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

*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

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

Z. Zhao, E. L. Jacovetty, Y. Liu, H. Yan**
Encapsulation of Gold Nanoparticles in a DNA-Origami Cage

*T. Reiner, E. J. Keliher, S. Earley, B. Marinelli, R. Weissleder**
Synthesis and In Vivo Imaging of an ^{18}F-Labeled PARP1 Inhibitor by a Chemically Orthogonal Scavenger-Assisted High-Performance Method

*D. T. Cohen, B. Cardinal-David, K. A. Scheidt**
Lewis Acid Activated Synthesis of Highly Substituted Cyclopentanes by the N-Heterocyclic-Carbene-Catalyzed Addition of Homoenolate Equivalents to Unsaturated Ketoesters

M. Barsukova-Stuckart, N. V. Izarova, G. B. Jameson, V. Ramachandran, Z. Wang, J. van Tol, N. S. Dalal, R. N. Biboum, B. Keita, L. Nadjo, U. Kortz**
The Dicopper(II)-Containing 22-Palladate(II) $[Cu^{II}_2Pd^{II}_{22}P^{V}_{12}O_{60}(OH)_8]^{20-}$

R. Langer, G. Leitus, Y. Ben-David, D. Milstein
Efficient Hydrogenation of Ketones Catalyzed by an Iron Pincer Complex

F. Liao, Y. Huang, J. Ge, W. Zheng, K. Tedsree, P. Collier, X. Hong, S. C. Tsang**
Morphology-Dependent Interactions of ZnO with Cu Nanoparticles at the Materials Interface in the Selective Hydrogenation of CO_2 to CH_3OH

Author Profile

*"My favorite subject at school was history.
When I wake up I make two cups of coffee for my wife and myself …"*
This and more about Takeshi Kawase can be found on page 988.

Takeshi Kawase ——— 988

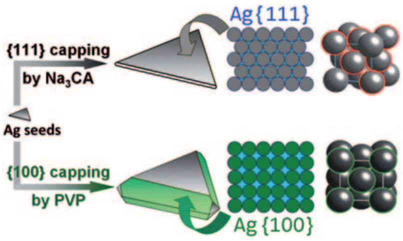
Books

Nano-Age Mario Pagliaro *reviewed by L. Cademartiri* ——— 989

Highlights

Shape Control

Selectively building facet-defined silver: Recent advances in colloidal synthesis indicate that Ag{111} and Ag{100} crystal facets can be easily developed by epitaxial growth in the presence of sodium citrate (Na_3CA) and poly(vinyl pyrrolidone) (PVP), respectively. This size- and dimension-controlled synthetic method shows potential for use in such applications as surface-enhanced Raman scattering.



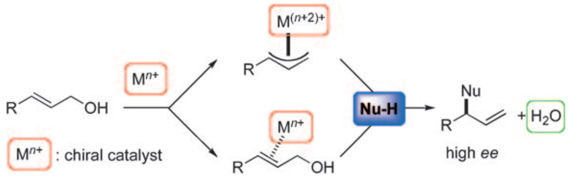
Y. Wang, J. Fang* ——— 992 – 993
Selective Epitaxial Growth of Silver Nanoplates

Contents

Asymmetric Catalysis

M. Bandini* ________ 994 – 995

Allylic Alcohols: Sustainable Sources for Catalytic Enantioselective Alkylation Reactions

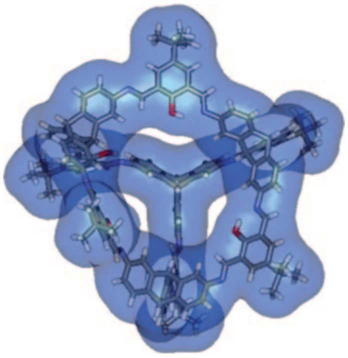


Simple, selective, and sustainable: The optimization of the economic and the environmental impact of an organic reaction is one of the most demanding issues of modern organic synthesis. The use of allylic alcohols in catalytic stereoselective alkylation reactions provides an outstanding example of how these problems can be successfully addressed (see scheme).

Porous Molecules

A. I. Cooper* ________ 996 – 998

Nanoporous Organics Enter the Cage Age



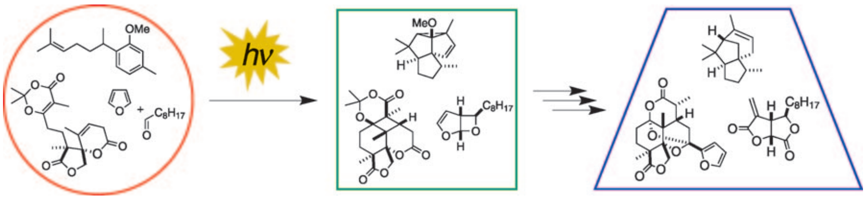
Molecular solids go porous: An imine-linked organic cage exhibits exceptional surface area ($SA_{BET} = 1375\ m^2 g^{-1}$) and selective gas sorption, suggesting that porous molecular organic solids could compete in the future with porous networks such as polymers and metal–organic frameworks.

Reviews

Synthetic Methods

T. Bach,* J. P. Hehn ________ 1000 – 1045

Photochemical Reactions as Key Steps in Natural Product Synthesis



Squaring the circle: The total syntheses of natural products can often be achieved by means of a photochemical key step. Photochemical reactions, like few other reactions, allow the stereoselective syntheses of complex carbon skeletons, thus providing elegant access to comprehensive target molecules (see examples).

For the USA and Canada:
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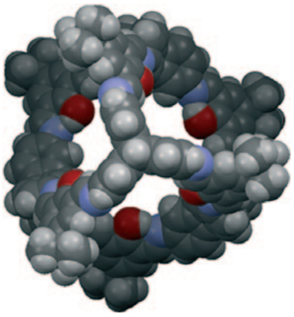
Cage Compounds

M. Mastalerz,* M. W. Schneider, I. M. Oppel, O. Presly ______ 1046 – 1051

A Salicylbisimine Cage Compound with High Surface Area and Selective CO_2/CH_4 Adsorption

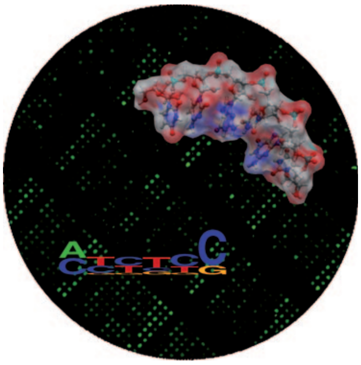
Preference for polar adsorbates: The crystalline porous organic cage compound shown has an exceptional high surface area (1566 $m^2 g^{-1}$) and selective gas uptake. The compound preferably adsorbs CO_2 (9.4 wt %) over methane (0.98 wt %).



Hexanucleotide Arrays

A. Mescalchin, W. Wünsche, G. Sczakiel* ______ 1052 – 1054

Specific Recognition of Proteins by Array-Bound Hexanucleotides

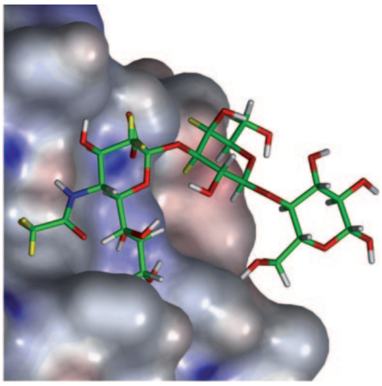


Maximum information density: The complete hexanucleotide sequence space can be immobilized on a chip. The binding of a number of proteins was profiled with this array of 4096 sequences, including fluorescently labeled forms of the HIV-2 and HIV-1 reverse transciptases (the consensus motif is shown in the picture). This new technique should aid in the search for pharmaceutical lead compunds.

Gangliosides

T. Haselhorst, T. Fiebig, J. C. Dyason, F. E. Fleming, H. Blanchard, B. S. Coulson, M. von Itzstein* ______ 1055 – 1058

Recognition of the GM3 Ganglioside Glycan by Rhesus Rotavirus Particles



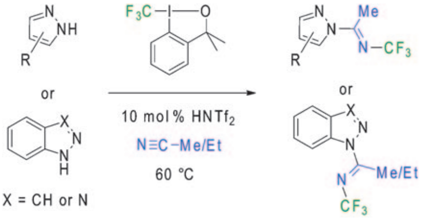
The tie that binds: Rotaviruses bind to their host cells through the interaction of the virion outer capsid and spike proteins with receptors including sialic acid containing glycoconjugates. Intact rotavirus particles interact with the glycan of the GM3 ganglioside (see picture) primarily through the *N*-acetylneuraminic acid, but the penultimate galactose residue also contributes.

N-Trifluoromethylation

K. Niedermann, N. Früh, E. Vinogradova, M. S. Wiehn, A. Moreno, A. Togni* ______ 1059 – 1063

A Ritter-Type Reaction: Direct Electrophilic Trifluoromethylation at Nitrogen Atoms Using Hypervalent Iodine Reagents

Acid-catalyzed electrophilic trifluoromethylation of nitriles in the presence of azoles leads to *N*-(trifluoromethyl)imine derivatives. The source of the trifluoromethyl group is a readily prepared and easy-to-handle hypervalent iodine(III) reagent (see scheme; $HNTf_2$ = bis(*N*-(trifluoromethanesulfonyl)imide). This Ritter-type reaction is astraightforward approach to *N*-(trifluoromethyl)imidoyl azoles, compounds otherwise very difficult to access.

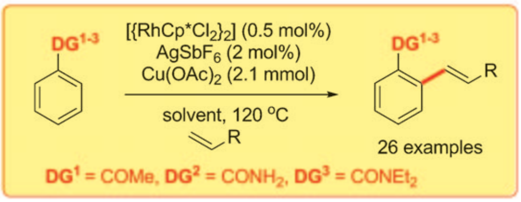


Contents

C—H Activation

F. W. Patureau, T. Besset,
F. Glorius* ______ **1064 – 1067**

Rhodium-Catalyzed Oxidative Olefination of C—H Bonds in Acetophenones and Benzamides

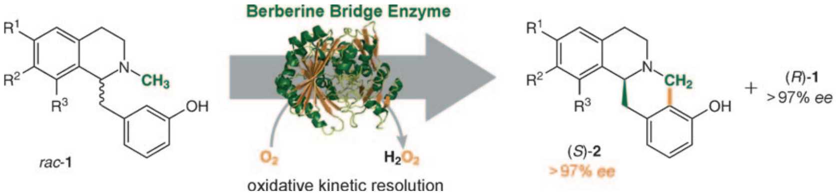


A good neighborhood! The metal-catalyzed oxidative C—H functionalization of electron-rich arenes is well-established, but analogous reactions of electron-poor substrates are rare. A new application makes use of common electron-withdrawing functional groups (COMe, $CONH_2$, $CONEt_2$) in the rhodium-catalyzed oxidative Heck reaction to generate complex organic molecules. Cp* = η^5-C_5Me_5.

Biocatalytic C—C Coupling

J. H. Schrittwieser, V. Resch, J. H. Sattler,
W.-D. Lienhart, K. Durchschein,
A. Winkler, K. Gruber, P. Macheroux,
W. Kroutil* ______ **1068 – 1071**

Biocatalytic Enantioselective Oxidative C—C Coupling by Aerobic C—H Activation

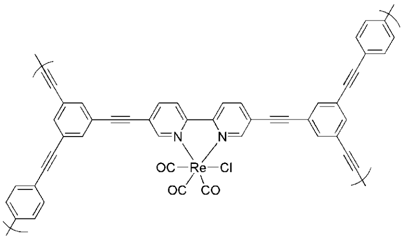


Bridging the gap: The berberine bridge enzyme (BBE) was employed for the first preparative oxidative biocatalytic C—C coupling that leads to a new intramolecular bond. This unique transformation requires O_2 as sole stoichiometric oxidant and gives access to novel optically pure (*S*)-berbine **2** and (*R*)-1-benzyl-1,2,3,4-tetrahydroisoquinoline **1** alkaloid derivatives by kinetic resolution.

Porous Materials

J. X. Jiang, C. Wang, A. Laybourn,
T. Hasell, R. Clowes, Y. Z. Khimyak,
J. L. Xiao, S. J. Higgins, D. J. Adams,
A. I. Cooper* ______ **1072 – 1075**

Metal–Organic Conjugated Microporous Polymers

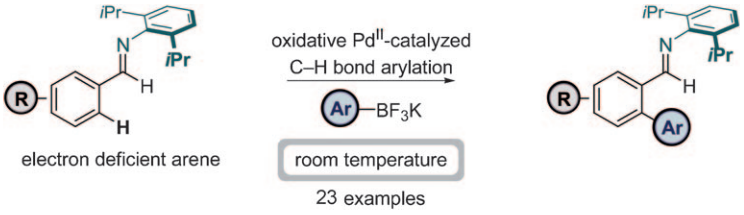


Two versatile strategies for preparing metal–organic conjugated microporous polymers (MO-CMPs) containing metals such as rhenium, rhodium, and iridium are described (see example). These materials combine the uninterrupted extended electronic conjugation in the network with catalytically active metal sites.

C—H Functionalization

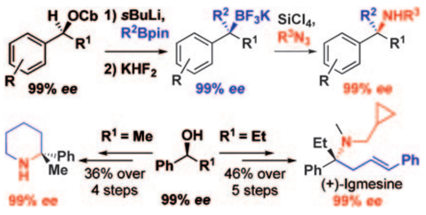
M. J. Tredwell, M. Gulias,
N. Gaunt Bremeyer, C. C. C. Johansson,
B. S. L. Collins,
M. J. Gaunt* ______ **1076 – 1079**

Palladium(II)-Catalyzed C—H Bond Arylation of Electron-Deficient Arenes at Room Temperature



Mild and tolerant: A novel Pd^{II}-catalyzed C—H bond arylation with aryl-BF_3K salts transforms various electron-deficient arenes under mild reaction conditions. Benzaldehydes are functionalized in the *ortho* position using a temporary imine directing group that controls the cyclopalladation. A broad range of benzaldimines are compatible with this process (see scheme).

Better than all the rest: Tertiary boronic esters, readily available using the lithiation–borylation reaction, have been converted into tertiary alkylamines in very high *ee*. The work has been applied to a short, modular, and fully stereocontrolled synthesis of the pharmaceutical igmesine and chiral 2,2-disubstituted piperidines.



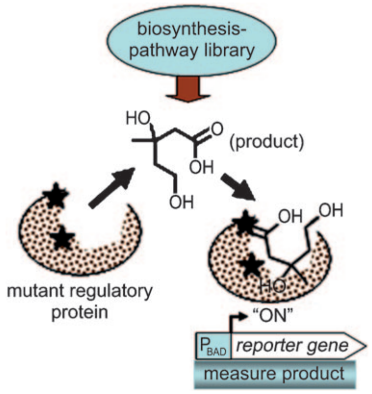
Enantioselective Synthesis

V. Bagutski, T. G. Elford,
V. K. Aggarwal* ______ 1080 – 1083

Synthesis of Highly Enantioenriched C-Tertiary Amines From Boronic Esters: Application to the Synthesis of Igmesine

---

Screening with a customized protein: The regulatory protein AraC in *Escherichia coli* was engineered to respond to the inducer mevalonate and used as an endogenous molecular reporter in library screening for improved inducer production (see picture; P_{BAD} is the promoter). Mutants of a mevalonate-synthesis operon were expressed in *E. coli*, and a variant responsible for a fourfold increase in the mevalonate titer was isolated.



Protein Engineering

S.-Y. Tang, P. C. Cirino* ______ 1084 – 1086

Design and Application of a Mevalonate-Responsive Regulatory Protein

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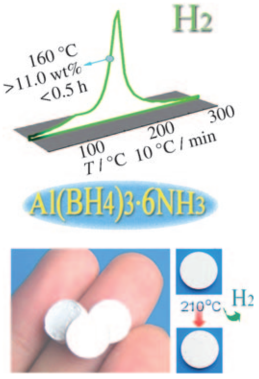

$Al(BH_4)_3·6NH_3$ has been prepared by a convenient route and its composite is able to release more than 10 wt% hydrogen below 140 °C with favorable kinetics by a weakly exothermic combination of N–H and B–H bonds. The high hydrogen capacity, favorable dehydrogenation, and relative stability to air make $Al(BH_4)_3·6NH_3$ an advanced solid-state hydrogen-storage candidate.

Hydrogen Storage

Y. H. Guo, X. B. Yu,* W. W. Sun, D. L. Sun,
W. N. Yang ______ 1087 – 1091

The Hydrogen-Enriched Al–B–N System as an Advanced Solid Hydrogen-Storage Candidate

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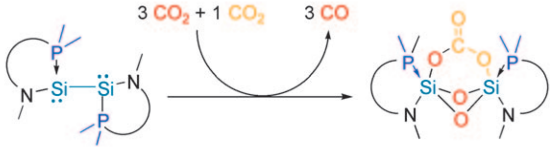


Two P or not two P: The synthesis of the first stable disilyne bisphosphine adduct is reported. Its X-ray structure, showing a short Si–Si bond with a certain multiple-bond character, illustrates the peculiar ligand effect of phosphine towards Si^I compared to other ligands. The disilyne derivative rapidly reacts with CO_2 at room temperature, thus allowing the non-metal-mediated direct reduction of CO_2 to CO (see picture).

Silicon Chemistry

D. Gau, R. Rodriguez, T. Kato,*
N. Saffon-Merceron, A. de Cózar,
F. P. Cossío, A. Baceiredo* 1092 – 1096

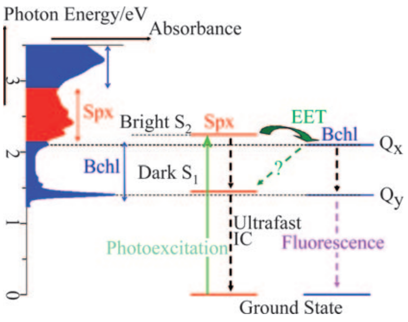
Synthesis of a Stable Disilyne Bisphosphine Adduct and Its Non-Metal-Mediated CO_2 Reduction to CO

Photosynthetic Mechanisms

D. Kosumi,* S. Maruta, T. Horibe, R. Fujii, M. Sugisaki, R. J. Cogdell, H. Hashimoto* ———— **1097 – 1100**

Ultrafast Energy-Transfer Pathway in a Purple-Bacterial Photosynthetic Core Antenna, as Revealed by Femtosecond Time-Resolved Spectroscopy

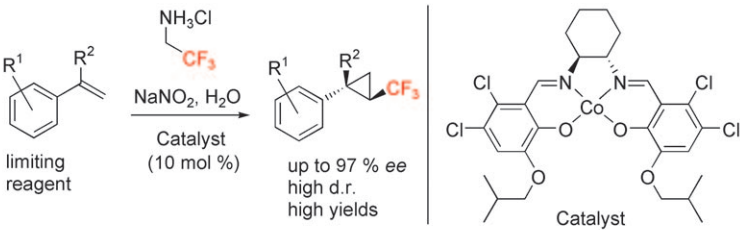
Reaping a good light harvest: Femtosecond spectroscopy uncovered a novel pathway of singlet–singlet excitation-energy transfer (EET) from bacteriochlorophyll (Bchl) in a purple bacterium to the carotenoid spirilloxanthin (Spx) upon the excitation of Bchl into the Q$_x$ band (see picture). This pathway was also clearly identified in steady-state fluorescence excitation spectra, but only in the presence of Spx. IC = internal conversion.



Synthetic Methods

B. Morandi, B. Mariampillai, E. M. Carreira* ———— **1101 – 1104**

Enantioselective Cobalt-Catalyzed Preparation of Trifluoromethyl-Substituted Cyclopropanes

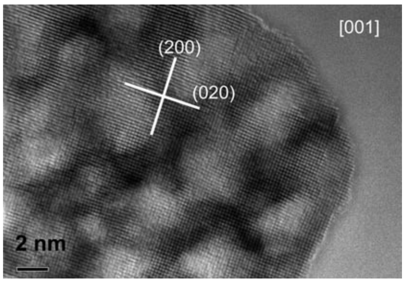


Easy access on water: A cobalt-catalyzed asymmetric preparation of trifluoromethylcyclopropanes has been developed that yields high enantioselectivities with a broad range of styrene substrates (see scheme). The reaction presents a new access to enantioenriched CF$_3$-containing building blocks.

Mesoporous Materials

Z. Bian, J. Zhu, J. Wen, F. Cao, Y. Huo, X. Qian, Y. Cao, M. Shen,* H. Li,* Y. Lu* ———— **1105 – 1108**

Single-Crystal-like Titania Mesocages

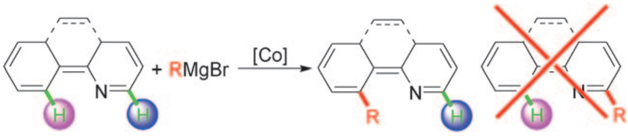


Zeolite's mesoporous cousins: High-surface-area single-crystal-like anatase-TiO$_2$ was synthesized by a simple solution-growth method. This method produces a controllable mesoporous network and preferential exposure of the highly active (001) planes (see TEM) and is readily extendable to the synthesis of other mesoporous single crystals for application in, for example, catalysis and energy storage.

C–H Activation

B. Li, Z.-H. Wu, Y.-F. Gu, C.-L. Sun, B.-Q. Wang,* Z.-J. Shi* ———— **1109 – 1113**

Direct Cross-Coupling of C–H Bonds with Grignard Reagents through Cobalt Catalysis

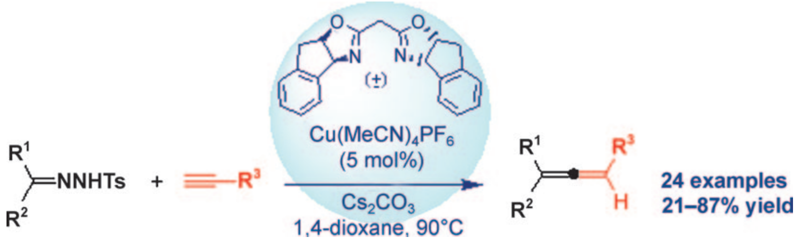


Go go Grignard! The first highly regioselective, cobalt-catalyzed C–H transformation of benzo[*h*]quinoline and phenylpyridine derivatives with Grignard reagents at room temperature has been achieved (see scheme). Both aryl and alkyl Grignard reagents showed significant reactivity.

Synthetic Methods

Q. Xiao, Y. Xia, H. Li, Y. Zhang, J. Wang* ______ 1114 – 1117

Coupling of *N*-Tosylhydrazones with Terminal Alkynes Catalyzed by Copper(I): Synthesis of Trisubstituted Allenes

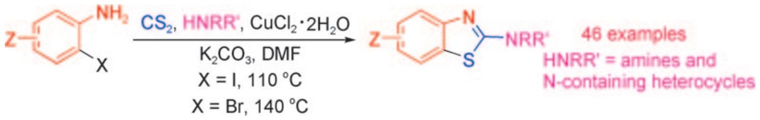


The easy way to allenes: An operationally simple reaction under mild conditions has led to the direct formation of trisubstituted allenes (see scheme; Ts = 4-toluenesulfonyl). An unprecedented copper–carbene migratory insertion process seems to take place, in contrast to classic copper(I)-catalyzed reactions of diazo compounds.

Heterocycle Synthesis

D. Ma,* X. Lu, L. Shi, H. Zhang, Y. Jiang, X. Liu ______ 1118 – 1121

Domino Condensation/S-Arylation/Heterocyclization Reactions: Copper-Catalyzed Three-Component Synthesis of 2-N-Substituted Benzothiazoles

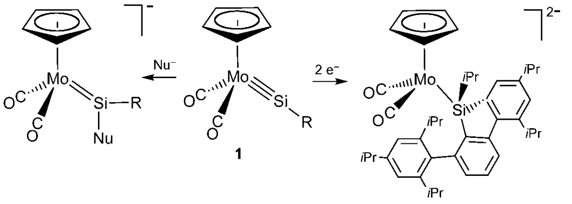


All in it together: A highly efficient and extremely versatile method for the assembly of benzothiazoles with a nitrogen substituent in the 2-position relies on a copper-catalyzed cascade reaction of a 2-haloaniline, carbon disulfide, and an N nucleophile (see scheme). The products are useful precursors for the synthesis of a range of important pharmaceutical agents. DMF = *N*,*N*-dimethylformamide; R,R′ = H, alkyl, aryl; Z = Me, CF$_3$, CO$_2$Me, CN, N$_2$O, Cl, F, Ac.

Organosilicon Chemistry

A. C. Filippou,* O. Chernov, G. Schnakenburg ______ 1122 – 1126

Metal–Silicon Triple Bonds: Nucleophilic Addition and Redox Reactions of the Silylidyne Complex $[\mathrm{Cp(CO)_2Mo{\equiv}Si\text{-}R}]$

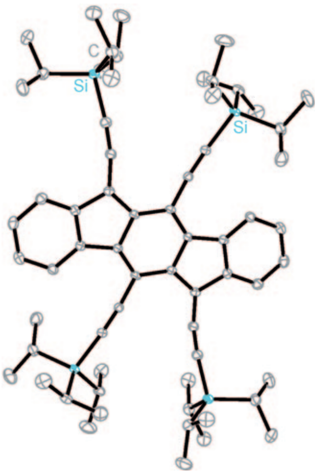


As a silicon analogue of metal alkylidyne complexes, the title compound offers new perspectives in organosilicon chemistry. The high synthetic potential of **1** is demonstrated by a series of reactions that provide access to the first anionic silylidene complexes and dianionic silyl complexes (see scheme; Nu = Cl, N$_3$, CH$_3$; R = C$_6$H$_3$-2,6-Trip$_2$).

Polycyclic Hydrocarbons

D. T. Chase, B. D. Rose, S. P. McClintock, L. N. Zakharov, M. M. Haley* ______ 1127 – 1130

Indeno[1,2-b]fluorenes: Fully Conjugated Antiaromatic Analogues of Acenes

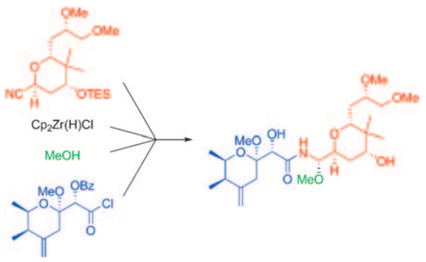


What IF? Fully conjugated, formally antiaromatic indeno[1,2-*b*]fluorenes (IFs; see structure) were synthesized from the corresponding diones by the SnCl$_2$-promoted reduction often used to generate acenes. Their optoelectronic properties suggest that indenofluorenes might serve as alternatives to the more traditionally utilized acenes such as pentacene for materials applications.

Natural Product Synthesis

F. Wu, M. E. Green,
P. E. Floreancig* ―――――― 1131 – 1134

Total Synthesis of Pederin and Analogues

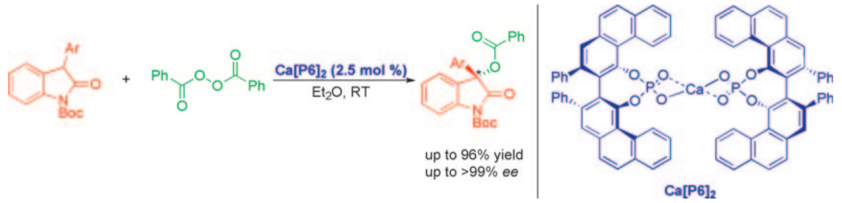


A ten-step program: The potent cytotoxin pederin and several analogues have been prepared through an efficient route that proceeds in ten steps (longest linear sequence) from isobutyraldehyde. The key transformation is a multicomponent *N*-acylaminal construction (see scheme) that allows for late-stage fragment coupling and diversification.

Asymmetric Catalysis

Z. Zhang, W. Zheng,
J. C. Antilla* ―――――― 1135 – 1138

The Highly Enantioselective Chiral VAPOL Calcium Phosphate-Catalyzed Benzoyloxylation of 3-Aryloxindoles

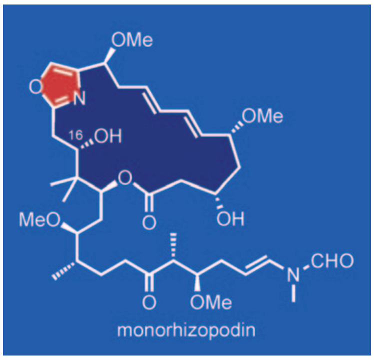


Keeping straight: The highly enantioselective title reaction provides novel and straightforward access to 3-hydroxy-2-oxindole derivatives (see scheme). This transformation signifies the first example of a chiral phosphate calcium salt activating a benzoyl peroxide.

Natural Product Synthesis

K. C. Nicolaou,* X. Jiang,
P. J. Lindsay-Scott, A. Corbu,
S. Yamashiro, A. Bacconi,
V. M. Fowler ―――――― 1139 – 1144

Total Synthesis and Biological Evaluation of Monorhizopodin and 16-*epi*-Monorhizopodin



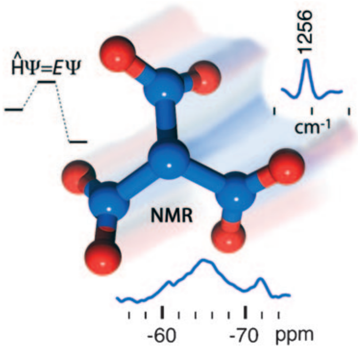
Convergence and a biological dichotomy! Monorhizopodin (see structure) and its C16 epimer have been synthesized through a highly convergent strategy. Unlike the antitumor agent rhizopodin which is their naturally occurring dimer, monorhizopodin and its epimer exhibit potent inhibition of actin polymerization but no significant cytotoxicity.

Energetic Materials

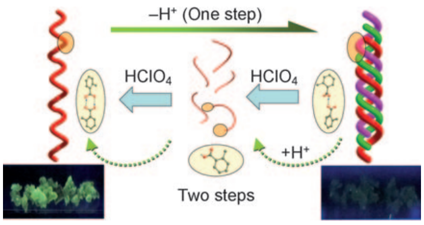
M. Rahm,* S. V. Dvinskikh, I. Furó,
T. Brinck* ―――――― 1145 – 1148

Experimental Detection of Trinitramide, $N(NO_2)_3$

Propeller propellant: The largest nitrogen oxide to date, trinitramide (TNA), has been prepared following extensive quantum chemical studies in which its kinetic stability and several physical properties were estimated. TNA was detected using IR and NMR spectroscopy. The compound is highly energetic and shows promise for cryogenic propulsion and as a reagent in high-energy-density material research.



A flexible viologen carboxylic acid derivative forms single- and triple-stranded helices by hydrogen-bonding interactions, and undergoes pH-triggered helical transformation by a water-mediated solid-state conversion (see picture). This transformation is accompanied by a fluorescence signal change that can be directly observed by the naked eye under a UV lamp.



Helical Transformations

X.-H. Jin, J. Wang, J.-K. Sun, H.-X. Zhang, J. Zhang* ———— **1149–1153**

Protonation-Triggered Conversion between Single- and Triple-Stranded Helices with a Visible Fluorescence Change

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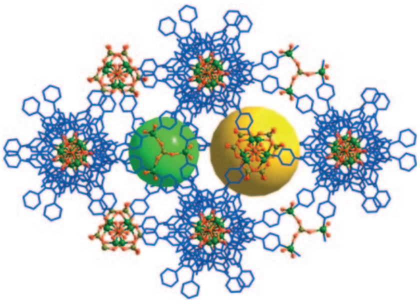
In triple time: A step-by-step assembly of three homochiral micro- and mesoporous metal–organic frameworks (MOFs) from a predesigned triple-stranded heptametallic helicate bearing six free pyridine groups has been achieved. The geometry, symmetry, and enantiopurity of the helicate are efficiently amplified in the infinite frameworks. Furthermore, the MOFs can encapsulate guest molecules (see example).



Metal–Organic Frameworks

X. Xi, Y. Fang, T. Dong, Y. Cui* ———— **1154–1158**

Bottom-Up Assembly from a Helicate to Homochiral Micro- and Mesoporous Metal–Organic Frameworks

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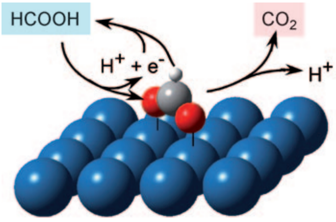

A bridge too far: Time-resolved surface-enhanced infrared spectroscopy (SEIRAS) coupled with chronoamperometry shows that formic acid is oxidized via bridge-bonded adsorbed formate, and that formate decomposition is the rate-determining step in the electrooxidation of formic acid to CO_2 on Pt. The contribution of direct oxidation of formic acid via weakly adsorbed HCOOH is negligible at best.

Electrocatalysis

M. Osawa,* K. Komatsu, G. Samjeské, T. Uchida, T. Ikeshoji, A. Cuesta, C. Gutiérrez ———— **1159–1163**

The Role of Bridge-Bonded Adsorbed Formate in the Electrocatalytic Oxidation of Formic Acid on Platinum

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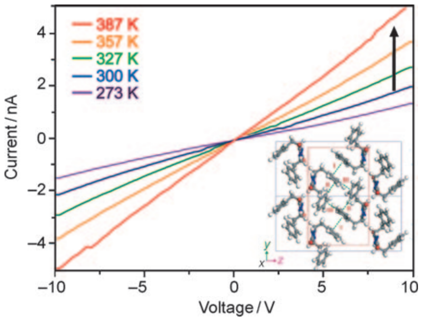


Down to the wire: A simple vapor-transport process using linear diphenylalanine as the starting material has resulted in the self-assembly of cyclodipeptide nanowires with an orthorhombic symmetry. Furthermore, the single-crystalline nanowires exhibit a strong blue luminescence centered at 465 nm and possess semiconducting properties (see picture).

Peptide Nanowires

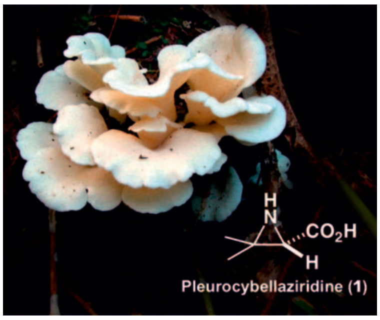
J. S. Lee, I. Yoon, J. Kim, H. Ihee,* B. Kim,* C. B. Park* ———— **1164–1167**

Self-Assembly of Semiconducting Photoluminescent Peptide Nanowires in the Vapor Phase

Natural Products

T. Wakimoto, T. Asakawa, S. Akahoshi,
T. Suzuki, K. Nagai, H. Kawagishi,*
T. Kan* ________ **1168 – 1170**

Proof of the Existence of an Unstable Amino Acid: Pleurocybellaziridine in *Pleurocybella porrigens*



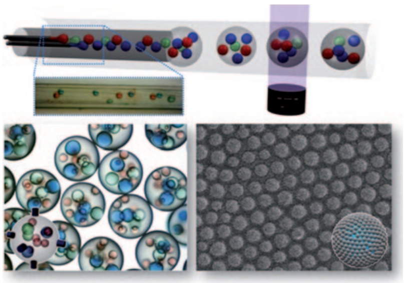
Angel's wing mushroom, *Pleurocybella porrigens*, caused fatal acute encephalopathy in Japan in 2004. The structures of cytotoxic amino acids previously isolated from the mushroom motivated a study to prove the existence of an aziridine amino acid, pleurocybellaziridine (**1**), found in the mushroom. The ester forms of synthetic **1** were used to confirm that the fruiting bodies contained high amounts of **1**. Furthermore, **1** showed significant toxicity towards rat oligodendrocytes.

Microfluidics

S.-H. Kim,* J. W. Shim,
S.-M. Yang* ________ **1171 – 1174**

Microfluidic Multicolor Encoding of Microspheres with Nanoscopic Surface Complexity for Multiplex Immunoassays

Technicolor dreamcoating: A microfluidic device produces and manipulates double-emulsion droplets of equal size with unprecedented controllability (see picture). The droplets, which contain color core droplets, are photopolymerized to produce transparent microspheres. Silica colloidal particles anchored preferentially at the surfaces of the microspheres provide efficient binding sites for biomolecules for biological analyses.

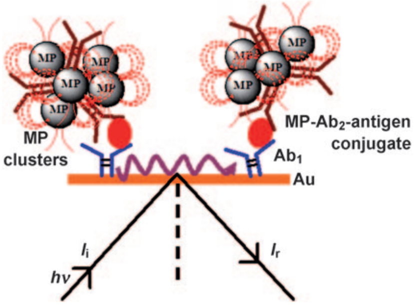


Magneto-SPR Immunosensor

S. Krishnan, V. Mani, D. Wasalathanthri,
C. V. Kumar, J. F. Rusling* __ **1175 – 1178**

Attomolar Detection of a Cancer Biomarker Protein in Serum by Surface Plasmon Resonance Using Superparamagnetic Particle Labels

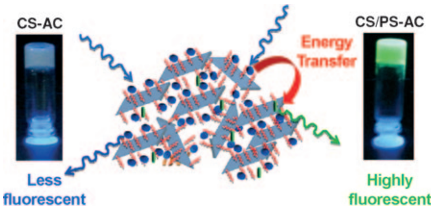
Signal amplifiers: Superparamagnetic particle–antibody conjugates were used to detect a cancer biomarker in serum by surface plasmon resonance (SPR) at an unprecedented low level of 10 fg mL^{-1} (ca. 300 aM). Ultrahigh sensitivity is facilitated by enhanced mass and refractive index from aggregates of 1 μm magnetic particles on the SPR chip.



Light-Harvesting Gels

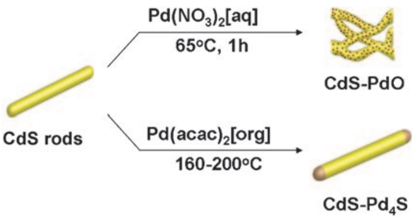
K. V. Rao, K. K. R. Datta,
M. Eswaramoorthy,*
S. J. George* ________ **1179 – 1184**

Light-Harvesting Hybrid Hydrogels: Energy-Transfer-Induced Amplified Fluorescence in Noncovalently Assembled Chromophore–Organoclay Composites



The noncovalent self-assembly of chromophores in an organoclay template results in the formation of fluorescent hybrid hydrogels and films. These clay–dye hybrids act as novel supramolecular scaffolds for light-harvesting as the aminoclay (AC) templates the spatial organization of donor and acceptor molecules to promote Förster resonant energy transfer (see picture; CS = coronene salt, PS = perylene salt).

A hybrid family: Hybrid nanoparticles containing the semiconductor CdS and the palladium compounds PdO or Pd_4S were produced through two different synthetic mechanisms (see picture). The hybrids CdS-Pd_4S and CdS-PdO undergo photoinduced charge separation, as demonstrated by their activity in the photoreduction of water.



Hybrid Nanoparticles

Y. Shemesh, J. E. Macdonald, G. Menagen, U. Banin* ______ **1185 – 1189**

Synthesis and Photocatalytic Properties of a Family of CdS-PdX Hybrid Nanoparticles

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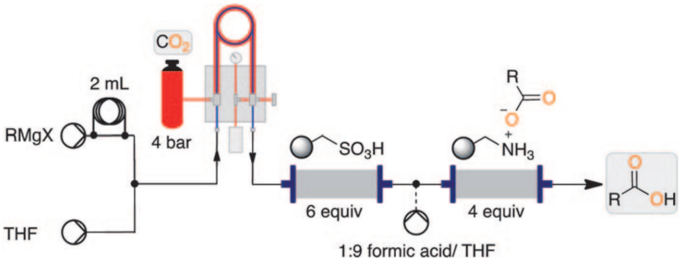

Keep it simple: A gas–liquid flow reactor has been developed based on a gas permeable tube-in-tube configuration which effectively delivers gas to a liquid substrate stream in a safe, continuous fashion. A series of carboxylic acids were prepared from the reaction of CO_2 with a range of Grignard reagents (see picture).

Gas–Liquid Flow Chemistry

A. Polyzos, M. O'Brien, T. P. Petersen, I. R. Baxendale, S. V. Ley* __ **1190 – 1193**

The Continuous-Flow Synthesis of Carboxylic Acids using CO_2 in a Tube-In-Tube Gas Permeable Membrane Reactor

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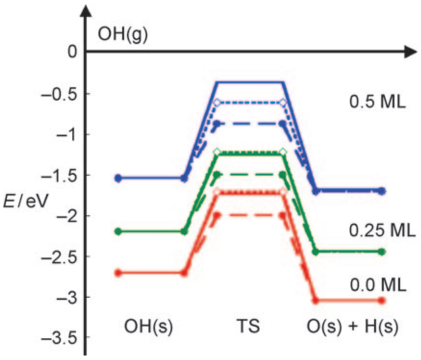

A calculated approach: A significant improvement in the accuracy of UBI-QEP method has been achieved by using a modified parameterization procedure. The coverage dependence is now fully reproduced and the obtained activation barriers fall within 10% for a range of reactions included in the data set (see example of OH dissociation on a Rh(111) surface; solid lines DFT reference, dashed lines UBI-QEP, dotted lines modified UBI-QEP, ML = monolayer).

Heterogeneous Catalysis

M. Maestri,* K. Reuter* __ **1194 – 1197**

Semiempirical Rate Constants for Complex Chemical Kinetics: First-Principles Assessment and Rational Refinement

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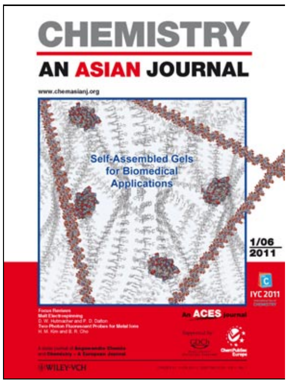

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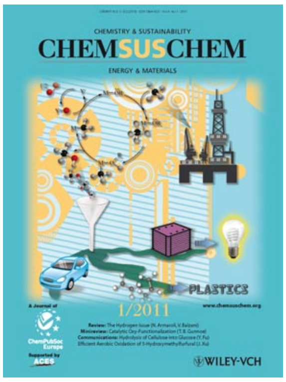

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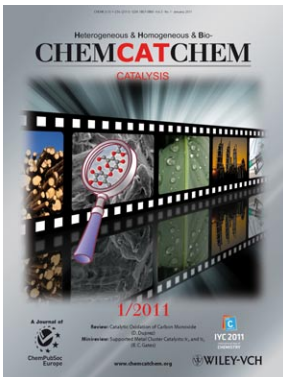

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