Service

Author Profile

"The greatest scientific advance of the last decade was the decoding of the human genome.
When I was eighteen I wanted to become a chemist, and so I did. …"
This and more about Wolfgang A. Herrmann can be found on page 8148.

News

M. Quack

S. Shaik

G. Meijer

F. Merkt

I. Marek

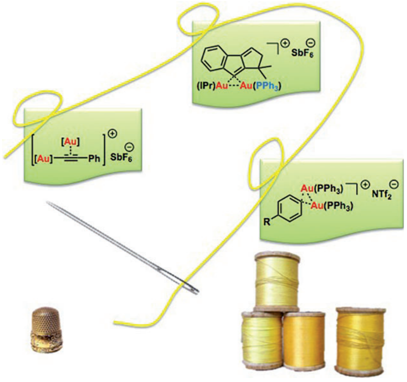
Meeting Reviews

Books

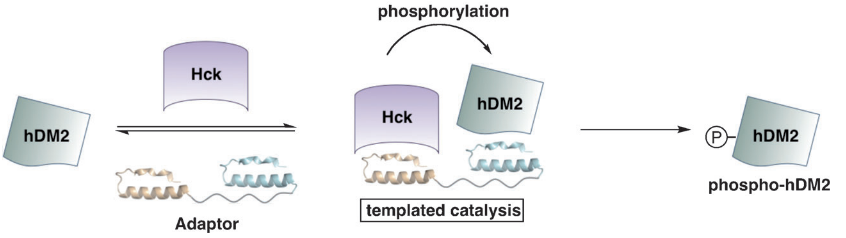
Highlights

Gold Catalysis

A common golden thread: The exact role of dinuclear gold species in catalysis has recently attracted considerable attention. Such well-defined complexes can now be isolated and fully characterized and may assist in elucidating the exact action of gold centers in gold-catalyzed reactions. In view of the latest developments in this area, possibilities now abound in terms of mechanistic exploration and novel catalyst design.



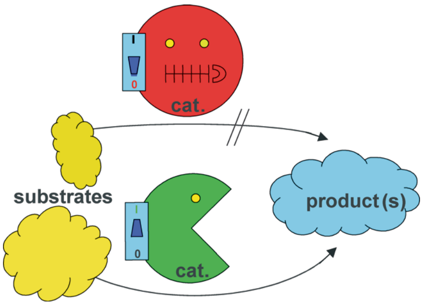
Templated Catalysis



Come together: The joining of two miniature proteins binding different protein targets in a synthetic adaptor protein is a novel way to induce proximity between proteins. The formation of a ternary complex was shown to cause the phosphorylation of a noninherent substrate (hDM2) by the kinase Hck. The approach holds promise to become a genetically encodable system to redirect enzyme activities in vivo.

Homogeneous Catalysis

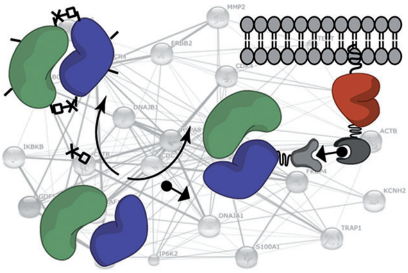
On/off catalysts: Control over catalysis can be gained when the catalysts can be switched between an active and a nonactive state by external stimuli. In recent examples, orthogonal signals—light, pH, or the addition of ions—are used for the switching.



Minireviews

Protein–Protein Interactions

In pairs: The key to understand living systems is enciphered in protein–protein interaction networks. For unraveling its complexity, a potent toolbox of small molecules (cross-linkers and chemical inducers of dimerization) is available to sense and induce the dynamic interaction processes in living cells.

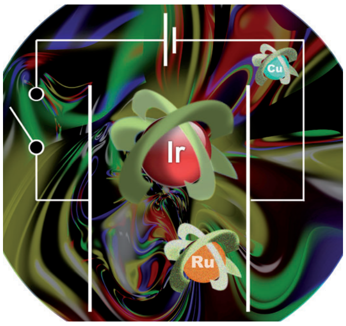


For the USA and Canada: ANGEWANDTE CHEMIE International Edition (ISSN 1433-7851) is published weekly by Wiley-VCH, PO Box 191161, 69451 Weinheim, Germany. Air freight and mailing in the USA by Publications Expediting Inc., 200 Meacham Ave., Elmont, NY 11003. Periodicals postage paid at Jamaica, NY 11431. US POSTMASTER: send address changes to *Angewandte Chemie*, Journal Customer Services, John Wiley & Sons Inc., 350 Main St., Malden, MA 02148-5020. Annual subscription price for institutions: US$ 11.738/10.206 (valid for print and electronic / print or electronic delivery); for individuals who are personal members of a national chemical society prices are available on request. Postage and handling charges included. All prices are subject to local VAT/sales tax.

Reviews

Electroluminescence

LECtric lighting: The expansion of artificial illumination and the need for more efficient appliances is stimulating innovative lighting concepts. Light-emitting electrochemical cells (LECs) based on luminescent transition-metal complexes (see picture) stand out as promising devices for lighting panels, thanks to recent advances in their design, driving conditions, and their overall performance.

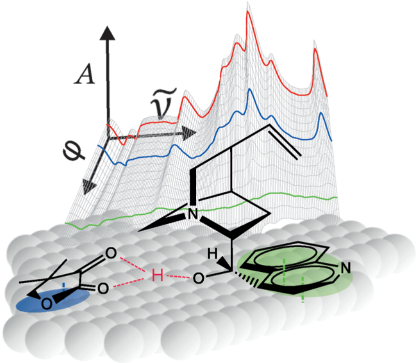


Communications

Asymmetric Catalysis

Frontispiece

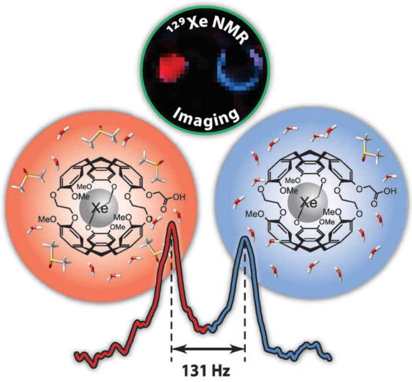
The mighty cinchonidine: A diastereomeric surface complex in the asymmetric hydrogenation of ketopantolactone on chirally modified Pt is monitored by in situ ATR-IR spectroscopy, in combination with modulation excitation spectroscopy and phase-sensitive detection. Cinchonidine bound to the surface with its quinoline ring is shown to induce the chiral environment through a C9–O···H···O=C interaction (see scheme).



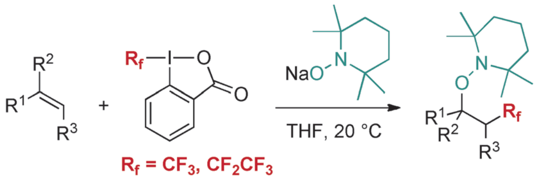
Biosensors

Inside Back Cover

The NMR signal of hyperpolarized ^{129}Xe trapped in cryptophane cages in different solvents experiences different chemical shifts. An encoding method is presented that involves the optimal use of reversible Xe binding and efficiently uses hyperpolarization. This method is utilized in nanomolar imaging, subsecond imaging, and time-resolved studies while maintaining high spectral selectivity.

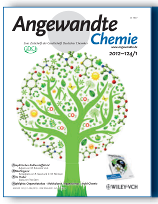


Trifluoromethylation



No transition metal! Fluorinated hypervalent-iodine reagents react with TEMPO-Na in the presence of an alkene under mild conditions to give the corresponding perfluoroalkylaminoxylation products. These radical addition/trapping reactions occur with high stereoselectivity using commercially available reagents, and the product alkoxyamines are readily transformed into the corresponding alcohols.

The German Chemical Society (GDCh) invites you to:



Angewandte 125 JAHRE

Eine Zeitschrift der Gesellschaft Deutscher Chemiker

Angewandte Anniversary Symposium

Tuesday, March 12, 2013

Henry Ford Building / FU Berlin

Speakers

Carolyn R. Bertozzi

François Diederich

Alois Fürstner

Roald Hoffmann (Nobel Prize 1981)

Susumu Kitagawa

Jean-Marie Lehn (Nobel Prize 1987)

E.W. “Bert” Meijer

Frank Schirrmacher (Publisher, *FAZ*)

Robert Schlögl

George M. Whitesides

Ahmed Zewail (Nobel Prize 1999)

More information:

angewandte.org/symposium

Freie Universität Berlin

WILEY-VCH

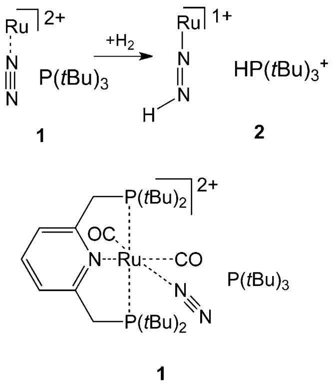
GDCh
Gesellschaft Deutscher Chemiker

PSJ_12_42497_5_gu

N_2 Activation

M. Hölscher,* W. Leitner* **8225 – 8229**

Heterolytic Outer-Sphere Cleavage of H_2 for the Reduction of N_2 in the Coordination Sphere of Transition Metals—A DFT Study

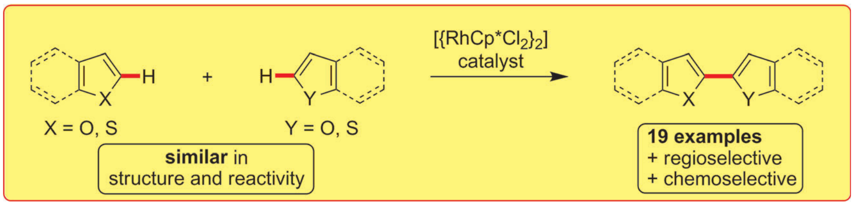


Cleaved by frustration, an H_2 molecule inserts into the void between the components of the frustrated Lewis pair **1**, which consists of a dicationic ruthenium pincer complex as the Lewis acid and $(tBu)_3P$ as the Lewis base. The end-on-coordinated N_2 in **1** accepts the hydride, and this is the initial step, which could, in principle, lead to the complete reduction of N_2 to NH_3.

C–H Activation

N. Kuhl, M. N. Hopkinson, F. Glorius* **8230 – 8234**

Selective Rhodium(III)-Catalyzed Cross-Dehydrogenative Coupling of Furan and Thiophene Derivatives



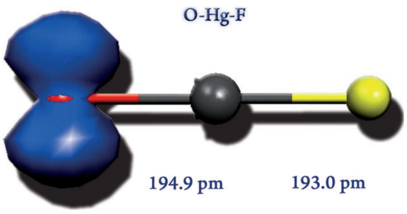
A hot couple: An unprecedented rhodium(III)-catalyzed cross-dehydrogenative coupling (CDC) of various furan and thiophene derivatives leads to valuable 2,2′-bi(heteroaryl) products in good yields and selectivities (see scheme). In addition, pyrroles and indoles can also be used as coupling partners, giving C3-arylated products.

High Oxidation States

L. Andrews, X. Wang, Y. Gong, T. Schlöder, S. Riedel,* M. J. Franger **8235 – 8238**

Spectroscopic Observation of a Group 12 Oxyfluoride: A Matrix-Isolation and Quantum-Chemical Investigation of Mercury Oxyfluorides

Front Cover

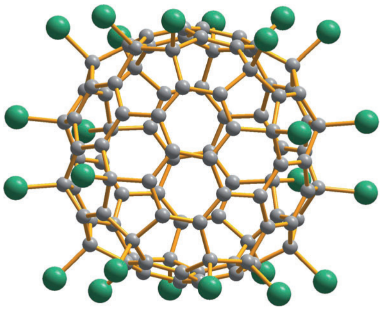


Getting to the root of Hg: Experiments with amalgams as a source for laser-ablated Hg atoms as reaction partners with OF_2 gave strong HgF_2 IR absorptions and new bands in the Hg–F stretching region for OHgF and FOHgF molecules trapped in solid neon and argon. Assignment of these new bands to the first oxyfluoride of mercury, OHgF, and to the FOHgF insertion product is supported by quantum-chemical methods.

Higher Fullerenes

S. F. Yang,* T. Wei, E. Kemnitz, S. I. Troyanov* **8239 – 8242**

Four Isomers of C_{96} Fullerene Structurally Proven as $C_{96}Cl_{22}$ and $C_{96}Cl_{24}$

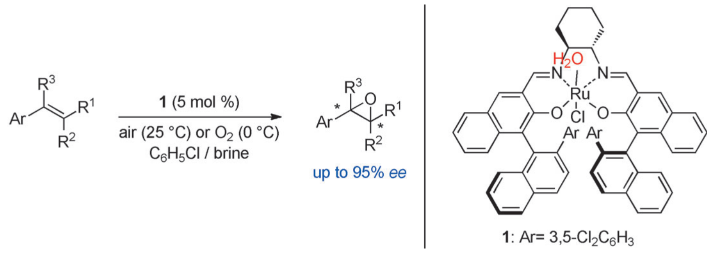


Direct proof of the cage connectivities of four isomers of C_{96}, the highest isolable empty fullerene, has been achieved. C_{96} fractions, which were isolated from fullerene soot by recycling HPLC, were chlorinated and the resulting single crystals of $C_{96}Cl_{22}$ and $C_{96}Cl_{24}$ were studied by X-ray diffraction using synchrotron radiation. D_2-$C_{96}(183)Cl_{24}$ (see structure; gray C, green Cl) was obtained in two crystalline modifications.

Asymmetric Catalysis

S. Koya, Y. Nishioka, H. Mizoguchi,
T. Uchida, T. Katsuki* ______ **8243 – 8246**

Asymmetric Epoxidation of Conjugated Olefins with Dioxygen



1: Ar= 3,5-Cl$_2$C$_6$H$_3$

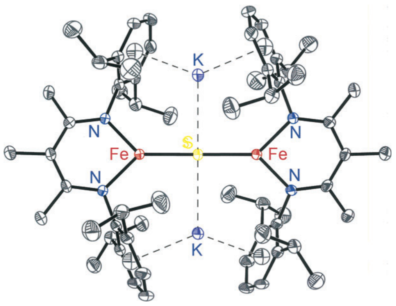
A complex situation: Asymmetric epoxidation of conjugated olefins was achieved at room temperature using ruthenium complex **1** as the catalyst and air as the oxidant to give epoxides in up to 95 % *ee* (see scheme). When the product was acid sensitive, the reaction was carried out at 0 °C under oxygen.

Iron–Sulfur Clusters

M. M. Rodriguez, B. D. Stubbert,
C. C. Scarborough, W. W. Brennessel,
E. Bill,* P. L. Holland* ______ **8247 – 8250**

Isolation and Characterization of Stable Iron(I) Sulfide Complexes

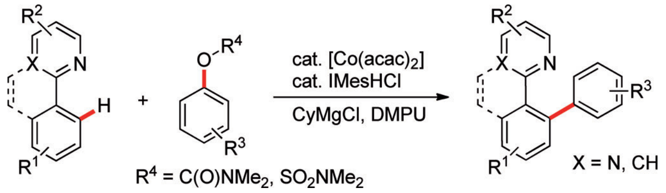
The first examples of iron(I) sulfide complexes are presented, in contrast with the +2 and +3 oxidation states that are well-known in synthetic and biological systems. Spectroscopic and computational studies show a high-spin d^7 configuration at the metal. Alkali metal cations play a key role in supporting the unusually low oxidation state.



Biaryl Synthesis

W. Song, L. Ackermann* ______ **8251 – 8254**

Cobalt-Catalyzed Direct Arylation and Benzylation by C–H/C–O Cleavage with Sulfamates, Carbamates, and Phosphates

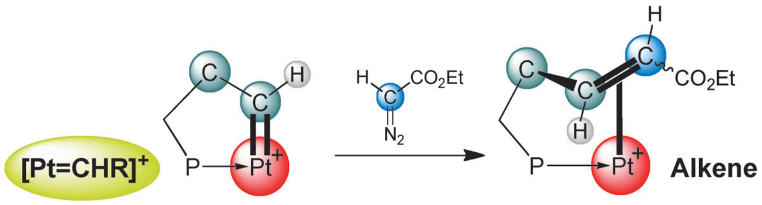


Inexpensive cobalt catalysts enable the first direct arylation and benzylation of (hetero)arenes with aryl carbamates, sulfamates, and phosphates with ample scope. The non-radical C–H/C–O arylation reaction even proved viable at ambient temperature.

Organometallic Chemistry

J. Campos, R. Peloso,
E. Carmona* ______ **8255 – 8258**

Synthesis and Reactivity of a Cationic Platinum(II) Alkylidene Complex

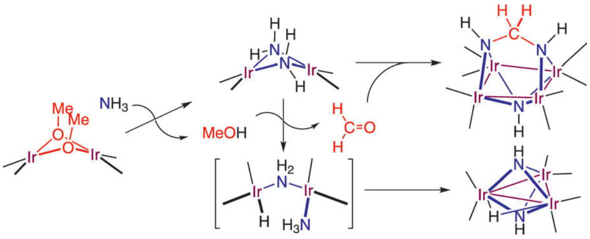


Often proposed, hard to catch: The bis(platinacycle) *trans*-[Pt{P[2,6-(CH$_2$)-(Me)C$_6$H$_3$]*i*Pr$_2$}$_2$] experiences α-hydride abstraction by action of Ph$_3$C$^+$PF$_6^-$ to yield a *trans*-alkyl–alkylidene species. The electrophilicity of its {Pt=CH}$^+$ unit is demonstrated by ylide formation by reaction with Lewis bases, stepwise hydrogenation, and carbene cross-coupling with N$_2$C(H)CO$_2$Et (see scheme).

Amido/Imido Complexes

I. Mena, M. A. Casado,* V. Polo, P. García-Orduña, F. J. Lahoz, L. A. Oro* ———— **8259 – 8263**

The Dehydrogenation of Alcohols through a Concerted Bimetallic Mechanism Involving an Amido-Bridged Diiridium Complex

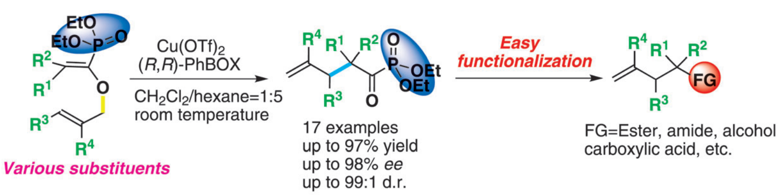


From amido to imido: A dinuclear amido-bridged iridium complex promotes the dehydrogenation of alcohols, affording unusual mixed amido/imido Ir_4 and bis(imido) Ir_3 clusters. Theoretical calculations suggest that bridging μ-NH_2 linkages are crucial to achieve the formation of hydrido amine diiridium species, as a result of a concerted net hydrogen transfer through a proposed eight-membered dimetallacycle.

Asymmetric Catalysis

J.-J. Tan, C.-H. Cheon, H. Yamamoto* ———— **8264 – 8267**

Catalytic Asymmetric Claisen Rearrangement of Enolphosphonates: Construction of Vicinal Tertiary and All-Carbon Quaternary Centers

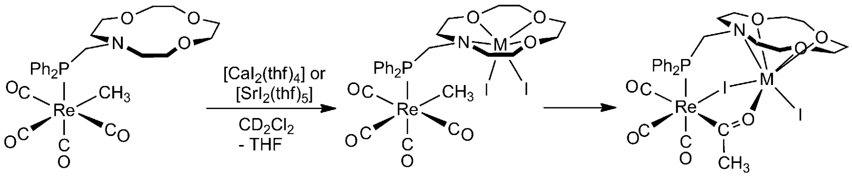


A copper-catalyzed enantioselective Claisen rearrangement of easily accessible enolphosphonates using the commercially available PhBOX as the chiral ligand was developed. A wide range of rearrangement products with contiguous tertiary and all-carbon quaternary centers were obtained in excellent yields and stereoselectivities. The α-ketophosphonate substituent in the products could be easily transformed into other functional groups.

Alkyl Migration

A. Hazari, J. A. Labinger,* J. E. Bercaw* ———— **8268 – 8271**

A Versatile Ligand Platform that Supports Lewis Acid Promoted Migratory Insertion

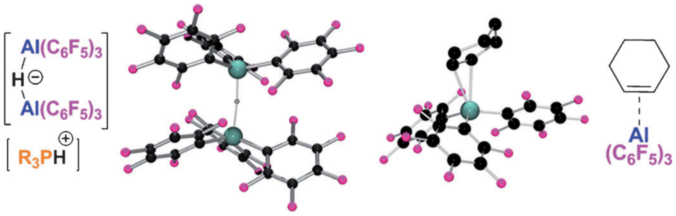


A helping hand: Incorporation of Group 2 Lewis acids into a macrocycle appended to a phosphine ligand attached to a rhenium carbonyl complex promotes otherwise unfavorable transformations of coordinated CO (see scheme; M = Ca, Sr). These Lewis acids form relatively weak M—O bonds, thereby enabling release of organic products from the metal center.

Frustrated Lewis Pairs

G. Ménard, D. W. Stephan* ———— **8272 – 8275**

H_2 Activation and Hydride Transfer to Olefins by $Al(C_6F_5)_3$-Based Frustrated Lewis Pairs



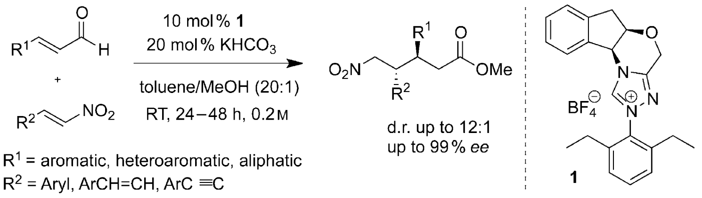
Frustrated delivery: Frustrated Lewis pairs derived from tBu_3P and $Al(C_6F_5)_3$ activate H_2 to give $[tBu_3PH][(\mu\text{-}H)(Al(C_6F_5)_3)_2]$, which reacts with unactivated olefins to give $RAl(C_6F_5)_2$ (R = Et or Cy) and $[tBu_3PH][Al(C_6F_5)_4]$. The proposed mechanism involves olefin activation by aluminum, which is supported by the isolation of the cyclohexene complex $[Al(C_6F_5)_3\cdot(C_6H_{10})]$.

Synthetic Methods

B. Maji, L. Ji, S. Wang, S. Vedachalam,
R. Ganguly, X.-W. Liu* **8276 – 8280**

N-Heterocyclic Carbene Catalyzed Homoenolate-Addition Reaction of Enals and Nitroalkenes: Asymmetric Synthesis of 5-Carbon-Synthon δ-Nitroesters

Synthesizing synthons: The highly enantioselective title reaction is described. It employs catalytic amounts of N-heterocyclic carbene precursors and transforms a broad range of nitroalkenes, such as nitrodienes, nitroenynes, and nitrostyrenes, through reaction with a broad range of enals, into δ-nitroesters via homoenolate intermediates (see scheme).



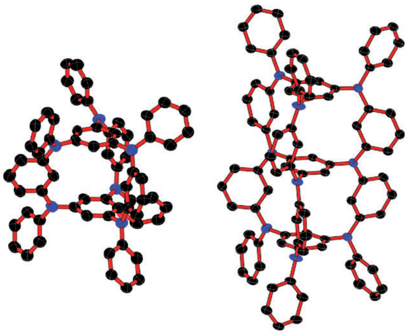
R^1 = aromatic, heteroaromatic, aliphatic
R^2 = Aryl, ArCH=CH, ArC≡C

Macrocycles

D. Sakamaki, A. Ito,* K. Tanaka,
K. Furukawa, T. Kato,
M. Shiro **8281 – 8285**

1,3,5-Benzenetriamine Double- and Triple-Decker Molecules

Double- and triple-decker oligoarylamines have been prepared and characterized by X-ray crystallography for the first time (see picture; C black, N blue). The *N*-dianisylaminophenyl-substituted double decker exhibited the multiredox activity, and the oxidized species were confirmed to be in high-spin states on the basis of pulsed ESR spectroscopy.

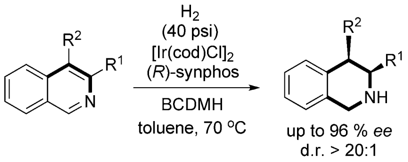


Asymmetric Hydrogenation

L. Shi, Z.-S. Ye, L.-L. Cao, R.-N. Guo, Y. Hu,
Y.-G. Zhou* **8286 – 8289**

Enantioselective Iridium-Catalyzed Hydrogenation of 3,4-Disubstituted Isoquinolines

Reining in the outliers: An efficient approach for enantioselective hydrogenation of 3,4-disubstituted isoquinolines was successfully developed. When isoquinolines are treated with $[Ir(cod)Cl]_2$/(*R*)-synphos in the presence of 1-bromo-3-chloro-5,5-dimethyl-hydantoin (BCDMH), the chiral 3,4-disubstituted tetrahydroisoquinoline derivatives are obtained with *ee* values as high as 96% (see scheme; cod = 1,5-cyclooctadiene).

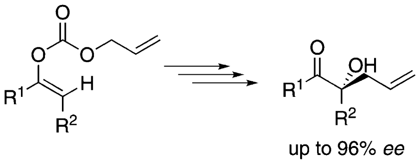


Synthetic Methods

B. M. Trost,* R. Koller,
B. Schäffner **8290 – 8293**

Enantioselective Synthesis of Tertiary α-Hydroxyketones from Unfunctionalized Ketones: Palladium-Catalyzed Asymmetric Allylic Alkylation of Enolates

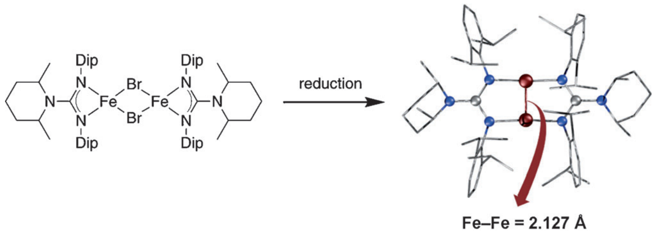
Aiming high: The title reaction for the synthesis of tertiary α-hydroxyketones is reported. Protected 1,2-enediol carbonates, the starting materials, were accessed from simple and readily available enol carbonates. Highly functionalized tertiary α-hydroxyketones can be obtained in high yield with excellent enantioselectivity using this method (see scheme).



Metal–Metal Bonds

L. Fohlmeister, S. Liu, C. Schulten,
B. Moubaraki, A. Stasch, J. D. Cashion,
K. S. Murray, L. Gagliardi,
C. Jones* ______________ **8294 – 8298**

Low-Coordinate Iron(I) and Manganese(I) Dimers: Kinetic Stabilization of an Exceptionally Short Fe–Fe Multiple Bond



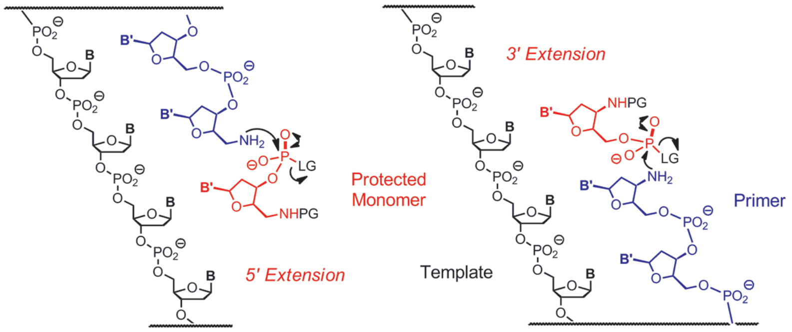
Not just any old iron! The reduction of a bulky guanidinato iron(II) bromide complex yields a three-coordinate iron(I) dimer that possesses the shortest Fe–Fe interaction (2.127 Å) reported to date. Magnetic, Mössbauer, and computational studies show the unprecedented compound to contain two high-spin iron(I) centers with significant multiple-bond character. A related dimer containing a rare example of an unsupported, carbonyl-free Mn–Mn bond is also described.

DNA-Directed Synthesis

A. Kaiser, S. Spies, T. Lommel,
C. Richert* ______________ **8299 – 8303**

Template-Directed Synthesis in 3′- and 5′-Direction with Reversible Termination

Back Cover

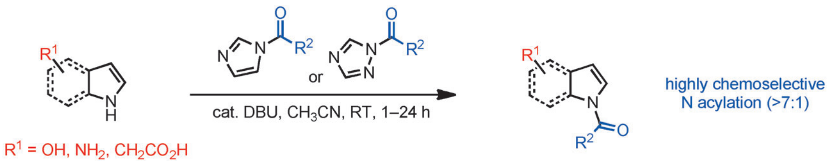


Extending both ways: A method for DNA-templated synthesis on solid support is described. Controlled, stepwise chain extension was demonstrated both in the direction favored by nature (3′-extension; see scheme) and in the direction typical for conventional DNA synthesizers (5′-extension).

Acylation

S. T. Heller, E. E. Schultz,
R. Sarpong* ______________ **8304 – 8308**

Chemoselective N-Acylation of Indoles and Oxazolidinones with Carbonylazoles

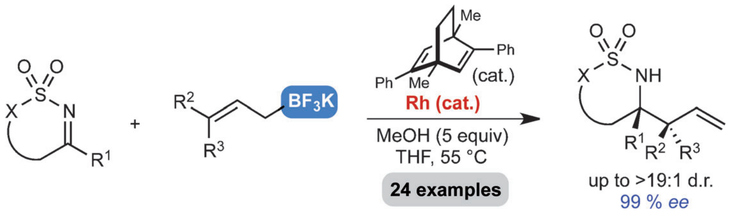


Unique reactivity: In the presence of more reactive amine and alcohol functional groups and of carboxylic acids, the chemoselective N-acylation of indoles (see scheme) and oxazolidinones is achieved by taking advantage of the unique reactivity of carbonylazole acylating agents with catalytic amounts of 1,8-diazabicyclo[5.4.0]undec-7-ene (DBU).

Asymmetric Allylation

Y. Luo, H. B. Hepburn, N. Chotsaeng,
H. W. Lam* ______________ **8309 – 8313**

Enantioselective Rhodium-Catalyzed Nucleophilic Allylation of Cyclic Imines with Allylboron Reagents

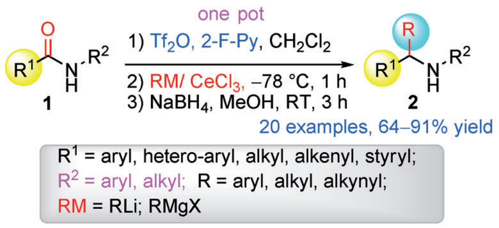


Chiral allylrhodium nucleophiles: The highly diastereo- and enantioselective title reaction of a range of cyclic imines with various potassium allyltrifluoroborates most likely proceeds via allylrhodium(I) intermediates, and represents the first rhodium-catalyzed enantioselective nucleophilic allylation of π electrophiles with allylboron compounds.

Synthetic Methods

K.-J. Xiao, A.-E Wang, P.-Q. Huang* ____________ **8314 – 8317**

Direct Transformation of Secondary Amides into Secondary Amines: Triflic Anhydride Activated Reductive Alkylation

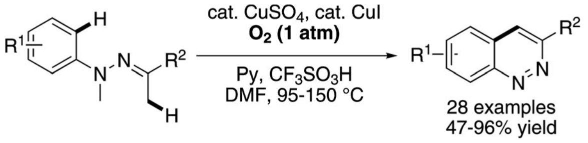


Versatile and mild: The first general method for the title transformation has been developed (see scheme; 2-F-Py = 2-fluoropyridine; Tf = trifluorosulfonyl). The amines are synthesized in good yields and the ketimine intermediates can be isolated before the reduction. This method should find applications in the synthesis of nitrogen-containing bioactive molecules and medicinal agents.

Synthetic Methods

G.-W. Zhang, J.-M. Miao, Y. Zhao, H.-B. Ge* ____________ **8318 – 8321**

Copper-Catalyzed Aerobic Dehydrogenative Cyclization of N-Methyl-N-phenylhydrazones: Synthesis of Cinnolines

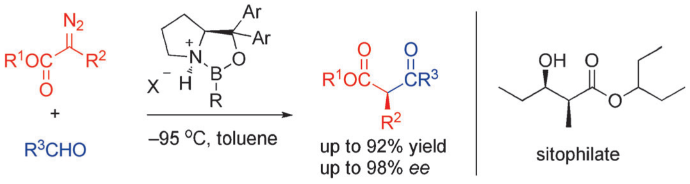


O_2 leading the way: The title reaction proceeds through an oxidation/cyclization sequence, thus representing the first copper-catalyzed coupling reaction of hydrazones through a C_{sp^3}–H bond functionalization process (see scheme; DMF = N,N′-dimethylformamide, Py = pyridine). The method provides an environmentally friendly and atom-efficient approach to biologically active cinnoline derivatives.

Asymmetric Synthesis

L. Gao, B. C. Kang, G.-S. Hwang,* D. H. Ryu* ____________ **8322 – 8325**

Enantioselective Synthesis of α-Alkyl-β-ketoesters: Asymmetric Roskamp Reaction Catalyzed by an Oxazaborolidinium Ion

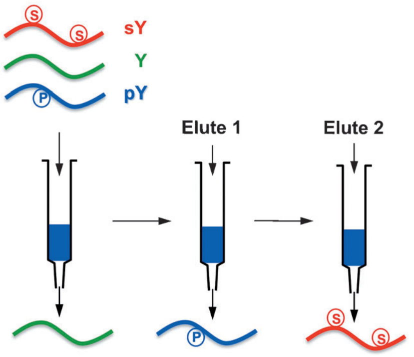


Breaking kamp: A catalytic route toward chiral α-alkyl-β-ketoesters using the title reaction of α-alkyl diazoester with aldehydes has been developed (see scheme). The reaction proceeds with high to excellent enantioselectivities and this methodology was applied to a concise two-step synthesis of the natural pheromone sitophilate.

Artificial Receptors

S. Shinde, A. Bunschoten, J. A. W. Kruijtzer, R. M. J. Liskamp, B. Sellergren* ____________ **8326 – 8329**

Imprinted Polymers Displaying High Affinity for Sulfated Protein Fragments

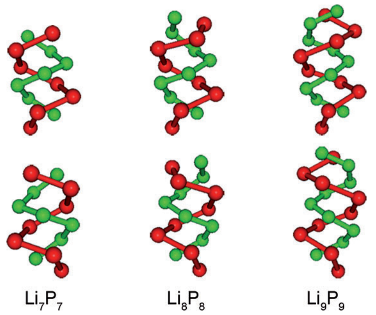


Leaving a lasting impression: Molecularly imprinted polymers (MIPs) featuring neutral binding sites for phosphotyrosine (P) is also shown to have affinity for sulfotyrosine (S) and a sulfotyrosine-containing peptide. The MIPs were capable of selectively capturing both a phosphorylated and a sulfated peptide in a mixture and could release the peptides separately based on elution conditions.

Helical Structures

A. S. Ivanov, A. J. Morris, K. V. Bozhenko,
C. J. Pickard, A. I. Boldyrev* **8330 – 8333**

Inorganic Double-Helix Structures of Unusually Simple Lithium–Phosphorus Species

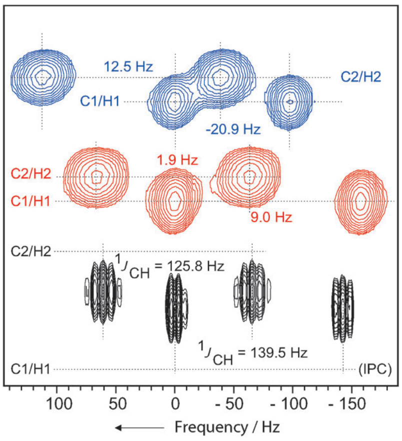


Theoretical evidence: The existence of inorganic double-helix structures at the atomic level is theoretically predicted. An unbiased quantum-chemical search for the global minimum structures of Li_xP_x ($x = 5$–9) species is performed. For the Li_7P_7–Li_9P_9 stoichiometries the global minimum structure has a peculiar double-helix form.

NMR Spectroscopy

N.-C. Meyer, A. Krupp, V. Schmidts,
C. M. Thiele, M. Reggelin* **8334 – 8338**

Polyacetylenes as Enantiodifferentiating Alignment Media

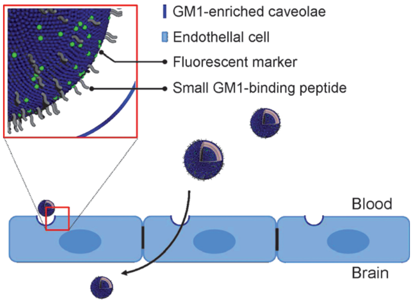


Orientation help: Valine-derived polyacetylenes are introduced as enantiomer-differentiating alignment media. The F2-coupled HSQC-type NMR spectra of both enantiomers of isopinocampheol (IPC) display narrow line widths allowing for the precise extraction of residual dipolar couplings (black contour plot: (+)-IPC in an isotropic phase, blue: (−)-IPC in an anisotropic phase, and red: (+)-IPC in an anisotropic phase; J = coupling constant).

Drug Delivery

J. V. Georgieva, R. P. Brinkhuis,
K. Stojanov, C. A. G. M. Weijers,
H. Zuilhof, F. P. J. T. Rutjes, D. Hoekstra,
J. C. M. van Hest,*
I. S. Zuhorn* **8339 – 8342**

Peptide-Mediated Blood–Brain Barrier Transport of Polymersomes

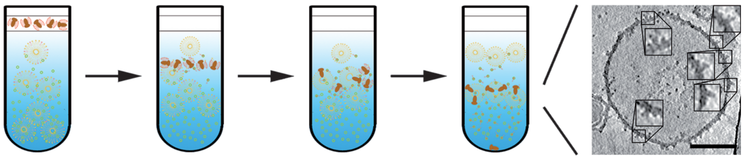


A polymeric nanocarrier: Polymersomes tagged with a dodecamer peptide that recognizes gangliosides GM1 and GT1b are shown to cross the blood–brain barrier, both in an in vitro model and in vivo (see picture). The combination of polymeric vesicles with a small GM1-binding peptide and GM1/GT1b gangliosides as targeting sites for blood–brain barrier transport is unprecedented.

Membrane Proteins

T. Althoff, K. M. Davies, S. Schulze,
F. Joos, W. Kühlbrandt* **8343 – 8347**

GRecon: A Method for the Lipid Reconstitution of Membrane Proteins



Density gradients with increasing concentrations of cyclodextrin and detergent-destabilized liposomes are loaded with detergent-solubilized membrane proteins in a new approach for reconstituting membrane proteins. During centrifugation, the detergent is gradually replaced by the lipid. This gentle method separates proteoliposomes from empty liposomes and is particularly suitable for the lipid reconstitution of large, fragile membrane proteins.

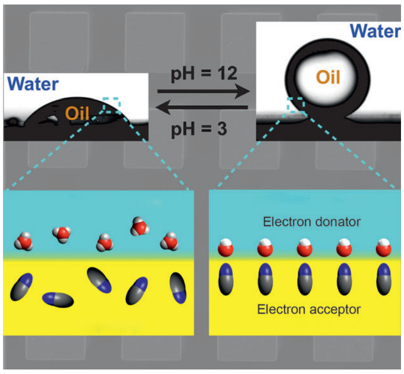
Surface Chemistry

M. Liu, Z. Xue, H. Liu,
L. Jiang* ________________ **8348 – 8351**

Surface Wetting in Liquid–Liquid–Solid Triphase Systems: Solid-Phase-Independent Transition at the Liquid–Liquid Interface by Lewis Acid–Base Interactions

Inside Cover

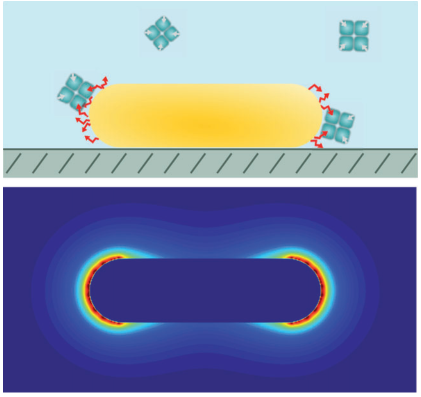
Interfacial phenomena: A solid-phase-independent strategy for tuning the surface wettability is presented. Lewis acid–base interactions at the oil–water interface can greatly decrease the liquid–liquid interfacial tension and induce oleophilic to superoleophobic wetting transition on a nonresponsive microstructured surface (see picture).



Surface Chemistry

P. Zijlstra, P. M. R. Paulo, K. Yu, Q.-H. Xu,
M. Orrit* ________________ **8352 – 8355**

Chemical Interface Damping in Single Gold Nanorods and Its Near Elimination by Tip-Specific Functionalization

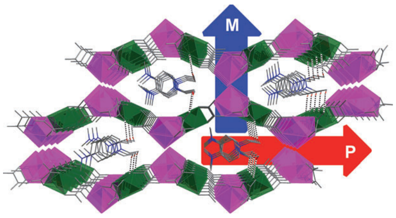


Tip-functionalized nanorods: Single-particle spectroscopy shows that functionalization of small gold nanorods with thiol groups leads to a broadening of the plasmon resonance by chemical interface damping. By specifically functionalizing the tips of the nanorod (see picture) this broadening is nearly eliminated while the sensing performance is maintained relative to fully functionalized particles.

Multiferroics

E. Pardo, C. Train,* H. Liu,
L.-M. Chamoreau, B. Dkhil, K. Boubekeur,
F. Lloret, K. Nakatani, H. Tokoro,
S. Ohkoshi, M. Verdaguer* _ **8356 – 8360**

Multiferroics by Rational Design: Implementing Ferroelectricity in Molecule-Based Magnets

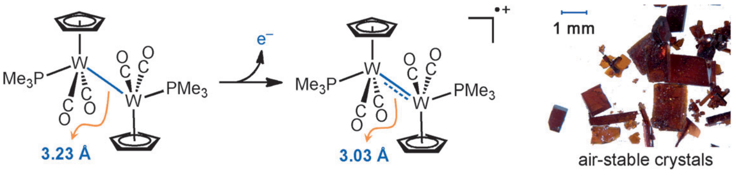


Multiferroic materials: A novel class of multiferroics based on organic–inorganic hybrid materials is synthesized. The ferromagnetic properties originate from the coordination network, whereas the ferroelectricity results from the polar organic ions (see picture, M = magnetization and P = polarization).

Dinuclear Metalloradicals

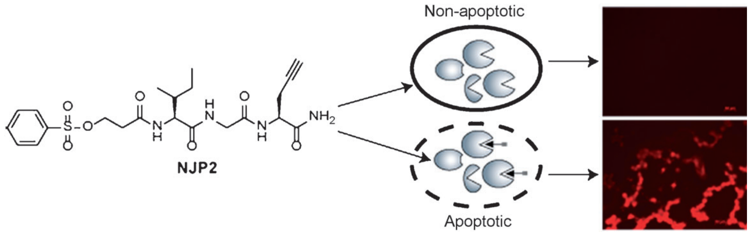
E. F. van der Eide, P. Yang,* E. D. Walter,
T. Liu, R. M. Bullock* ______ **8361 – 8364**

Dinuclear Metalloradicals Featuring Unsupported Metal–Metal Bonds



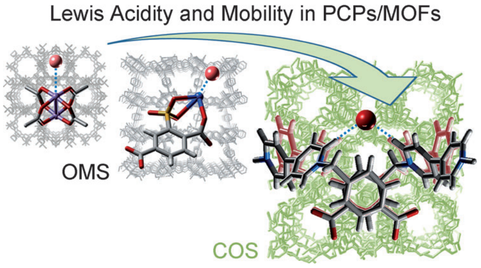
No support required: Unlike the unobservable radical cations $[\{CpM(CO)_3\}_2]^{\bullet +}$ (M = W, Mo), derivatives $[\{CpM(CO)_2(PMe_3)\}_2]^{\bullet +}$ are stable enough to be isolated and characterized. Experimental and theoretical studies show that the shortened M–M bonds are of order $1^1/_2$, and that they are not supported by bridging ligands. The unpaired electron is delocalized over the M–M cores, with a spin density of about 45 % on each metal atom.

Peptide Inhibitor



On (cell) suicide watch: The increased permeability of apoptotic cells was used to identify a peptide-based, covalent inhibitor (NJP2) for glutathione S-transferase omega (GSTO1) that is highly selective for apoptotic cells, with no inhibition of healthy cells (see scheme). This apoptosis-specific peptide could also be used for imaging programmed cell death.

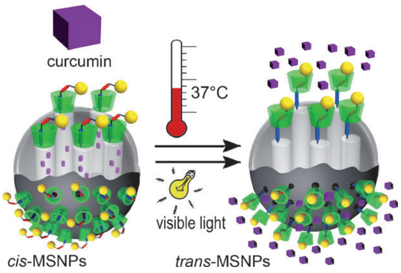
Structure Elucidation



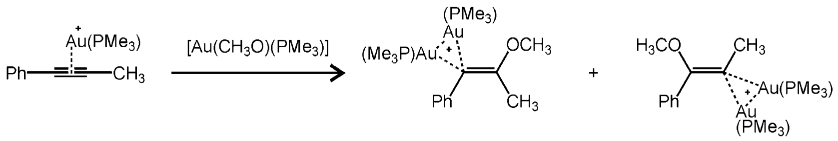
Charged up: A novel porous coordination polymer with a charged organic surface (COS) comprising a zwitterionic organic linker, viologen, has been synthesized. The COS shows strong Lewis acidity accompanied with flexibility, and the isosteric heat of H_2 adsorption is 9.5 kJ mol^{-1}, which is comparable to that of open metal sites (OMSs).

Controlled Release

Release me! A new class of photothermal-responsive [2]rotaxane-appended mesoporous silica nanoparticles (MSNPs) was developed. Remote-controlled movement of the α-cyclodextrin ring (green) upon *trans*–*cis* isomerization of the azobenzene axle (red) enables the loading and release of drugs on demand (see scheme). Curcumin-loaded MSNPs were shown to release curcumin into zebrafish larvae upon treatment with visible light or heat.

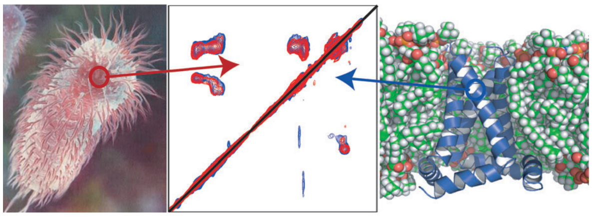


Gold Catalysis



The gold(I)-mediated reaction between an internal alkyne and methanol proceeds by a dual activation mechanism, which directly results in formation of *gem*-diaurated intermediates. Reaction intermediates were investigated by IR multiphoton dissociation spectroscopy, kinetics by NMR spectroscopy, and the mechanism by DFT calculations.

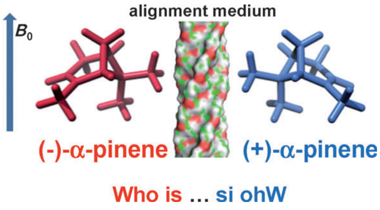
Protein NMR Spectroscopy



Validation: Membrane protein structures are sensitive to the environment used for structural characterization. NMR spectra of the full-length M2 proton channel from influenza A were measured directly in *E. coli* membranes and compared to spectra of the protein in synthetic lipid bilayers. The results demonstrate that these bilayers provide a native-like membrane environment.

And Finally

Absolute Configuration



Insensitive towards inversion: Can residual dipolar couplings (RDCs) and other anisotropic NMR observables be used to determine absolute configuration? A critical assessment of recent approaches is provided to determine the absolute configuration from RDCs.

Supporting information is available on www.angewandte.org (see article for access details).

A video clip is available as Supporting Information on www.angewandte.org (see article for access details).

This article is available online free of charge (Open Access).

This article is accompanied by a cover picture (front or back cover, and inside or outside).