creating a Labile and Catalytically Active Imidazol-2-yl Fragment System

Author Profile

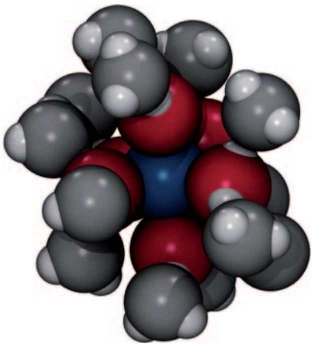
“The biggest problem that scientists face is to repeatedly come up with good ideas in the course of their entire career. The greatest scientific advance in the next decade will be the development of personalized medicine …”
This and more about Herbert Waldmann can be found on page 346.

Books

Highlights

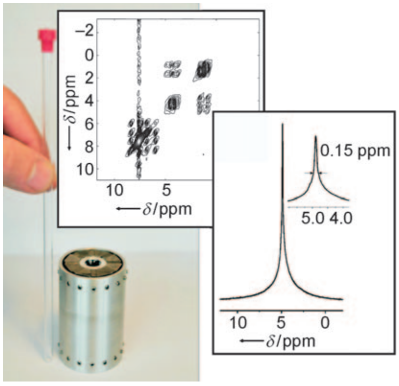
Water

Visible effects of ions on the hydrogen-bond structure of water (see picture; blue: ion, red/gray: first/second hydration shell) can be observed by new spectroscopic methods. These experiments along with molecular dynamics simulations provide important information about the translational and rotational motion of water molecules in salt solution. The observed ion-specific long-range pattern of the hydrogen-bond network sheds new light on the Hofmeister effect.



Contents

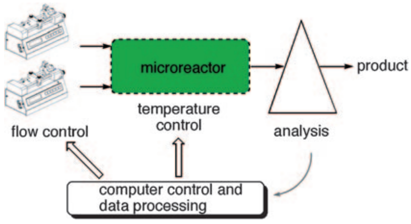
Portable NMR Spectrometers



Analysis on the go: Portable high-resolution NMR spectroscopy is of great interest for many applications. Recent advances in magnet design, spectrometer stability, and acquisition schemes have placed the realization of low-field spectrometers based on room-temperature permanent magnets and that can deliver chemical shift resolution within reach.

Microreactor Technology

A dream come true: Microreactor technology combined with online analysis can be used to optimize reaction conditions. Computer algorithms “decide” which parameters to adjust, and the optimization process itself is optimized.



Reviews

Colloids

The girl with colloid-oscope eyes: Assembly of colloidal molecules and colloidal crystals with complex features requires control over short-range and long-range interactions and capabilities for placing and orienting colloidal particles. Especially interesting structures may be obtained from colloids and colloidal clusters with anisotropic shapes that are capable of binding in specific directions.

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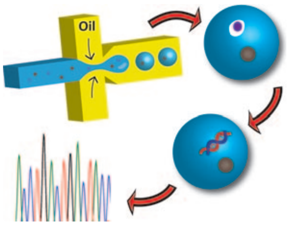
Single-Cell Genetic Analysis

R. Novak, Y. Zeng, J. Shuga,
G. Venugopalan, D. A. Fletcher,
M. T. Smith, R. A. Mathies* ___ **390 – 395**

Single-Cell Multiplex Gene Detection and Sequencing with Microfluidically Generated Agarose Emulsions

Solitary confinement: The described approach enabled high-throughput DNA preparation followed by multiplex emulsion PCR for the detection and sequencing of genetic targets (see picture). No droplet sorting was required, and single-cell segregation was maintained throughout owing to the incorporation of primer-functionalized beads as amplicon substrates.

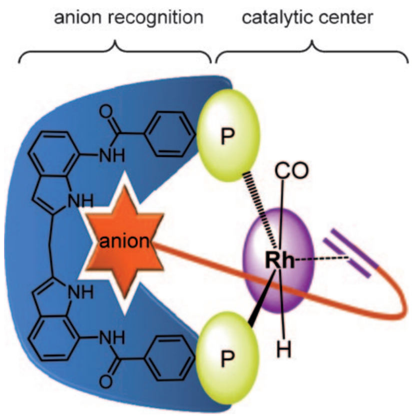


Supramolecular Catalysis

P. Dydio, W. I. Dzik, M. Lutz, B. de Bruin,
J. N. H. Reek* ___ **396 – 400**

Remote Supramolecular Control of Catalyst Selectivity in the Hydroformylation of Alkenes

In the pocket: The supramolecular interactions between a Rh phosphine catalyst equipped with an anion-binding pocket and alkenes that contain anionic functionalities (see picture) provide an excellent design concept to achieve remote control of the regioselectivity in hydroformylation reactions. The 4-pentenoate and 3-butenylphosphonate, which fit tightly between the Rh center and the pocket, were hydroformylated with unprecedented selectivity.

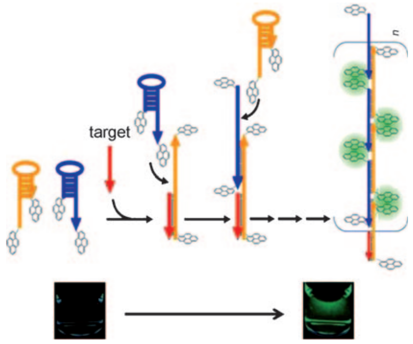


DNA Detection

J. Huang, Y. Wu, Y. Chen, Z. Zhu, X. Yang,
C. J. Yang,* K. Wang,* W. Tan* **401 – 404**

Pyrene-Excimer Probes Based on the Hybridization Chain Reaction for the Detection of Nucleic Acids in Complex Biological Fluids

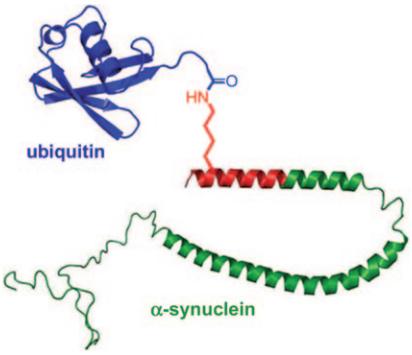
Make it a double: Complementary probes with two pyrene labels were engineered for the amplification of a target DNA sequence. In the stem-closed conformation of the probes in the absence of the target, the two pyrene moieties were separated. The target propagated hybridization chain reactions to bring pyrene moieties on neighboring probes close together to form fluorescent pyrene excimers (see picture).



Protein Ubiquitination

M. Hejjaoui, M. Haj-Yahya, K. S. A. Kumar,
A. Brik,* H. A. Lashuel* ___ **405 – 409**

Towards Elucidation of the Role of Ubiquitination in the Pathogenesis of Parkinson's Disease with Semisynthetic Ubiquitinated α-Synuclein

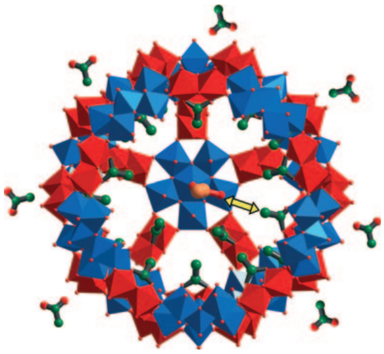


Ubiquitinate me here: The semisynthesis and characterization of a site-specifically monoubiquitinated form of α-synuclein (see picture) enabled investigation of the effect of ubiquitination on membrane binding, oligomerization, and fibrillogenesis. The introduction of specific ubiquitin modifications into α-synuclein will shed light on the role of ubiquitination in regulating the function(s) of α-synuclein in health and disease.

Guest Exchange

O. Petina, D. Rehder, E. T. K. Haupt,*
A. Grego, I. A. Weinstock,* A. Merca,
H. Bögge, J. Szakács,
A. Müller* ______ **410 – 414**

Guests on Different Internal Capsule Sites Exchange with Each Other and with the Outside



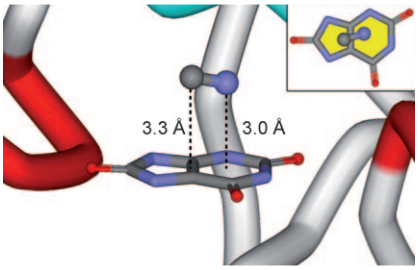
In and out: Compartmentalization in a porous polyoxometalate capsule (see structure, red and blue polyhedra) allows acetate ions (green/red or orange/red), coordinated to different internal sites, to exchange not only with each other (yellow double arrow) but also with those outside in bulk aqueous solution.

Anion–π Interactions

C. Estarellas, A. Frontera,* D. Quiñonero,
P. M. Deyà ______ **415 – 418**

Relevant Anion–π Interactions in Biological Systems: The Case of Urate Oxidase

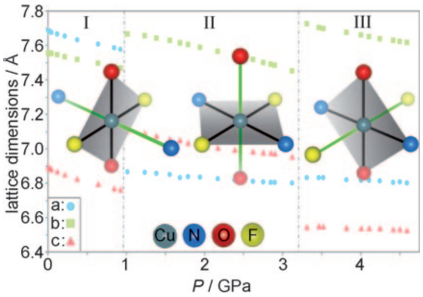
Enzyme inhibited: The important role of anion–π interactions that are present in the active site of the urate oxidase enzyme is reported (see picture). The inhibition of this enzyme by cyanide ions is caused by the existence of an anion–π interaction between the inhibitor and the enzymatic substrate. This investigation extends the relevance of anion–π interactions to important fields such as enzyme chemistry.



Magnetic Properties

G. J. Halder,* K. W. Chapman,
J. A. Schlueter, J. L. Manson ______ **419 – 421**

Pressure-Induced Sequential Orbital Reorientation in a Magnetic Framework Material



Pressure-dependent isomerization: Pressure has been applied to manipulate the structure–property relationship of the copper(II)-based coordination network $CuF_2(H_2O)_2(pyz)$ (pyz = pyrazine). The elongated Jahn–Teller axis was found to switch sequentially from the N–Cu–N (< 0.9 GPa), to the O–Cu–O (0.9–3.1 GPa), to the F–Cu–F bonds (> 3.1 GPa; see picture). This orbital reordering leads to a drastic change in the magnetic properties, whereby the magnetic structure changes from two-dimensional to one-dimensional above 0.9 GPa.

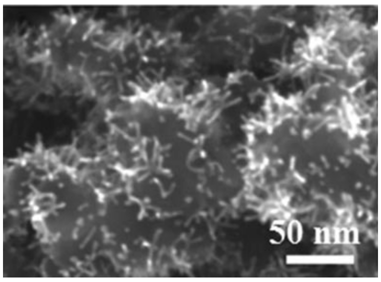
VIP

Platinum Nanocatalyst

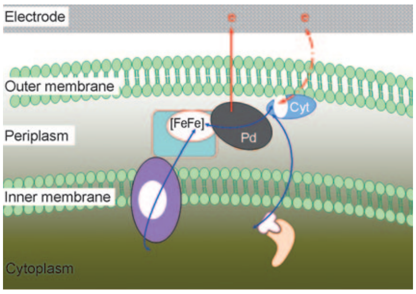
S. Sun, G. Zhang, D. Geng, Y. Chen, R. Li,
M. Cai, X. Sun* ______ **422 – 426**

A Highly Durable Platinum Nanocatalyst for Proton Exchange Membrane Fuel Cells: Multiarmed Starlike Nanowire Single Crystal

A new “star” catalyst: Carbon-supported multiarmed starlike Pt nanowires (see SEM picture) are highly active and stable electrocatalysts for proton-exchange membrane fuel cells. This novel nanostructure shows much improved activity and durability over the current commercial Pt/C catalyst made of Pt nanoparticles.



Precious bacterium: Biologically produced palladium nanoparticles bound to a cell membrane participated in electron-transport pathways as well as electrocatalysis on an electrode surface (see picture). Periplasmic hydrogenases ([FeFe]) and cytochromes (Cyt) may be involved in the processes.



Bioelectrochemical Systems

X. Wu, F. Zhao,* N. Rahunen, J. R. Varcoe, C. Avignone-Rossa, A. E. Thumser, R. C. T. Slade ______ **427 – 430**

A Role for Microbial Palladium Nanoparticles in Extracellular Electron Transfer

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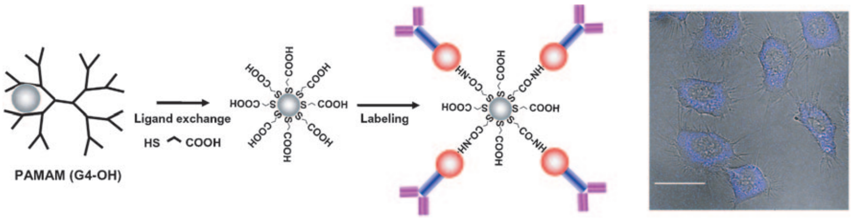


Let your light shine: The atomically monodisperse Pt_5 nanocluster has low cytotoxicity and a fluorescence quantum yield of 18 %. Furthermore, it can be used as a fluorescent probe for cellular imaging (see picture; gray sphere: Pt_5 nanocluster; PAMAM (G4-OH): fourth-generation polyamidoamine dendrimer; scale bar 20 μm).

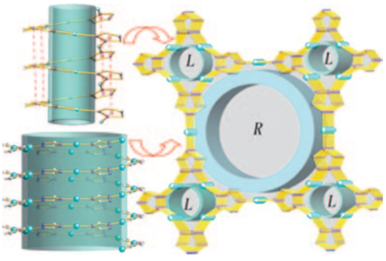
Nanoclusters

S. Tanaka, J. Miyazaki, D. K. Tiwari, T. Jin,* Y. Inouye* ______ **431 – 435**

Fluorescent Platinum Nanoclusters: Synthesis, Purification, Characterization, and Application to Bioimaging

---

Chiral nanotube: A flexible porous homochiral $SrSi_2$ framework of two types of single-stranded helical nanotubes is presented (see structure). The Cu^I ions in the framework can be oxidized to Cu^{II} through single-crystal-to-single-crystal transformation forming a new, topologically equivalent phase, accompanied by an expansion in the unit cell volume of 12.51 %.



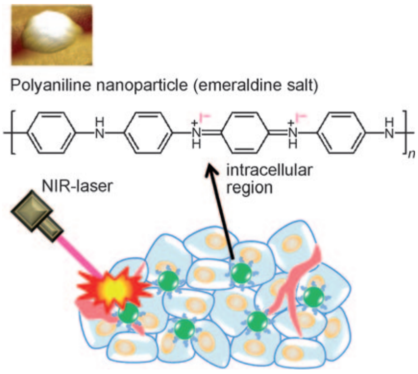
Chiral Metal–Organic Nanotubes

Y.-G. Huang, B. Mu, P. M. Schoenecker, C. G. Carson, J. R. Karra, Y. Cai, K. S. Walton* ______ **436 – 440**

A Porous Flexible Homochiral $SrSi_2$ Array of Single-Stranded Helical Nanotubes Exhibiting Single-Crystal-to-Single-Crystal Oxidation Transformation

---

Infiltrate and destroy: In an environment rich in protonating or oxidative species, such as the intracellular milieu of cancer cells, the main absorption band of spherical, water-soluble polyaniline nanoparticles was red-shifted to a near-infrared (NIR) wavelength as a result of the formation of the emeraldine salt (see picture). The doped nanoparticles caused photothermal ablation of cancer cells upon NIR laser irradiation in vitro and in vivo.



Hyperthermia

J. Yang, J. Choi, D. Bang, E. Kim, E.-K. Lim, H. Park, J.-S. Suh, K. Lee, K.-H. Yoo, E.-K. Kim, Y.-M. Huh,* S. Haam* ______ **441 – 444**

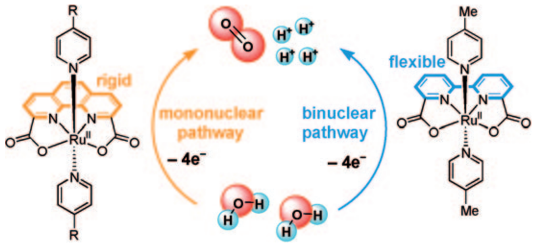
Convertible Organic Nanoparticles for Near-Infrared Photothermal Ablation of Cancer Cells

Contents

Water Oxidation

L. Tong, L. Duan, Y. Xu, T. Privalov,*
L. Sun* ———— 445–449

Structural Modifications of Mononuclear Ruthenium Complexes: A Combined Experimental and Theoretical Study on the Kinetics of Ruthenium-Catalyzed Water Oxidation



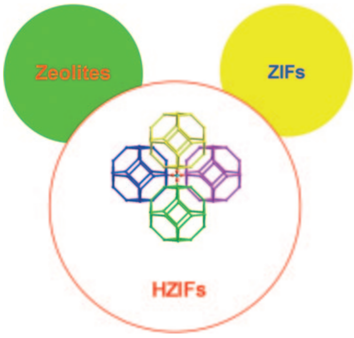
Small change, big difference: A minor structural modification of water-oxidation catalysts changes the kinetics of O_2 evolution from second- to first-order (see scheme). According to DFT calculations, the torsional flexibility of the chelating ligands and their reorganization through the catalytic cycle are implicated in pathway selectivity, and the auxiliary carboxylate group becomes involved in proton-coupled nucleophilic attack.

Porous Materials

F. Wang, Z.-S. Liu, H. Yang, Y.-X. Tan,
J. Zhang* ———— 450–453

Hybrid Zeolitic Imidazolate Frameworks with Catalytically Active TO_4 Building Blocks

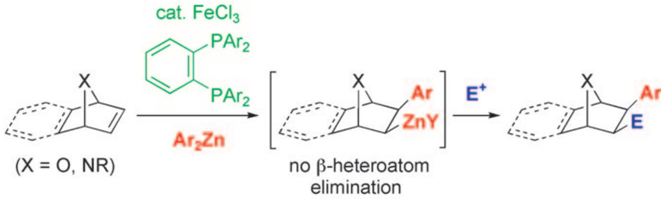
Catalytic cavities: Hybrid zeolitic imidazolate frameworks (HZIFs) integrate compositional and structural features of inorganic zeolites and zeolitic imidazolate frameworks (ZIFs). The combination of catalytically active TO_4 tetrahedra with zinc–imidazolate units leads to a new kind of porous material with distinct framework topology, unusual high thermal stability, and catalytic properties.



Iron Catalysis

S. Ito, T. Itoh, M. Nakamura* – 454–457

Diastereoselective Carbometalation of Oxa- and Azabicyclic Alkenes under Iron Catalysis

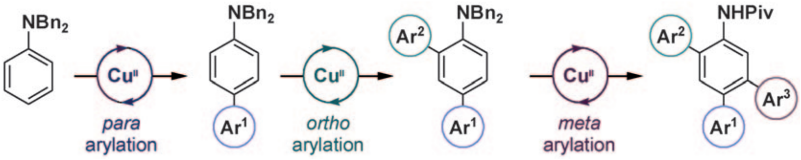


Highly diastereoselective carbometalation of oxa- and azabicyclic alkenes with arylzinc reagents has been achieved by using $FeCl_3$ and novel *ortho*-phenylene diphosphine ligands (see scheme; E = electrophile). The carbozincation products are stable towards β-heteroatom elimination and can be trapped with various electrophiles.

C–H Arylation

C.-L. Ciana, R. J. Phipps, J. R. Brandt,
F.-M. Meyer, M. J. Gaunt* —— 458–462

A Highly *para*-Selective Copper(II)-Catalyzed Direct Arylation of Aniline and Phenol Derivatives

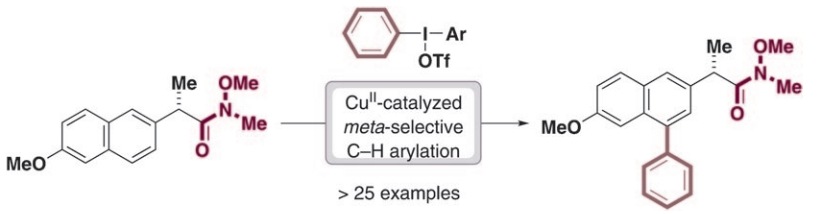


In short order: A copper-catalyzed Friedel–Crafts-type strategy has been developed for the title reaction. An iterative C–H arylation strategy has also been demonstrated for the functionalization of anilines by sequentially delivering different aromatic groups to the *para*, *ortho, and meta* positions (see scheme, Bn = benzyl, Piv = pivaloyl).

meta Functionalization

H. A. Duong, R. E. Gilligan, M. L. Cooke,
R. J. Phipps, M. J. Gaunt* ____ **463 – 466**

Copper(II)-Catalyzed *meta*-Selective Direct Arylation of α-Aryl Carbonyl Compounds

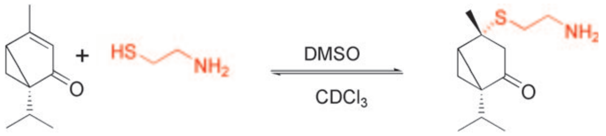


Strong competition: A method for the *meta*-selective arylation of the highly versatile α-aryl carbonyl motif using diaryliodonium salts is described. In this Cu^{II}-catalyzed process the remote carbonyl group is capable of overpowering even strongly *para*-directing functionalities to form the elusive *meta*-products (see scheme). Remarkably, the arylation process can also operate under metal-free conditions.

Michael Acceptors

C. Avonto, O. Taglialatela-Scafati,
F. Pollastro, A. Minassi, V. Di Marzo,
L. De Petrocellis,
G. Appendino* ____ **467 – 471**

An NMR Spectroscopic Method to Identify and Classify Thiol-Trapping Agents: Revival of Michael Acceptors for Drug Discovery?

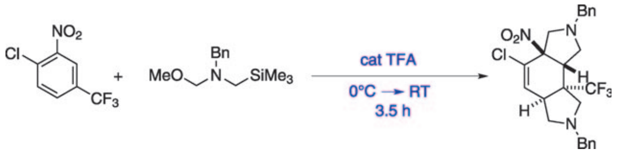


Speed trap: Cysteamine reacts in DMSO with electrophilic double bonds to afford Michael adducts (see scheme), whereas no trapping reaction takes place in apolar solvents. A simple and quick NMR spectroscopic method to identify Michael acceptors and sort them into reversible and irreversible thiol sinks is validated biologically in a cellular assay sensitive to thiol-trapping agents. DMSO = dimethyl sulfoxide.

Cycloaddition

S. Lee, I. Chataigner,*
S. R. Piettre* ____ **472 – 476**

Facile Dearomatization of Nitrobenzene Derivatives and Other Nitroarenes with *N*-Benzyl Azomethine Ylide

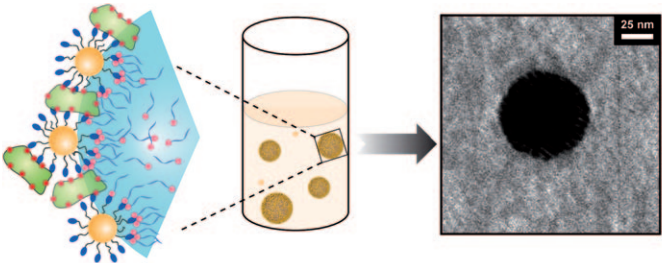


Breaking the aromaticity barrier: Nitrobenzene derivatives and other nitroarenes smoothly react at room temperature with an azomethine ylide to yield polycyclic adducts in high yields (see scheme; Bn = benzyl, TFA = trifluoroacetic acid). This unprecedented loss of aromaticity delivers scaffolds prone to a number of potentially interesting derivatizations.

Nanocapsules

X.-C. Yang, B. Samanta, S. S. Agasti,
Y. Jeong, Z.-J. Zhu, S. Rana, O. R. Miranda,
V. M. Rotello* ____ **477 – 481**

Drug Delivery Using Nanoparticle-Stabilized Nanocapsules

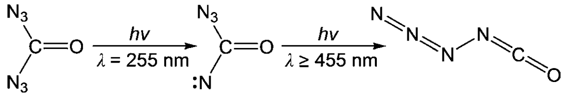


Small but mighty: Current methods for generating oil-in-water emulsions provide nanoparticle-stabilized capsules (NPSCs) that are too large for efficient delivery. Electrostatic and hydrogen-bonding interactions were combined to create stable NPSCs with diameters of around 100 nm. Their potential as delivery vehicles was demonstrated through dye studies with HeLa cells.

Nitrogen-Rich Compounds

X. Zeng, H. Beckers,
H. Willner* ———— **482–485**

Matrix Isolation of Two Isomers of N_4CO



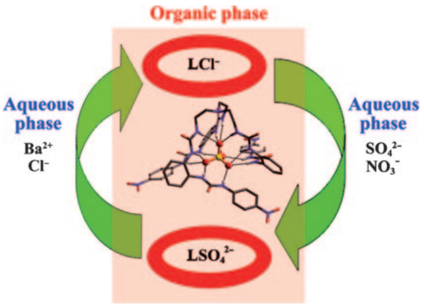
A close analogue to diazide: Azido isocyanate, N_3-NCO, is formed by a stepwise photo-induced decomposition of carbonyl diazide, $CO(N_3)_2$, and characterized by matrix IR, UV/Vis spectroscopy, and DFT calculations (see scheme). The azido carbonyl nitrene intermediate $N_3C(O)N$ has also been characterized.

Anion Recognition

C. Jia, B. Wu,* S. Li, X. Huang, Q. Zhao,
Q.-S. Li,* X.-J. Yang ———— **486–490**

Highly Efficient Extraction of Sulfate Ions with a Tripodal Hexaurea Receptor

Fatal extraction: The Hofmeister bias for sulfate ions in aqueous environments can be overcome by using a tripodal hexaurea receptor (L) that completely encapsulates the sulfate ion in a complementary cavity protected by hydrophobic aromatic rings (see picture; C gray, N blue, O red, S yellow). Almost quantitative extraction of sulfate ions from an aqueous to an organic phase is achieved when this receptor is used as a liquid–liquid extractant.

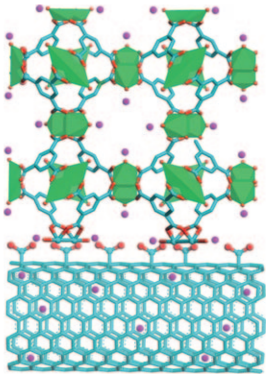


Microporous Materials

Z. Xiang, Z. Hu, D. Cao,* W. Yang,* J. Lu,
B. Han, W. Wang ———— **491–494**

Metal–Organic Frameworks with Incorporated Carbon Nanotubes: Improving Carbon Dioxide and Methane Storage Capacities by Lithium Doping

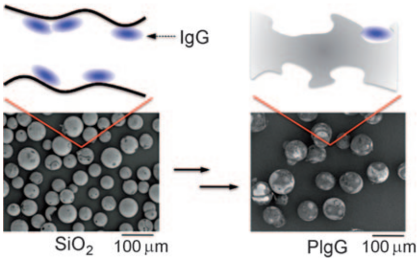
Permanent storage: The gas storage capacities of metal–organic frameworks can be increased by incorporation of carbon nanotubes and doping of the resulting framework with lithium ions (see picture, C turquoise, Cu green polyhedra, Li purple, O red). This combination of modifications results in an improvement of the CO_2 and CH_4 uptakes by about 305 % and 200 % ($T = 298$ K and $P = 18$ bar), respectively, compared to the unmodified compounds.



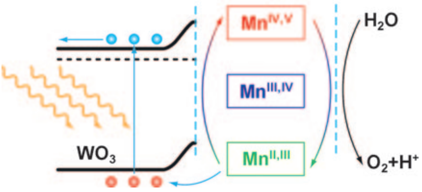
Molecular Imprinting

A. Nematollahzadeh, W. Sun,
C. S. A. Aureliano, D. Lütkemeyer, J. Stute,
M. J. Abdekhodaie, A. Shojaei,
B. Sellergren* ———— **495–498**

High-Capacity Hierarchically Imprinted Polymer Beads for Protein Recognition and Capture



Leaving an imprint: Hierarchical protein imprinting starting from wide-pore silica modified with a submonolayer of adsorbed protein (IgG or HSA) leads to an inverse polymeric replica of the silica template that features highly accessible protein-complementary binding sites (see picture). The resulting poly(acrylamide) beads (PIgG or PHSA) feature high binding capacities and can be used to selectively capture the proteins HSA and IgG from blood serum.

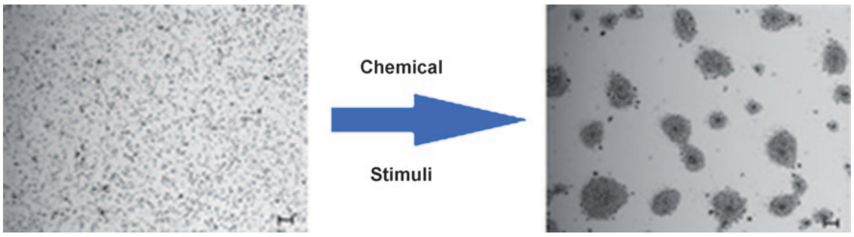


Heteronanostructured photoelectrodes were fabricated by atomic layer deposition of WO_3 and stabilized with an Mn-based oxygen-evolving catalyst. The resulting electrode absorbs photons to create electrons and holes, the separation of which is assisted by the built-in field within the semiconductor. Electrons are collected, and holes transferred to the catalyst to split H_2O into oxygen and hydrogen (see schematic).

Solar Water Splitting

R. Liu, Y. Lin, L.-Y. Chou, S. W. Sheehan, W. He, F. Zhang, H. J. M. Hou,* D. Wang* ———— **499 – 502**

Water Splitting by Tungsten Oxide Prepared by Atomic Layer Deposition and Decorated with an Oxygen-Evolving Catalyst

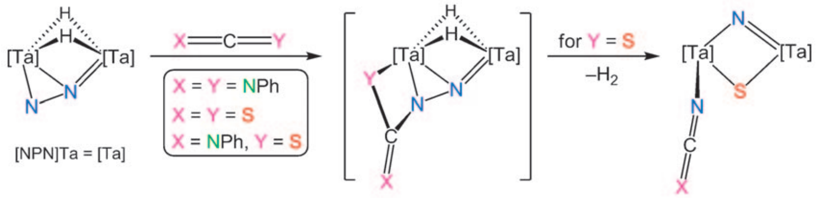


Swarming process: Gold microparticles can be organized into discrete regions by using an electrolyte gradient triggered by adding hydrazine to hydrogen peroxide (see picture). Control of the surface chemistry and particle density is used for tailoring the size and shape of the microparticle swarms.

Microparticles

D. Kagan, S. Balasubramanian, J. Wang* ———— **503 – 506**

Chemically Triggered Swarming of Gold Microparticles

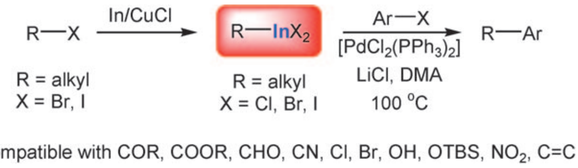


Some dinitrogen on the side: 1,2-cumulenes, such as carbodiimides, carbon disulfide, and isothiocyanates, react with the side-on end-on N_2 tantalum complex through a [2+2] cycloaddition pathway to result in the formation of new carbon–nitrogen bonds.

N_2 Functionalization

J. Ballmann, A. Yeo, B. O. Patrick, M. D. Fryzuk* ———— **507 – 510**

Carbon–Nitrogen Bond Formation by the Reaction of 1,2-Cumulenes with a Ditantalum Complex Containing Side-On- and End-On-Bound Dinitrogen



A direct result: Alkyl indium reagents are synthesized by the insertion of indium into alkyl halide mediated by CuCl. The synthetic utility of these reagents is demonstrated by their palladium-catalyzed coupling with aryl halides (see scheme). The reagents are compatible with various functional groups, and this makes the protocol generally useful in organic synthesis. DMA = *N*,*N*-dimethylacetamide, TBS = *tert*-butyldimethylsilyl.

Organoindium Reagents

Z. L. Shen, K. K. K. Goh, Y. S. Yang, Y. C. Lai, C. H. A. Wong, H. L. Cheong, T. P. Loh* ———— **511 – 514**

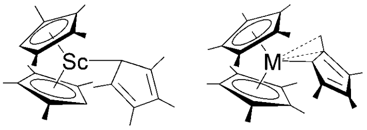
Direct Synthesis of Water-Tolerant Alkyl Indium Reagents and Their Application in Palladium-Catalyzed Couplings with Aryl Halides

Contents

Cyclopentadienyl Ligands

S. Demir, T. J. Mueller, J. W. Ziller,
W. J. Evans* ———— **515 – 518**

Tris(polyalkylcyclopentadienyl) Complexes: The Elusive $[(\eta^5\text{-}C_5R_5)_2M(\eta^1\text{-}C_5R_5)]$ Structure and Trihapto Cyclopentadienyl Coordination Involving a Methyl Substituent

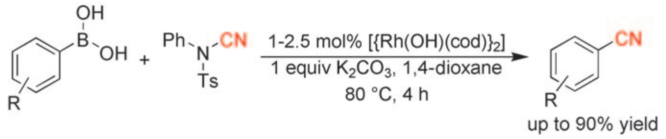


Classics surprise: Exploration of the $(C_5Me_4H)^-$ chemistry of Sc, Y, and Lu metallocenes has led to the first example of a bis(η^5)(η^1)-tris(polyalkylcyclopentadienyl) complex and a new three-atom coordination mode for polyalkylcyclopentadienyl ligands (see scheme).

Homogeneous Catalysis

P. Anbarasan, H. Neumann,
M. Beller* ———— **519 – 522**

A General Rhodium-Catalyzed Cyanation of Aryl and Alkenyl Boronic Acids

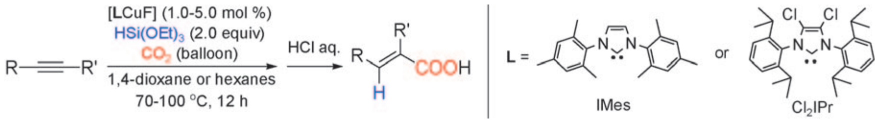


Give me a cyanide: *N*-cyano-*N*-phenyl-*p*-methylbenzenesulfonamide as a cyanation reagent allows the synthesis of aryl-(alkenyl) nitriles in good yield under mild conditions (see scheme; cod = cycloocta-1,5-diene). Combination of the procedure with the direct borylation of arenes and hydroboration of alkynes leads to the straightforward synthesis of various nitriles.

CO_2 Fixation

T. Fujihara, T. Xu, K. Semba, J. Terao,
Y. Tsuji* ———— **523 – 527**

Copper-Catalyzed Hydrocarboxylation of Alkynes Using Carbon Dioxide and Hydrosilanes

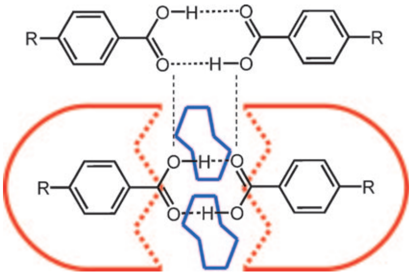


Getting a fix: The copper-catalyzed hydrocarboxylation of alkynes using carbon dioxide in the presence of a hydrosilane, which serves as a reducing agent, has been developed (see scheme). Copper fluorides bearing N-heterocyclic carbene ligands such as IMes and Cl_2IPr show high catalytic activities.

Self-Assembly

D. Ajami, P. M. Tolstoy, H. Dube,
S. Odermatt, B. Koeppe, J. Guo,
H.-H. Limbach,* J. Rebek, Jr.* **528 – 531**

Encapsulated Carboxylic Acid Dimers with Compressed Hydrogen Bonds

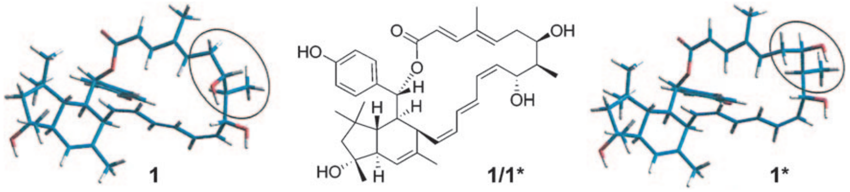


Under pressure: Carboxylic acid dimers enclosed in molecular capsules experience an internal pressure of about 5–10 kbar, which leads to compression of the hydrogen bonds (see scheme).

Structure Elucidation

H. Steinmetz, K. Gerth, R. Jansen,
N. Schläger, R. Dehn, S. Reinecke,
A. Kirschning,* R. Müller* ———— **532 – 536**

Elansolid A, a Unique Macrolide Antibiotic from *Chitinophaga sancti* Isolated as Two Stable Atropisomers

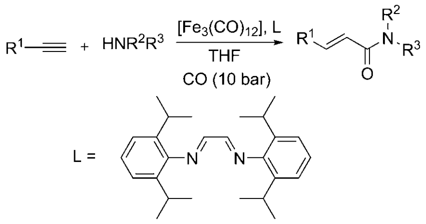


Inflexibility: Elansolid A was isolated from *Chitinophaga sancti* (*Flexibacter sancti*) as the two separable isomers A1 and A2 (**1** and **1***, respectively). Molecular modeling revealed that they are stable atropisomers which are "frozen" by 14 inflexible bonds within the 19-membered macrolide ring. The absolute configuration was established by synthesis of the C1–C11 fragment. Elansolid A2 shows activity against Gram-positive bacteria.

Iron Catalysis

K. M. Driller, S. Prateeptongkum,
R. Jackstell, M. Beller* ______ 537–541

A General and Selective Iron-Catalyzed Aminocarbonylation of Alkynes: Synthesis of Acryl- and Cinnamides

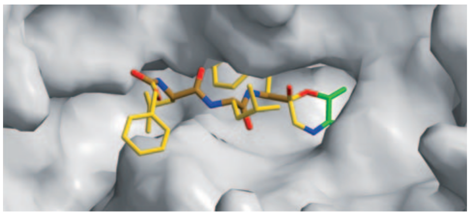


Entering the iron age: The first general method for iron-catalyzed monocarbonylation of alkynes has been developed. A range of structurally diverse cinnamides and acrylamides have been obtained smoothly starting from commercially available amines and alkynes in the presence of [Fe$_3$(CO)$_{12}$] and ligand L (see scheme). The method is highly chemo- and regioselective and requires no expensive catalyst.

Proteasome Inhibition

M. A. Gräwert, N. Gallastegui, M. Stein,
B. Schmidt, P.-M. Kloetzel, R. Huber,
M. Groll* ______ 542–544

Elucidation of the α-Keto-Aldehyde Binding Mechanism: A Lead Structure Motif for Proteasome Inhibition

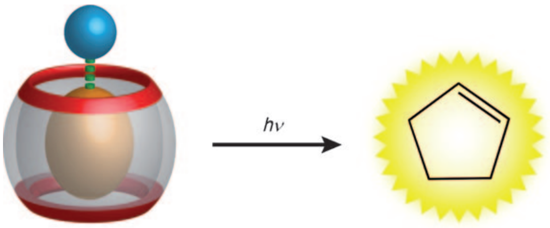


Lead role: The role of peptidyl α-keto aldehydes as proteasome inhibitors is well established, yet their molecular binding mode requires additional investigation (see picture). A cyclization mechanism that proceeds through hemiketal and Schiff base formation with the nucleophilic N-terminal threonine of β5 is shown to result in the reversible formation of a 5,6-dihydro-2*H*-1,4-oxazine ring. This agent serves as a new lead for the development of anticancer drugs.

Nanoreactors

A. L. Koner, C. Márquez, M. H. Dickman,
W. M. Nau* ______ 545–548

Transition-Metal-Promoted Chemoselective Photoreactions at the Cucurbituril Rim

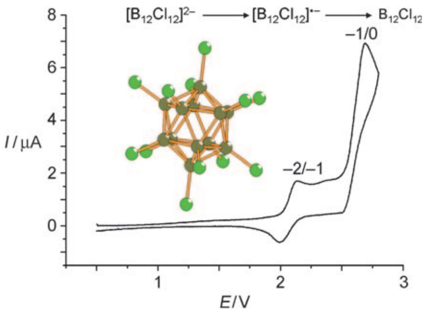


When included in a supramolecular barrel with transition-metal ions as lids, bicyclic azoalkanes undergo phase-selective photolysis to afford new photoproducts and photoproduct distributions. In the presence of the macrocycle cucurbit[7]uril and Ag$^+$ ions, 2,3-diazabicyclo[2.2.1]hept-2-ene forms a ternary host–guest inclusion complex in which the cations are coordinated to the carbonyl rims of the host. Direct photolysis of this ternary complex provides cyclopentene as a new photoproduct.

Contents

Boron Clusters

Strong as an ox: Oxidation of the perchlorinated dodecaborate $[B_{12}Cl_{12}]^{2-}$ by AsF_5 in liquid sulfur dioxide leads to the Jahn–Teller-distorted radical anion $[B_{12}Cl_{12}]^{\bullet-}$ and to neutral $B_{12}Cl_{12}$ (see structure; B brown, Cl green). The formation of both compounds has been verified by a combination of several theoretical and experimental methods (pictured: cyclic voltammogram of $[B_{12}Cl_{12}]^{2-}$ in liquid SO_2).



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