Service

Author Profile

"When I was eighteen I wanted to be a chemical engineer. Looking back over my career, I am hopeful, based on the progress achieved so far, that molecular sieve films will become a widespread energy-efficient separation technology. ..."
This and more about Michael Tsapatsis can be found on page 8926.

News

R. W. Hoffmann

J. Pérez-Ramírez

G. Hutchings

T. Tatsumi

Obituaries

Thomas Kauffmann (1924–2012)

The Kauffmann olefination for the transformation of keto groups with alkyl tungsten complexes into vinyl groups and the Kauffmann dimerization of organic groups by transfer to copper halides with subsequent thermolysis or oxidation are linked with Thomas Kauffmann, Emeritus Professor at the University of Münster, who passed away in February 2012.

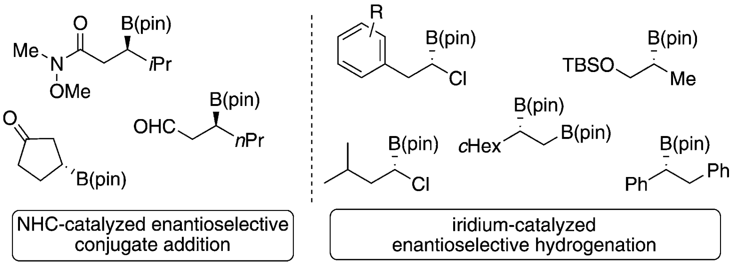
Books

Introduction to Strategies for Organic Synthesis

Laurie S. Starkey

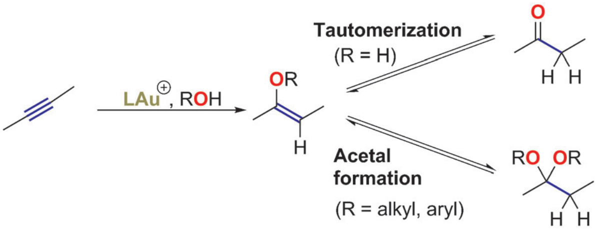
Highlights

Asymmetric Catalysis



With or without you: Chiral secondary alkylboronates can now be accessed by highly enantioselective catalytic methods including conjugate addition under metal-free conditions with an NHC catalyst, and also iridium-catalyzed hydrogenation. These methods reinforce the potential of secondary alkylboronates as ideal and universal chiral building blocks for bond formation to sp^3 carbon atoms.

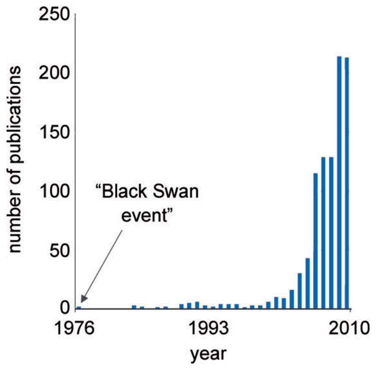
Homogeneous Catalysis



Fields of gold: Recent developments in the field of gold catalysis, using an alkyne as a carbonyl equivalent is becoming an important chemical transformation, thus providing flexibility in synthetic planning of complex and sensitive natural products. Understanding of the reaction and new catalyst designs are providing new conditions that are amenable for late-stage synthetic intermediates.

Essays

Organic Synthesis



When a research area "goes viral", the event typically occurs in conjunction with a major change in "conventional wisdom". In retrospect, the literature often contains earlier hints that the original judgment was not correct. These antecedents are referred to as "Black Swan" events. The picture shows research on homogeneous gold catalysis "going viral".

For the USA and Canada:
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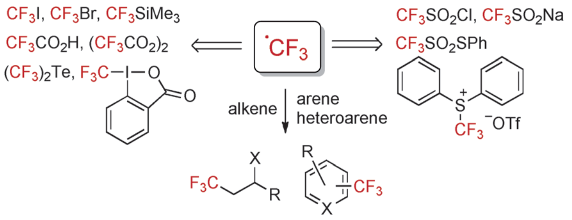
Minireviews

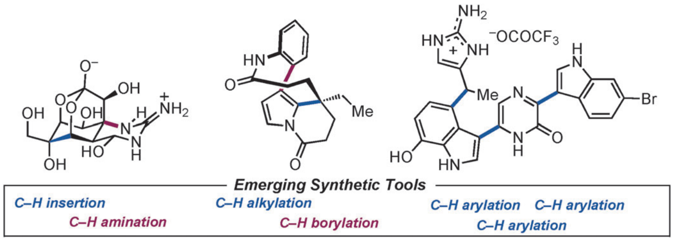
Trifluoromethylation



A privileged moiety, the CF_3 substituent can be found in many drugs, drug candidates, and agrochemicals. This Minireview highlights recent developments in the radical trifluoromethylation of alkenes and arenes. Important older contributions are also discussed.

Reviews

Synthetic Strategy



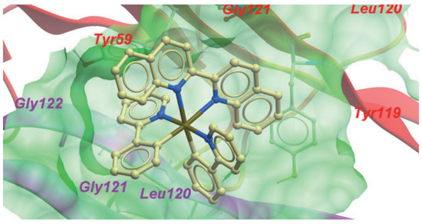
The ideal case: The direct functionalization of C–H bonds in organic compounds has recently emerged as a powerful and ideal method for the formation of carbon–carbon and carbon–heteroatom bonds. This Review provides an overview of C–H functionalization strategies for the rapid synthesis of biologically active compounds such as natural products and pharmaceutical targets.

Front Cover

Communications

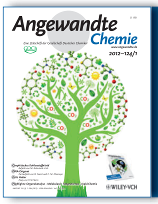
Bioorganometallic Chemistry

Staying in the pocket: A cyclometalated iridium(III) biquinoline complex targets the protein–protein interface (see picture; C yellow, N blue, Ir dark green) of the tumor necrosis factor-α (TNF-α) trimer. Molecular-modeling studies confirm the nature of this interaction. Both enantiomers of the iridium complex display comparable in vitro potency to the strongest small-molecule inhibitor of TNF-α.



Frontispiece

The German Chemical Society (GDCh) invites you to:



Angewandte Anniversary Symposium

125 JAHRE

Eine Zeitschrift der Gesellschaft Deutscher Chemiker

GDCh

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

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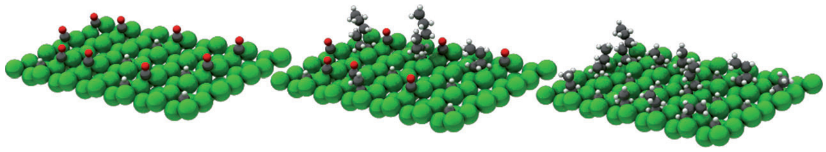
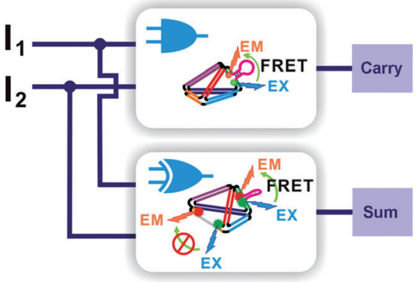
Heterogeneous Catalysis



Long carbon chains: Self-assembly of monomeric carbon intermediates into long-chain hydrocarbons on catalytically reactive surface (see picture) was studied when full reversibility of the chain growth is included in the kinetic model. Using Brønsted–Evans–Polanyi relations, the maximum chain growth as a function of the surface reactivity is predicted.

Inside Cover

DNA Computing

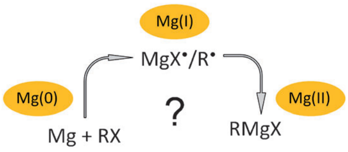


Right out of the (logic) gate: Logic gates made from 3D DNA nanotetrahedra were constructed that are responsive to various ions, small molecules, and short strands of DNA. By including dynamic sequences in one or more edges of the tetrahedra, a FRET signal can be generated in the manner of AND, OR, XOR, and INH logic gates, as well as a half-adder circuit (see scheme). These DNA logic gates were also applied to intracellular detection of ATP.

Inside Back Cover

Radical Reactions

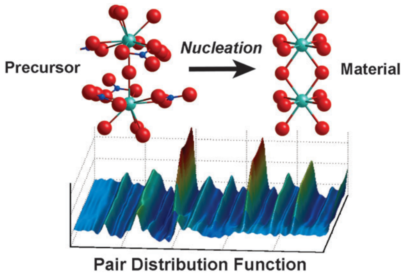
Magnesium bromide radicals have to be prepared as high-temperature molecules and trapped as a metastable solution because a seemingly simple reduction of donor-free Grignard compounds failed. However, the essential role of magnesium(I) species during the formation of Grignard compounds could be demonstrated experimentally.



Back Cover

Crystal Growth

Supercritical growth: The formation and evolution of ceria nanoparticles during hydrothermal synthesis was investigated by in situ total scattering and powder diffraction. The nucleation of pristine crystalline ceria nanoparticles originated from previously unknown cerium dimer complexes. The nanoparticle growth was highly accelerated under supercritical conditions.

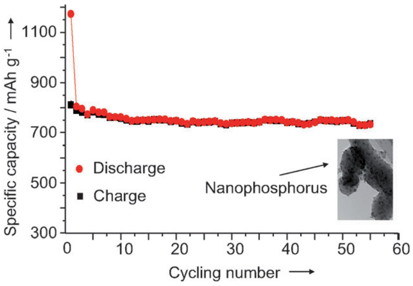


Lithium Batteries

L. Wang, X. M. He,* J. J. Li, W. T. Sun,
J. Gao, J. W. Guo, C. Y. Jiang **9034 – 9037**

Nano-Structured Phosphorus Composite as High-Capacity Anode Materials for Lithium Batteries

More than LiP service: The adsorption of red phosphorus into porous carbon provides a composite anode material for lithium-ion batteries. The amorphous nano phosphorus, in the carbon matrix, shows highly reversible lithium storage with high coulombic efficiencies and stable cycling capacity of 750 mAh per gram composite (see picture).

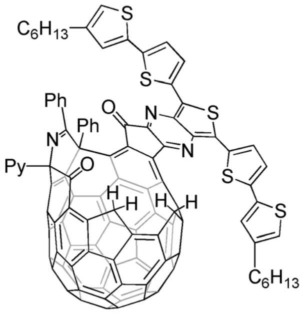


Fullerenes

Z. Xiao, G. Ye, Y. Liu, S. Chen, Q. Peng,*
Q. Zuo, L. Ding* ________ **9038 – 9041**

Pushing Fullerene Absorption into the Near-IR Region by Conjugately Fusing Oligothiophenes

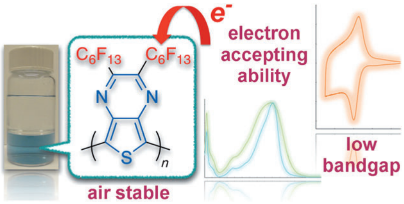
Fusing two in one: The π-electron systems of fullerene and an oligothiophene were conjugately fused by an open-cage process. This led to novel fullerene–oligothiophene chromophores with significantly enhanced light-absorbing capability, which covers a wide spectral range. The fullerene band gap could be tuned to about 1 eV by a chemical approach.



Molecular Devices

Y. Takeda, T. L. Andrew, J. M. Lobez,
A. J. Mork, T. M. Swager* __ **9042 – 9046**

An Air-Stable Low-Bandgap n-Type Organic Polymer Semiconductor Exhibiting Selective Solubility in Perfluorinated Solvents

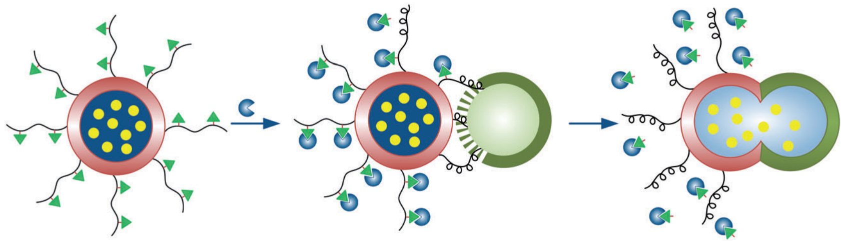


A thin-film transistor: An n-type polymer semiconductor, poly(2,3-bis(perfluorohexyl)thieno[3,4-*b*]pyrazine), was synthesized through a Pd-catalyzed polycondensation employing a perfluorinated multiphase solvent system. This is the first example of an n-type polymer semiconductor with exclusive solubility in fluorinated solvents. The fabrication of organic field effect transistors containing this new n-type polymer semiconductor is shown (see picture).

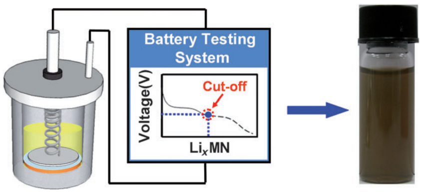
Drug Delivery

J. P. M. Motion, J. Nguyen,
F. C. Szoka* ____________ **9047 – 9051**

Phosphatase-Triggered Fusogenic Liposomes for Cytoplasmic Delivery of Cell-Impermeable Compounds



License to fuse! A phosphorylated fusion peptide can mediate membrane fusion when the phosphates (green triangles, see scheme) are removed by phosphatases (blue spheres), delivering the contents of the liposome into the cytosol. This phosphatase-triggered approach may be useful to create target-specific lipid nanocarriers.

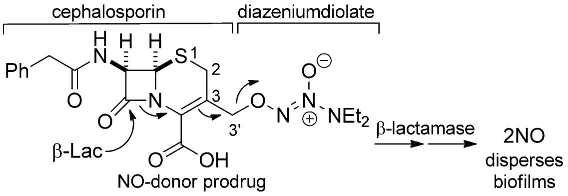


Intercalation and exfoliation of lithium: Few-layer-thick inorganic nanosheets (BN, $NbSe_2$, WSe_2, Sb_2Se_3, and Bi_2Te_3) have been prepared from their layered bulk precursors by using a controllable electrochemical lithium intercalation process (see picture). The lithium intercalation conditions, such as cut-off voltage and discharge current, have been systematically studied and optimized to produce high-quality BN and $NbSe_2$ nanosheets.

Nanosheets

Z. Y. Zeng, T. Sun, J. X. Zhu, X. Huang, Z. Y. Yin, G. Lu, Z. X. Fan, Q. Y. Yan, H. H. Hng, H. Zhang* ―― **9052 – 9056**

An Effective Method for the Fabrication of Few-Layer-Thick Inorganic Nanosheets

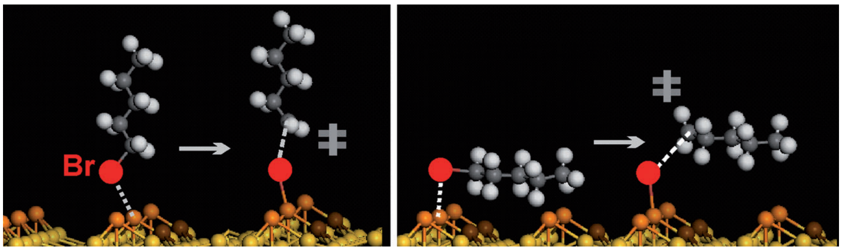


Just say NO to biofilms: NO-donors are used to disperse a bacterial biofilm so that co-administered antibiotics will kill the more susceptible unattached cells. The chemically stable cephalosporin-3′-diazeniumdiolate NO-donor prodrug (see scheme) is activated by bacterial β-lactamases and facilitates this two-step biofilm erradication.

Rational Drug Design

N. Barraud, B. G. Kardak, N. R. Yepuri, R. P. Howlin, J. S. Webb, S. N. Faust, S. Kjelleberg, S. A. Rice, M. J. Kelso* ―― **9057 – 9060**

Cephalosporin-3′-diazeniumdiolates: Targeted NO-Donor Prodrugs for Dispersing Bacterial Biofilms

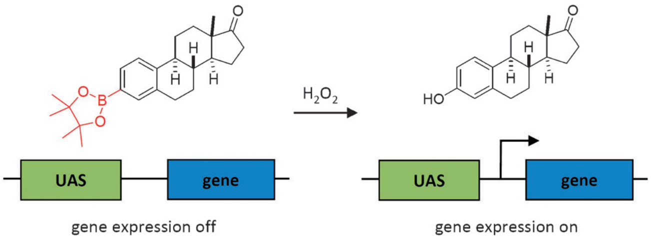


Bromine atom transfer to a silicon surface as a function of physisorbed adsorbate alignment (see picture: left, vertical 1-bromopentane; right, horizontal 1-bromopentane) of 1-bromopropane and 1-bromopentane on Si(111)-7×7 has been studied by STM. In both thermal and electron-induced bromination reactions, the vertical alignment is more reactive.

Surface Science

K. Huang, I. R. McNab, J. C. Polanyi,* J. (S. Y.) Yang ―― **9061 – 9065**

Adsorbate Alignment in Surface Halogenation: Standing Up is Better than Lying Down



Keeping the boron out of the ER: A genetic switch was engineered that activates gene expression in the presence of H_2O_2 (see scheme). The use of a boronate group on an estrone molecule allows for activation of gene expression through binding of the estrogen receptor only when the boron group is oxidized by H_2O_2. This sensor is highly sensitive and specific for H_2O_2.

Reactive Oxygen Species

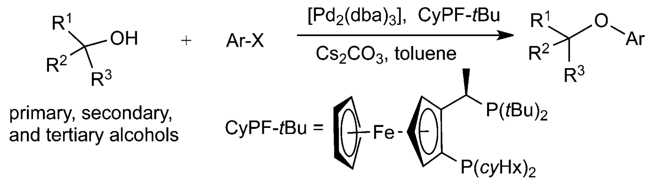
J. M. Govan, A. L. McIver, C. R. Riggsbee, A. Deiters* ―― **9066 – 9070**

Hydrogen Peroxide Induced Activation of Gene Expression in Mammalian Cells using Boronate Estrone Derivatives

Cross-Coupling

P. E. Maligres,* J. Li,* S. W. Krska,
J. D. Schreier, I. T. Raheem* **9071 – 9074**

C–O Cross-Coupling of Activated Aryl and Heteroaryl Halides with Aliphatic Alcohols

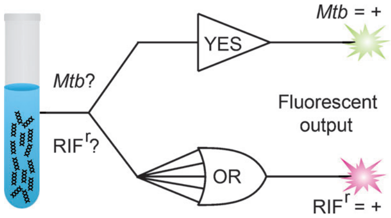


A robust and general catalyst system facilitates the alkoxylation of activated heteroaryl halides with primary, secondary, and select tertiary alcohols without the need for an excess of either coupling partner (see scheme). This catalyst system displays broad functional-group tolerance and excellent regioselectivity, and is insensitive to the order of reagent addition.

DNA Logic Gates

E. M. Cornett, E. A. Campbell, G. Gulenay, E. Peterson, N. Bhaskar,
D. M. Kolpashchikov* ______ **9075 – 9077**

Molecular Logic Gates for DNA Analysis: Detection of Rifampin Resistance in *M. tuberculosis* DNA

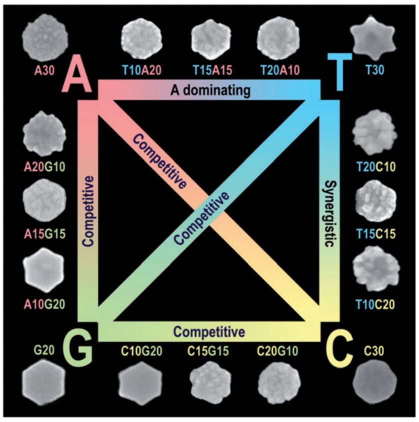


Elementary, Dr. Watson! A combination of YES and OR logic gates was applied to differentiate between DNA sequences of wild-type and rifampin-resistant (Rif^r) *Mycobacterium tuberculosis* (*Mtb*) in a multiplex real-time fluorescent assay.

DNA Nanotechnology

Z. Wang, L. Tang, L. H. Tan, J. Li,
Y. Lu* ______ **9078 – 9082**

Discovery of the DNA "Genetic Code" for Abiological Gold Nanoparticle Morphologies

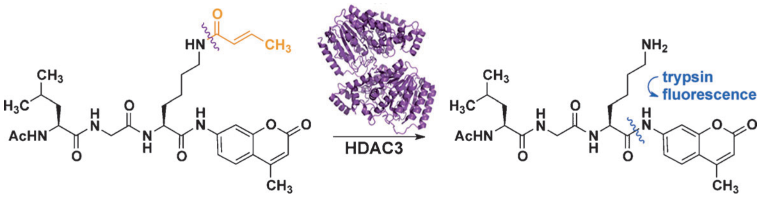


DNA is in control: Different combinations of DNA nucleotides can control the shape and surface roughness of gold nanoparticles during their synthesis. These nanoparticles were synthesized in the presence of either homogenous oligonucleotides or mixed-base oligonucleotides using gold nanoprisms as seeds. The effect of the individual DNA bases and their combinations on shape control are shown in the figure.

Enzyme Substrates

A. S. Madsen, C. A. Olsen* _ **9083 – 9087**

Profiling of Substrates for Zinc-dependent Lysine Deacylase Enzymes: HDAC3 Exhibits Decrotonylase Activity In Vitro

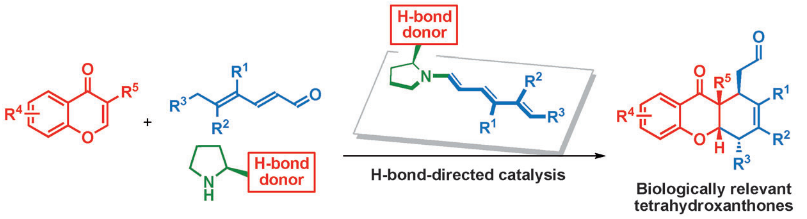


Systematic screening of the activities of the eleven human zinc-dependent lysine deacylases against a series of fluorogenic substrates (see scheme) as well as kinetic evaluation revealed substrates for screenings of histone deacetylases HDAC10 and HDAC11 at reasonably low enzyme concentrations. Furthermore, HDAC3 in complex with nuclear receptor corepressor 1 (HDAC3–NCoR1) was shown to harbor decrotonylase activity in vitro.

Asymmetric Catalysis

Ł. Albrecht, F. Cruz Acosta, A. Fraile,
A. Albrecht, J. Christensen,
K. A. Jørgensen* ________ 9088 – 9092

Enantioselective H-Bond-Directing Approach for Trienamine-mediated Reactions in Asymmetric Synthesis

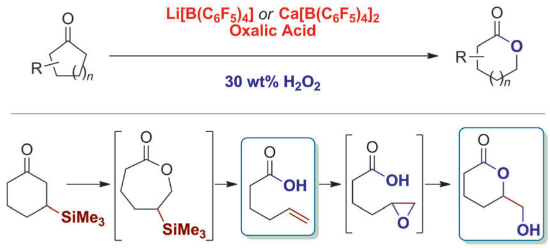


Right direction: The presented enantioselective strategy for the preparation of diversely functionalized tetrahydroxanthones is based on a trienamine-mediated cycloaddition between 2,4-dieneals and activated chromones. It is possibile to control the stereochemical outcome of such reactions by employing an H-bond-directing aminocatalyst.

Synthetic Methods

M. Uyanik, D. Nakashima,
K. Ishihara* ________ 9093 – 9096

Baeyer–Villiger Oxidation and Oxidative Cascade Reactions with Aqueous Hydrogen Peroxide Catalyzed by Lipophilic Li[B(C_6F_5)$_4$] or Ca[B(C_6F_5)$_4$]$_2$

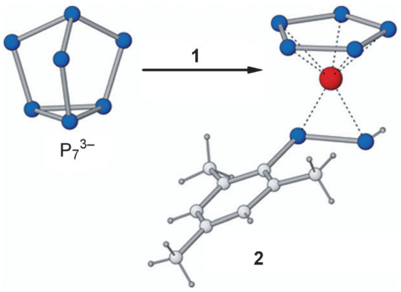


Efficient and selective: Two lipophilic catalysts were used for Baeyer–Villiger (BV) oxidations to give lactones in high yields (see scheme). Cascade reactions involving this BV oxidation were used to selectively obtain either unsaturated carboxylic acids or hydroxylactones in high yields from β-silyl cyclohexanones.

Phosphorus Complexes

C. M. Knapp, B. H. Westcott,
M. A. C. Raybould, J. E. McGrady,
J. M. Goicoechea* ________ 9097 – 9100

[Co(η^5-P_5){η^2-P_2H(mes)}]$^{2-}$: A Phospha-Organometallic Complex Obtained by the Transition-Metal-Mediated Activation of the Heptaphosphide Trianion



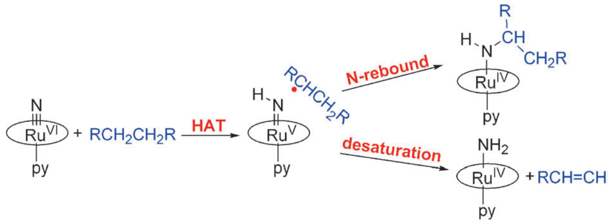
A carbon copy: The chemical activation of the heptaphosphide trianion with [Co(PEt_2Ph)$_2$(mes)$_2$] (see picture; **1**) yields the novel phospha-organometallic complex [Co(η^5-P_5){η^2-P_2H(mes)}]$^{2-}$ (**2**). The reaction product maintains the nuclearity of the parent cluster, but extensive cage fragmentation takes place to yield a diamagnetic "inorganometallic" cobalt complex.

C–H Activation

VIP

W. L. Man, W. W. Y. Lam, H. K. Kwong,
S. M. Yiu, T. C. Lau* ________ 9101 – 9104

Ligand-Accelerated Activation of Strong C–H Bonds of Alkanes by a (Salen)ruthenium(VI)–Nitrido Complex

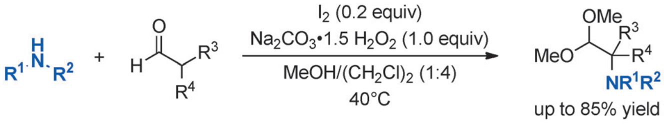


Kinetic and mechanistic studies on the intermolecular activation of strong C–H bonds of alkanes by a (salen)ruthenium(VI) nitride were performed. The initial, rate-limiting step, the hydrogen atom transfer (HAT) from the alkane to $Ru^{VI}\equiv N$, generates $Ru^{V}{=}NH$ and $RC^{\bullet}HCH_2R$. The following steps involve N-rebound and desaturation.

Oxidative Amination

J. S. Tian, K. W. J. Ng, J. R. Wong,
T. P. Loh* ________ **9105–9109**

α-Amination of Aldehydes Catalyzed by In Situ Generated Hypoiodite

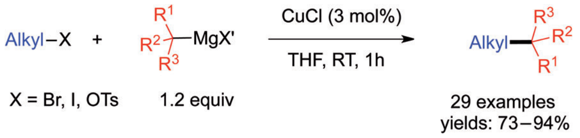


The metal-free amination of different aldehydes is catalyzed by hypoiodite, which is generated by employing commercially available sodium percarbonate as the co-oxidant. This approach has several advantages: it is a metal-free oxidation that works under mild reaction conditions; furthermore, it has a wide substrate scope and does not give toxic by-products from the co-oxidant that is used.

Cross-Coupling

P. Ren, L. A. Stern,
X. L. Hu* ________ **9110–9113**

Copper-Catalyzed Cross-Coupling of Functionalized Alkyl Halides and Tosylates with Secondary and Tertiary Alkyl Grignard Reagents



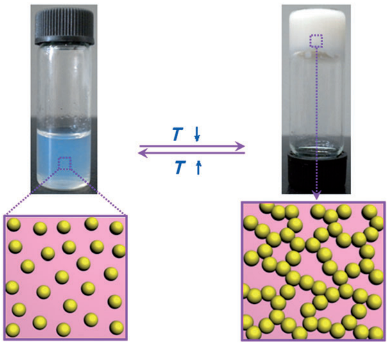
Added value: A copper-based method is highly efficient for the cross-coupling of alkyl electrophiles with secondary and tertiary alkyl Grignard reagents. The method is distinguished by its broad substrate scope and high functional group tolerance.

Ionic Gels

Y. Xiong,* J. Liu, Y. Wang, H. Wang,
R. Wang* ________ **9114–9118**

One-Step Synthesis of Thermosensitive Nanogels Based on Highly Cross-Linked Poly(ionic liquid)s

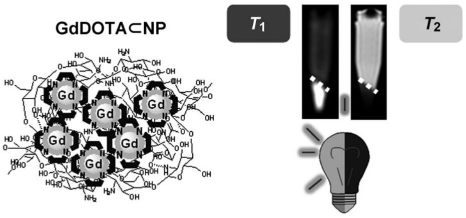
A gel for all seasons: Thermosensitive nanogels based on highly cross-linked poly(ionic liquid)s (CLPNs) were prepared in one step by the copolymerization of imidazolium-based monomers with cross-linkers in selective solvents. Reversible nanogel–macrogel transitions of CLPNs in methanol could be achieved by changing the temperature (see picture).



Imaging Agents

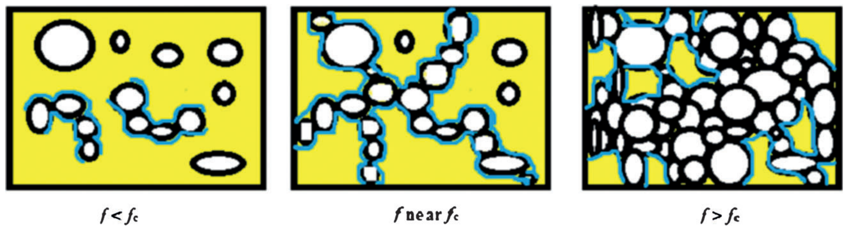
T. Courant, V. G. Roullin,* C. Cadiou,
M. Callewaert, M. C. Andry, C. Portefaix,
C. Hoeffel, M. C. de Goltstein, M. Port,
S. Laurent, L. V. Elst, R. N. Muller,
M. Molinari, F. Chuburu* __ **9119–9122**

Hydrogels Incorporating GdDOTA: Towards Highly Efficient Dual T_1/T_2 MRI Contrast Agents



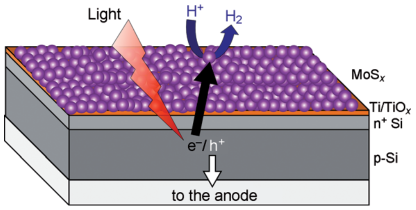
Do not tumble dry: Gadolinium-DOTA encapsulated into polysaccharide nanoparticles (GdDOTA⊂NPs) exhibited high relaxivity ($r_1 = 101.7\ s^{-1}\ mM^{-1}$ per Gd^{3+} ion at 37 °C and 20 MHz). This high relaxation rate is due to efficient Gd loading, reduced tumbling of the Gd complex, and the hydrogel nature of the nanoparticles. The efficacy of the nanoparticles as a T_1/T_2 dual-mode contrast agent was studied in C6 cells (see picture).

Interfaces



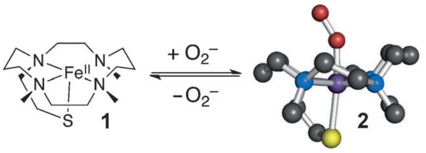
The dielectric constant and electrical conductivity of a composite of two insulators, poly(1,1-difluoroethylene) (yellow) and K_2CO_3 (white), increased dramatically near the percolation threshold f_c (f=concentration of K_2CO_3). This intriguing phenomenon can be interpreted in terms of interface percolation caused by the formation of chemically activated interfaces.

Photoelectrolysis



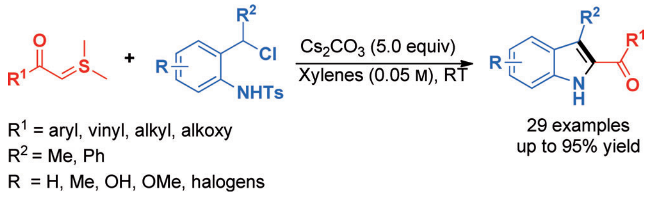
A low-cost substitute: A titanium protection layer on silicon made it possible to use silicon under highly oxidizing conditions without oxidation of the silicon. Molybdenum sulfide was electrodeposited on the Ti-protected n^+p-silicon electrode. This electrode was applied as a photocathode for water splitting and showed a greatly enhanced efficiency.

Reactive Intermediates



Nucleophilic oxidant: The reaction between a thiolato iron(II) complex **1** and superoxide in aprotic solvent at −90 °C yields a novel thiolato iron(III) peroxide intermediate **2**, which exhibits unusually high nucleophilic reactivity. Compound **2** is an isomer of the thiolato iron(II) superoxide intermediate that is invoked in the reaction between superoxide reductase and superoxide.

Indole Synthesis



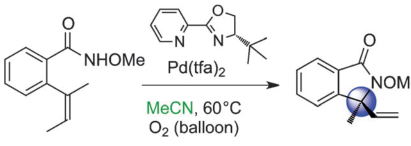
Batting the ylides: A simple procedure carried out under mild conditions allows the direct and efficient synthesis of structurally diverse indoles. This approach involves a cascade reaction of sulfur ylides and *N*-(*ortho*-chloromethyl)aryl amides (see scheme).

Asymmetric Catalysis

G. Yang, C. Shen,
W. Zhang* ______ **9141 – 9145**

An Asymmetric Aerobic Aza-Wacker-Type Cyclization: Synthesis of Isoindolinones Bearing Tetrasubstituted Carbon Stereocenters

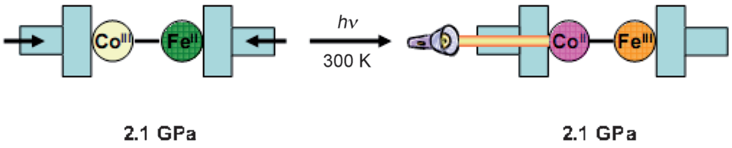
It's all in the solvent: An enantioselective variant of an aza-Wacker-type cyclization that gives isoindolinones containing tetrasubstituted carbon centers α to the nitrogen atom has been developed (see scheme; tfa = trifluoroacetate). The use of a highly coordinating solvent is crucial for the activity of the catalyst and the stereoselectivity the reaction (up to 99 % *ee*).



Photoinduced Electron Transfer

J.-D. Cafun, J. Lejeune, F. Baudelet,
P. Dumas, J.-P. Itié,
A. Bleuzen* ______ **9146 – 9148**

Room-Temperature Photoinduced Electron Transfer in a Prussian Blue Analogue under Hydrostatic Pressure

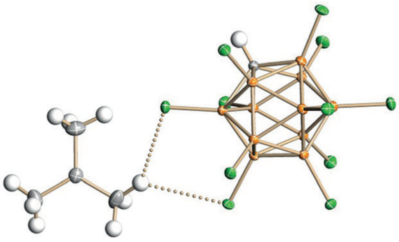


In from the cold: The Co^{III}Fe^{II} state of a CoFe Prussian blue analogue undergoes a Co^{III}–Fe^{II} → (Co^{II}–Fe^{III})* electron transfer at room temperature when irradiated by visible light (532 nm; see scheme). This property was confirmed using energy-dispersive X-ray absorption spectroscopy at the Co and Fe K-edges of the piezo-induced Co^{III}Fe^{II} state.

Noncovalent Interactions

E. S. Stoyanov,* I. V. Stoyanova,
F. S. Tham, C. A. Reed* ______ **9149 – 9151**

Evidence for C–H Hydrogen Bonding in Salts of *tert*-Butyl Cation

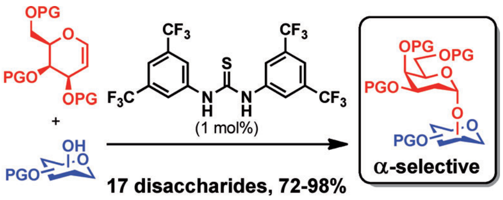


Environmentally sensitive: A combination of C–H····anion hydrogen bonding and hyperconjugative charge delocalization explains the sensitivity of the IR spectrum of the *tert*-butyl cation to its anion (see high-resolution X-ray structure with a $CHB_{11}Cl_{11}^-$ counterion). The νCH vibration of the cation scales linearly with the basicity of carborane anions on the νNH scale. The same also holds for the $C_6H_7^+$ benzenium ion.

Organocatalysis

E. I. Balmond, D. M. Coe, M. C. Galan,*
E. M. McGarrigle* ______ **9152 – 9155**

α-Selective Organocatalytic Synthesis of 2-Deoxygalactosides

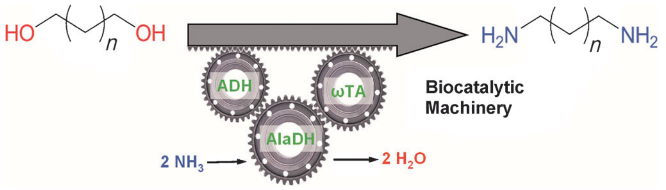


Alpha rules: A thiourea acts as an efficient organocatalyst for the glycosylation of protected galactals to form oligosaccharides containing a 2-deoxymonosaccharide moiety (see scheme). The reaction is highly stereoselective for α-linkages and proceeds by way of a *syn*-addition mechanism.

Biocatalysis

J. H. Sattler, M. Fuchs, K. Tauber,
F. G. Mutti, K. Faber, J. Pfeffer, T. Haas,
W. Kroutil* 9156–9159

Redox Self-Sufficient Biocatalyst Network for the Amination of Primary Alcohols

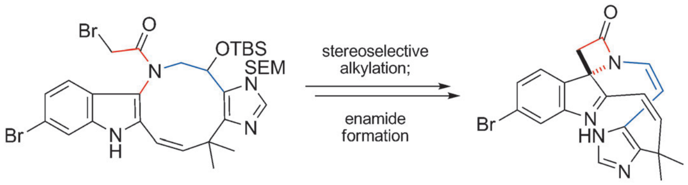


Driving the machinery: A biocatalytic redox-neutral cascade for the preparation of terminal primary amines from primary alcohols at the expense of ammonia has been established in a one-pot one-step method (see picture). Applying this artificial biocatalyst network, long-chain 1,ω-alkanediols were converted into diamines, which are building blocks for polymers, in up to 99% conversion.

Natural Products

K. Iwasaki, R. Kanno, T. Morimoto,
T. Yamashita, S. Yokoshima,
T. Fukuyama* 9160–9163

Synthetic Studies on Chartelline C: Stereoselective Construction of the Core Skeleton



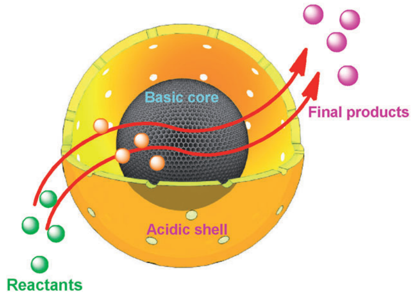
What a core-ker! The title synthesis was achieved using a route featuring an intramolecular Mitsunobu reaction of a nosyl amide, stereoselective construction of the β-lactam, and formation of an enamide moiety by selenoxide elimination. The stereochemistry of the alkylation for the formation of the β-lactam was controlled by a secondary hydroxy group on the ten-membered ring. SEM = 2-(trimethylsilyl)ethoxymethyl; TBS = *tert*-butyldimethylsilyl.

Nanostructures

Y. Yang, X. Liu, X. B. Li, J. Zhao, S. Y. Bai,
J. Liu,* Q. H. Yang* 9164–9168

A Yolk–Shell Nanoreactor with a Basic Core and an Acidic Shell for Cascade Reactions

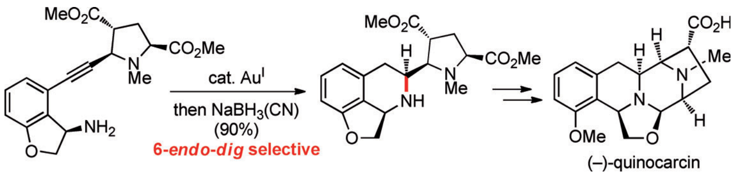
Smart yolk–shell nanoparticles (hollow nanoparticles with a movable core) with an acidic shell and a basic core were fabricated through an organosilane-assisted selective etching method and acted as efficient nanoreactors for catalyzing a deacetalization–Henry cascade reaction with high activity and high selectivity. This strategy is very promising for the design of multifunctional nanoreactors for cascade reactions.



Natural Products

H. Chiba, S. Oishi, N. Fujii,*
H. Ohno* 9169–9172

Total Synthesis of (−)-Quinocarcin by Gold(I)-Catalyzed Regioselective Hydroamination

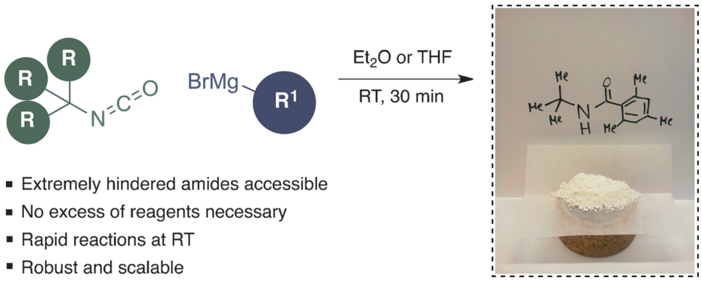


In control: The novel and enantioselective total synthesis of (−)-quinocarcin includes the highly stereoselective preparation of the 2,5-*cis*-pyrrolidine by intramolecular amination, a selective substrate-controlled 6-*endo-dig* intramolecular alkyne hydroamination with a cationic Au^I catalyst, and Lewis-acid-mediated ring-opening/halogenation sequence.

Amide Formation

G. Schäfer, C. Matthey,
J. W. Bode* ______________ **9173 – 9175**

Facile Synthesis of Sterically Hindered and Electron-Deficient Secondary Amides from Isocyanates

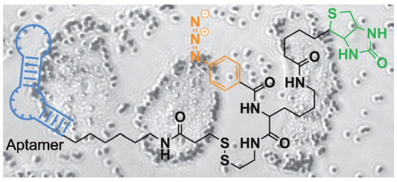


The big easy: The direct coupling of Grignard reagents to isocyanates provides a facile and robust solution for the synthesis of sterically hindered and electron-deficient secondary amides. The products are obtained in high yields without the need for excess reagents or chromatographic purification.

Aptamer Affinity Labeling

J. L. Vinkenborg, G. Mayer,
M. Famulok* ______________ **9176 – 9180**

Aptamer-Based Affinity Labeling of Proteins

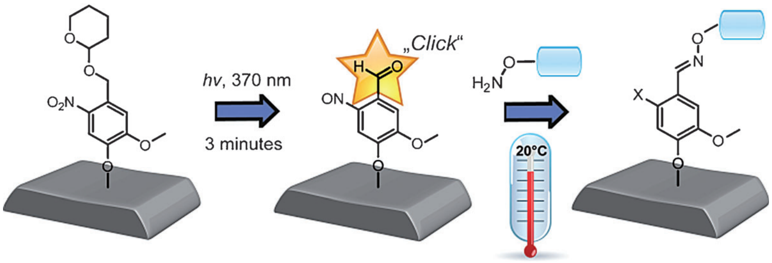


A most able label: Labeled aptamers (see picture) can be cross-linked to their target structures in a light-dependent and highly specific manner as a result of a new strategy termed aptamer-based affinity labeling (ABAL) of proteins. The aptamer–protein complexes can be enriched in vitro, from a cellular lysate and from the surface of living cells, opening new ways to study aptamer interactions in biological contexts.

Photoreactions on Surfaces

T. Pauloehrl, G. Delaittre, M. Bruns,
M. Meißler, H. G. Börner, M. Bastmeyer,
C. Barner-Kowollik* ________ **9181 – 9184**

(Bio)Molecular Surface Patterning by Phototriggered Oxime Ligation



Making light work of ligation: A novel method utilizes light for oxime ligation chemistry. A quantitative, low-energy photodeprotection generates aldehyde, which subsequently reacts with aminooxy moieties. The spatial control allows patterning on surfaces (see scheme) with a fluoro marker and GRGSGR peptide, and can be imaged by time-of-flight secondary-ion mass spectrometry.

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).

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