



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:

S.-Y. Yu,* Q.-F. Sun, T. K.-M. Lee, E. C.-C. Cheng, Y.-Z. Li,*
V. W.-W. Yam*
Au₃₆ Crown: Macrocyclization Directed by Metal–Metal Bonding Interactions

N. Umeda, H. Tsurugi, T. Satoh,* M. Miura*
Fluorescent Naphthyl- and Anthrylazoles through Catalytic Coupling of Phenylazoles with Internal Alkynes by Multiple C–H Bond Cleavages

Y. V. Geletii, B. Botar,* P. Kögerler, D. A. Hillesheim, D. G. Musaev,
C. L. Hill*
An All-Inorganic, Stable, and Highly Active Tetraruthenium Homogeneous Catalyst for Water Oxidation

News

Organic Chemistry:
T. Hayashi _____

4050

Bioinorganic Chemistry:
K. V. Gothelf _____

4050

Inorganic Chemistry:
Prize to K. N. Raymond _____

4050

Books

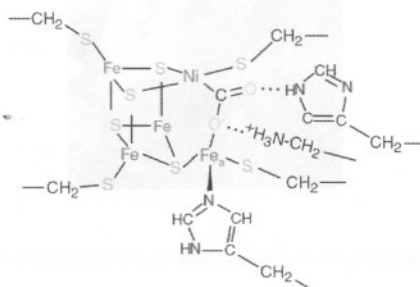
Fluorine-Containing Reagents

Leo A. Paquette

reviewed by G. Haufe _____

4051

Seeing the C: Nickel-containing carbon monoxide dehydrogenases reversibly oxidize CO to CO₂ at a {[Fe₃S₄]:[Ni Fe₃]} active site known as the C-cluster. Recently reported structures of the enzyme by Jeoung and Dobbek, including those of CO₂-bound and OH-bound intermediates, shed new light on the enzyme's catalytic mechanism. This Highlight describes these developments and their implications.



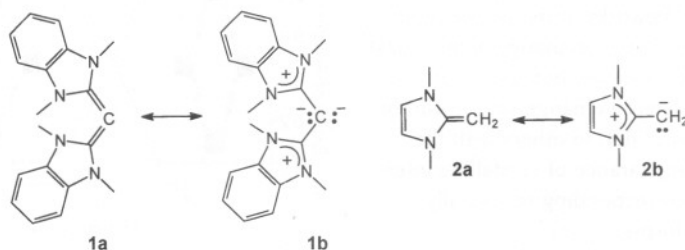
Highlights

Bioinorganic Chemistry

P. A. Lindahl* _____

4054–4056

Implications of a Carboxylate-Bound C-Cluster Structure of Carbon Monoxide Dehydrogenase



Polarization of C=C bonds is the trick! A "push–push" polarization of the double bonds stabilized the nonlinear allene **1a** ($\angle_{\text{C-C-C}}$ 134.8(2)°), which can be described as carbodicarbene **1b**. A similar behavior has been observed for 1,3-dime-

thyl-2-methyleneimidazoline, which can be seen as an olefin **2a** or an ylide **2b**. Both compounds **1** and **2** act as interesting electron-rich η^1 ligands for transition metals.

Carbodicarbenes

O. Kaufhold, F. E. Hahn* —

4057–4061

Carbodicarbenes: Divalent Carbon(0) Compounds

Minireviews

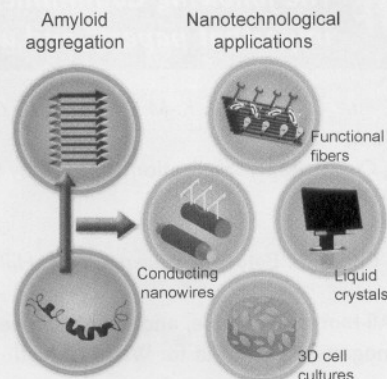
Protein Aggregates

I. Cherny, E. Gazit* — 4062–4069



Amyloids: Not Only Pathological Agents but Also Ordered Nanomaterials

Domestication of amyloids: Amyloid structures, some beneficial, some detrimental, exist in nature. Now that these protein assemblies have been characterized and the amyloidogenic motifs identified, these types of structures will soon be utilized in a range of nanotechnological applications.



Reviews

Organic Electronics

S. Allard, M. Forster, B. Souharce, H. Thiem, U. Scherf* — 4070–4098

Organic Semiconductors for Solution-Processable Field-Effect Transistors (OFETs)



Part of the solution: Solution-processable organic semiconductor materials will take on a pivotal role in printed components of organic electronics (see photo; copyright Evonik). This Review gives an overview of the favored strategies for the solubilization of organic semiconductors and their synthetic conversion. Low molecular weight and oligomeric semiconductor materials as well as semiconductor polymers are discussed.

Communications

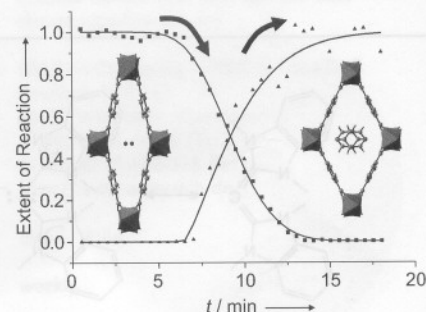
Metal–Organic Frameworks

F. Millange,* C. Serre, N. Guillou, G. Férey, R. I. Walton* — 4100–4105



Structural Effects of Solvents on the Breathing of Metal–Organic Frameworks: An In Situ Diffraction Study

Breathing space: Time-resolved diffraction studies of the breathing of metal–organic frameworks in the presence of liquids reveal rapid exchange of one guest molecule by another. In some cases this occurs by direct exchange (as shown for water by pyridine), in others with the transient appearance of crystalline intermediates corresponding to partially expanded forms.



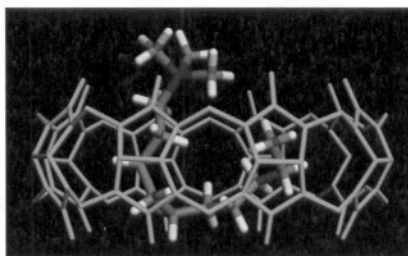
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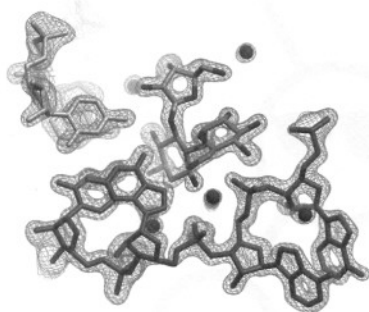
Taking it in turn: Despite the high internal strain, the long aliphatic chains of alkyl-trimethylammonium ions buried deeply inside the cucurbit[8]uril (CB[8]) cavity adopt a U-shaped conformation (see X-ray structure), which is stabilized by electrostatic and van der Waals interactions with the carbonyl-lined portal and hydrophobic cavity of CB[8]. This conformation is similar to that of fatty acids bound to fatty acid binding proteins.



Host–Guest Chemistry

Y. H. Ko, H. Kim, Y. Kim,
K. Kim* 4106–4109

U-Shaped Conformation of Alkyl Chains
Bound to a Synthetic Host

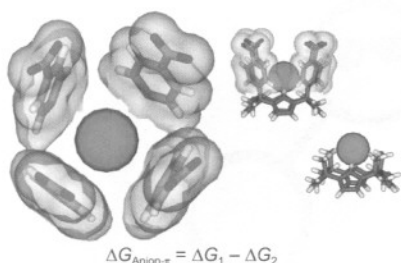


Targeting HIV RNA: High-resolution X-ray structures of the HIV-1 genomic RNA dimerization initiation site (DIS) extended duplex bound to several aminoglycoside antibiotics have been obtained (see ribostamycin complex as an example). They show the feasibility of targeting viral RNA with small drugs, and open up the possibility of structure-based rational drug design aimed against viral replication.

RNA Structures

S. Freisz, K. Lang, R. Micura, P. Dumas,
E. Ennifar* 4110–4113

Binding of Aminoglycoside Antibiotics to
the Duplex Form of the HIV-1 Genomic
RNA Dimerization Initiation Site

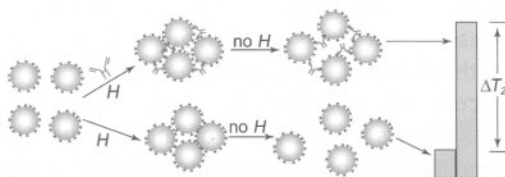


Anions included: A series of *meso*-tetraaryl calix[4]pyrrole receptors have been used as a model system to quantify chloride- π interactions in solution (see picture; green balls are chloride ions). The free energy values are generally indicative of a repulsive interaction; their magnitude depends on the substituent on the aromatic ring.

Anion- π Interactions

G. Gil-Ramírez, E. C. Escudero-Adán,
J. Benet-Buchholz,
P. Ballester* 4114–4118

Quantitative Evaluation of Anion- π
Interactions in Solution



Catching the flu: Magnetic particle aggregation has been used to provide a highly sensitive, NMR-based sensor for detecting antibodies to an influenza virus. To achieve high sensitivity, a homoge-

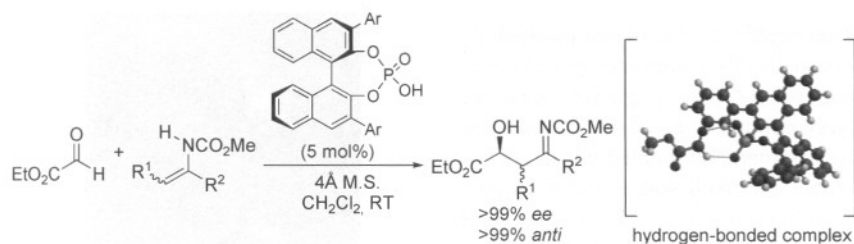
neous magnetic field (H) was employed to enhance antibody-based cross-linking between particles suspended in solution (see scheme; ΔT_2 : change in the transverse relaxation time).

Biosensors

I. Koh, R. Hong, R. Weissleder,
L. Josephson* 4119–4121

Sensitive NMR Sensors Detect Antibodies
to Influenza





Double interaction does it: Highly enantio- and diastereoselective aza-ene-type reaction of glyoxylate with an enecarbamate is accomplished by using a binol-derived phosphoric acid catalyst (see

scheme). DFT computational analysis revealed that two hydrogen bonds formed between the catalyst and the aldehyde are critical for the high enantioselectivity.

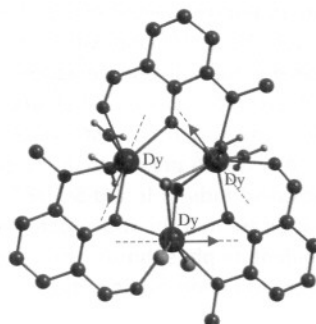
Organocatalysis

M. Terada,* K. Soga,
N. Momiyama _____ 4122–4125

Enantioselective Activation of Aldehydes by Chiral Phosphoric Acid Catalysts in an Aza-ene-type Reaction between Glyoxylate and Enecarbamate



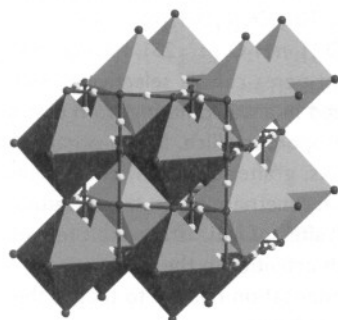
Triangular donuts: High-level ab initio calculations reveal a toroidal arrangement of local magnetizations at dysprosium sites in the ground state of triangular dysprosium complexes (see picture), an arrangement that explains their unusual magnetic properties.



Molecular Magnetism

L. F. Chibotaru,* L. Ungur,
A. Soncini _____ 4126–4129

The Origin of Nonmagnetic Kramers Doublets in the Ground State of Dysprosium Triangles: Evidence for a Toroidal Magnetic Moment

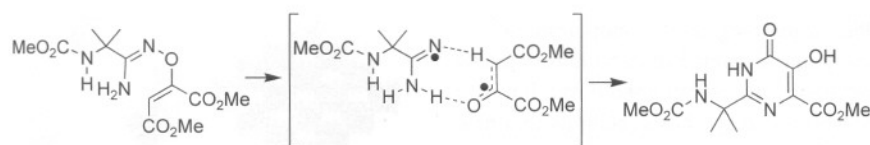


Narrow pores for high selectivity: The yttrium metal-organic framework PCN-17, which contains coordinatively (through SO_4^{2-} ions) linked, doubly interpenetrated (8,3)-nets (see picture), is stable up to 480°C and exhibits selective adsorption of H_2 and O_2 over N_2 and CO .

Metal–Organic Frameworks

S. Ma, X.-S. Wang, D. Yuan,
H.-C. Zhou* _____ 4130–4133

A Coordinatively Linked Yb Metal–Organic Framework Demonstrates High Thermal Stability and Uncommon Gas-Adsorption Selectivity



Break up to make up: Combined experimental and computational studies provide evidence that the key step in the synthesis of a novel anti-HIV drug involves an unprecedented stepwise radical pair rearrangement mechanism in which

radical fragments are held together by strong electrostatic forces (see scheme); this is favored over alternative mechanisms involving concerted pericyclic rearrangement.

Mechanistic Studies

P. J. Pye,* Y.-L. Zhong,* G. O. Jones,
R. A. Reamer, K. N. Houk,*
D. Askin _____ 4134–4136

A Polar Radical Pair Pathway To Assemble the Pyrimidinone Core of the HIV Integrase Inhibitor Raltegravir Potassium



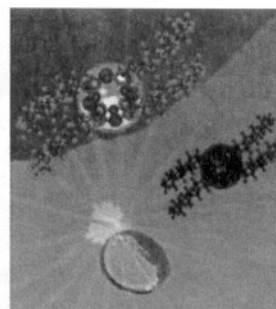
Hydrophobic Compounds

J. M. Mabry,* A. Vij,* S. T. Iacono,
B. D. Viers ————— 4137–4140



Fluorinated Polyhedral Oligomeric
Silsesquioxanes (F-POSS)

Water-repellent: Fluorinated polyhedral oligomeric silsesquioxanes (POSS) are produced by facile, single-step, base-catalyzed condensation of trialkoxy silanes. The octameric fluorinated polyhedra are soluble, thermally stable, and hydrophobic, exhibiting static water contact angles up to 154°. The fluorodecyl POSS is believed to be the most hydrophobic crystalline solid known.



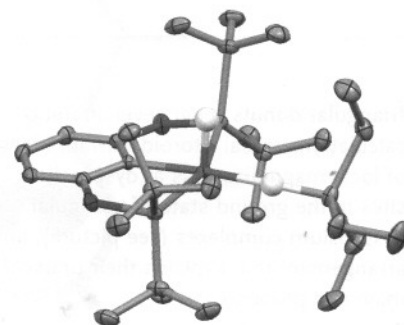
η^1 -Silane Complex

J. Yang, P. S. White, C. K. Schauer,*
M. Brookhart* ————— 4141–4143



Structural and Spectroscopic
Characterization of an Unprecedented
Cationic Transition-Metal η^1 -Silane
Complex

No room for side-on: In the complex shown, Et_3SiH is bound to the cationic Ir^{III} center in an unprecedented end-on fashion through the Si–H bond with no appreciable metal–silicon interaction (white H, green Si, pink Ir, red O, orange P, gray C). The long $\text{Ir}\cdots\text{Si}$ distance of 3.346(1) Å is 0.97 Å greater than the sum of the covalent radii of Ir and Si. DFT studies indicate that the *t*Bu substituents on the bidentate phosphorus ligand dictate the coordination mode of the silane.

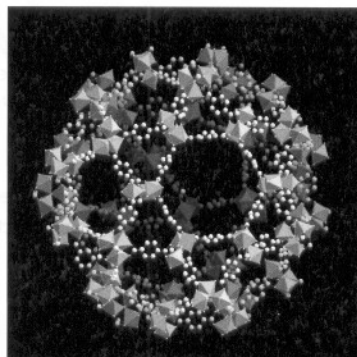


Porous Materials

Y. K. Hwang, D.-Y. Hong, J.-S. Chang,*
S. H. Jung, Y.-K. Seo, J. Kim, A. Vimont,
M. Daturi, C. Serre,
G. Férey* ————— 4144–4148



Amine Grafting on Coordinatively
Unsaturated Metal Centers of MOFs:
Consequences for Catalysis and Metal
Encapsulation



The coordinatively unsaturated sites in MIL-101, $\text{Cr}_3(\text{F},\text{OH})(\text{H}_2\text{O})_2\text{O}[(\text{O}_2\text{C})-\text{C}_6\text{H}_4-(\text{CO}_2)]_3 \cdot n\text{H}_2\text{O}$ ($n \approx 25$), having zeotypic giant pores can be selectively functionalized in a way differing from that of mesoporous silica. Metal–organic frameworks, grafted with ethylenediamine or diethylenetriamine on the unsaturated Cr^{III} sites of MIL-101, exhibit remarkably high activities in the Knoevenagel condensation relative to that of the mesophase.

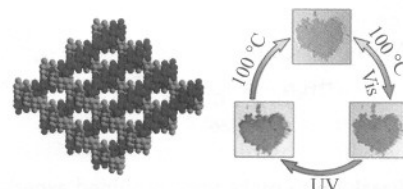
Open-Framework Materials

Z.-J. Zhang, S.-C. Xiang, G.-C. Guo,*
G. Xu, M.-S. Wang, J.-P. Zou, S.-P. Guo,
J.-S. Huang ————— 4149–4152

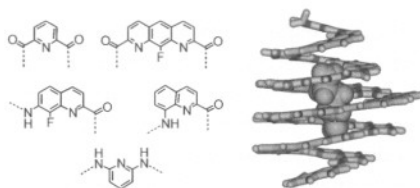


Wavelength-Dependent Photochromic
Inorganic–Organic Hybrid Based on a 3D
Iodoplumbate Open-Framework Material

Plumb pudding: A 3D iodoplumbate inorganic–organic hybrid built from purely octahedral units, obtained through in situ solvothermal synthesis, belongs to a new structural subclass of organically templated inorganic open-framework materials. It exhibits the properties of its 1D incomplete-cubane-chain building block and shows ordered and periodic quantum-wire behavior, as well as a wavelength-dependent photochromic response.



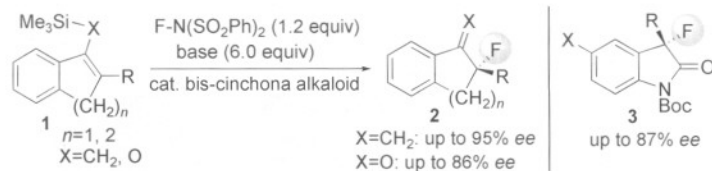
New codes for sequence–structure–function relationships can be elaborated in aromatic oligoamide foldamers upon varying main-chain components. Each monomer carries its own structural and functional features and enables oligomeric sequences to be designed to encapsulate specific guests.



Oligoamide Foldamers

C. Bao, B. Kauffmann, Q. Gan, K. Srinivas,
H. Jiang, I. Huc* _____ 4153–4156

Converting Sequences of Aromatic Amino Acid Monomers into Functional Three-Dimensional Structures: Second-Generation Helical Capsules

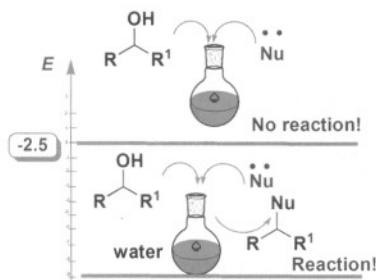


Catalytic variant: Allyl silanes and silyl enol ethers **1** are good substrates for the catalytic highly enantioselective fluorode-silylation using a combination of a bis-cinchona alkaloid, *N*-fluorobenzenesul-

fonimide (NFSI), and base (see scheme). Pharmaceutically attractive 3-aryl-3-fluorooxindoles such as **3** can also be synthesized with high enantioselectivity.

Fluorination

T. Ishimaru, N. Shibata,* T. Horikawa,
N. Yasuda, S. Nakamura, T. Toru,
M. Shiro _____ 4157-4161

Cinchona Alkaloid Catalyzed
Enantioselective Fluorination of Allyl
Silanes, Silyl Enol Ethers, and Oxindoles

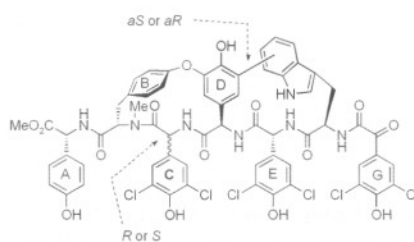
Walking on water: Which alcohols react with nucleophiles on the surface of water? The correlations introduced by Mayr et al., in which electrophiles are characterized by the parameter E , gives practical indications about the reactivity of alcohols with nucleophiles in pure water. Stable carbocations generated from the alcohols and characterized by $E < -2.5$ readily react with nucleophiles in pure water at 80 °C, without added Brønsted or Lewis acids.

Heterogeneous Reactions

P. G. Cozzi,* L. Zoli _____ 4162-4166

A Rational Approach towards the Nucleophilic Substitutions of Alcohols "on Water"

See the effect of C: Atropisomers as well as C₂₂ epimers of complestatin and chloropectin I (see picture) are readily synthesized through an intramolecular S_NAr reaction and the Suzuki–Miyaura reaction. The absolute configuration of amino acid C (red) was found to determine the atropselectivity of the aryl–aryl (blue) bond-forming reaction.



Asymmetric Synthesis

Y. Jia, M. Bois-Choussy,
J. Zhu* _____ 4167–4172

Synthesis of Diastereomers of Complestatin and Chloropeptin I: Substrate-Dependent Atropstereoselectivity of the Intramolecular Suzuki–Miyaura Reaction

Metallofullerenes

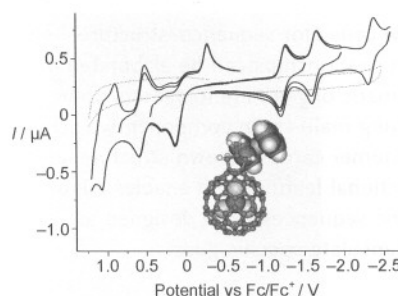
J. R. Pinzón, M. E. Plonska-Brzezinska, C. M. Cardona, A. J. Athans, S. S. Gayathri, D. M. Guldi,* M. Á. Herranz, N. Martín,* T. Torres,* L. Echegoyen* — **4173–4176**



Sc₃N@C₈₀-Ferrocene Electron-Donor/Acceptor Conjugates as Promising Materials for Photovoltaic Applications

Intriguing materials for photovoltaics:

The first trimetallic nitride endohedral metallofullerene covalently connected to a donor group is efficiently synthesized in a 1,3-dipolar cycloaddition reaction. Exclusive formation of the [5,6]-regioisomer in the isolated *N*-methyl-2-ferrocenyl-*I_h*-Sc₃N@C₈₀-fulleropyrrolidine is confirmed by NMR spectroscopy and electrochemistry (see picture).

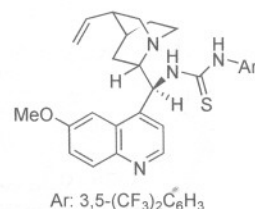
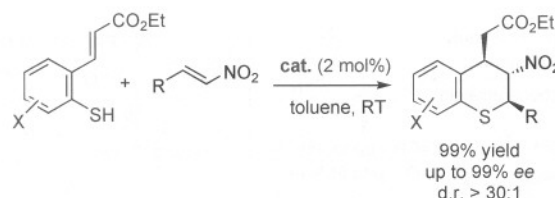


Cascade Reactions

J. Wang, H. Xie, H. Li, L.-S. Zu, W. Wang* — **4177–4179**



A Highly Stereoselective Hydrogen-Bond-Mediated Michael–Michael Cascade Process through Dynamic Kinetic Resolution



Oh Mickey, you're so fine: The title reaction, which is efficiently catalyzed by a cinchona alkaloid thiourea affords direct access to thiochromanes in high effi-

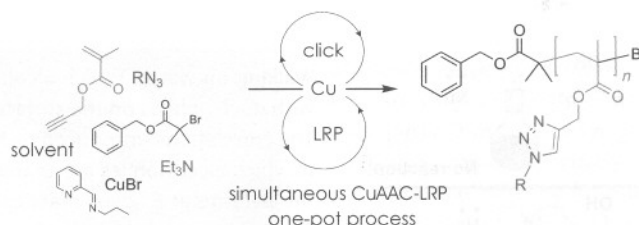
ciency. The reaction features a new activation mode of organocatalytic dynamic kinetic resolution involving a Michael–retro-Michael–Michael–Michael cascade.

Living Polymerization

J. Geng, J. Lindqvist, G. Mantovani,* D. M. Haddleton* — **4180–4183**



Simultaneous Copper(I)-Catalyzed Azide–Alkyne Cycloaddition (CuAAC) and Living Radical Polymerization



All in one: CuBr/iminopyridine systems can catalyze simultaneously both copper(I)-catalyzed azide–alkyne cycloaddition (CuAAC, “click”) and living radical polymerization (LRP) processes (see scheme). The relative rate of the two

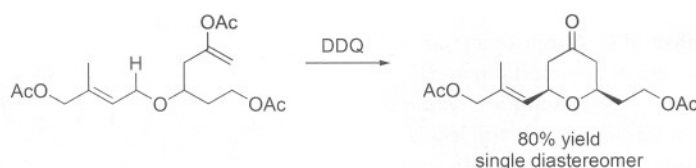
processes can be tailored by a judicious choice of the reaction conditions (solvent, temperature, [CuBr]₀) leading to the development of a potentially very efficient synthetic route to well-defined functional polymers.

C–H Bond Activation

W. Tu, L. Liu, P. E. Floreancig* — **4184–4187**

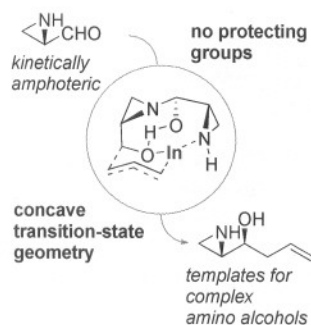


Diastereoselective Tetrahydropyrone Synthesis through Transition-Metal-Free Oxidative Carbon–Hydrogen Bond Activation



C–C bonds from C–H bonds: Tethering nucleophilic groups to benzylic and allylic ethers allows cyclization reactions by DDQ-mediated oxidative carbon–hydrogen bond activation (see scheme;

DDQ = 2,3-dichloro-5,6-dicyano-1,4-benzoquinone). The method is operationally simple, proceeds with a wide range of ether groups, is tolerant of functional groups, and is highly stereoselective.

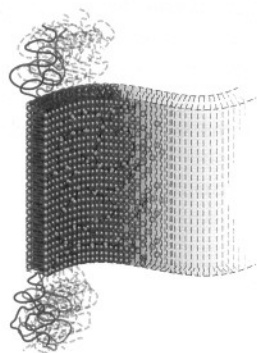


Apples and oranges: The term “ampho-teric” is derived from the Greek “ampho-teros”, which literally means “both of two”. Amphoteric amino aldehydes are counterintuitive molecules in that they contain both electrophilic and nucleophilic centers. These small but powerful reagents can be used for the streamlined construction of complex amino alcohol scaffolds (see scheme). Their premature self-destruction is prevented on kinetic grounds.

Synthetic Methods

R. Hili, A. K. Yudin* — 4188–4191

Amphoteric Amino Aldehydes Enable Rapid Assembly of Unprotected Amino Alcohols

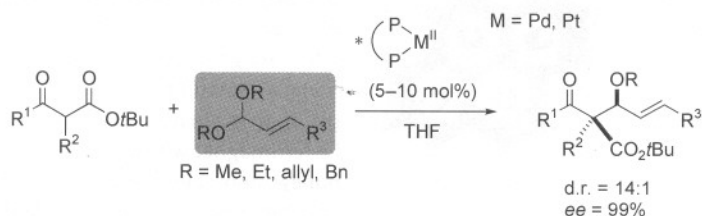


Concerted effects: Triblock peptide copolymers, organic multidentate ligands, and Zn^{2+} ions associate spontaneously into well-defined nanoribbons when dissolved at proper ratios in water at moderate pH values. These nanofibers are stabilized by an extraordinary concerted effect of distinct noncovalent interactions: metal–ligand complexation, hydrogen bonding, hydrophobic interaction, and polyelectrolyte complexation between coordination polymers and the charged blocks of the peptide copolymers.

Polypeptides

Y. Yan,* A. A. Martens, N. A. M. Besseling, F. A. de Wolf, A. de Keizer, M. Drechsler, M. A. Cohen Stuart* — 4192–4195

Nanoribbons Self-Assembled from Triblock Peptide Polymers and Coordination Polymers



Asymmetric Catalysis

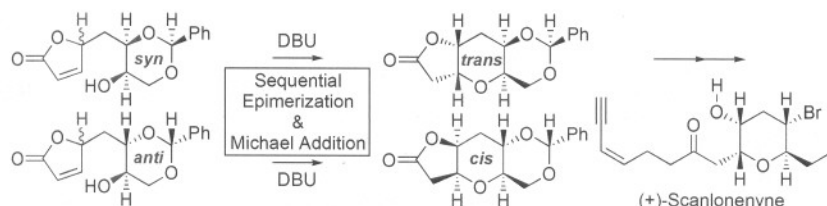
N. Umebayashi, Y. Hamashima, D. Hashizume, M. Sodeoka* — 4196–4199

Catalytic Enantioselective Aldol-type Reaction of β -Ketesters with Acetals



Two activations, one catalyst: By using cationic Pd and Pt complexes, a catalytic enantioselective aldol-type reaction of β -ketoesters with acetals has been developed (see scheme). The formation of

metal enolates occurs under acidic conditions to allow the use of acetals as electrophiles to give the desired aldol products in high diastereoselectivity and enantioselectivity.



A synthetic three-ring circus: The asymmetric total synthesis of (+)-scanlonenine includes a sequential epimerization and intramolecular hetero-Michael addition for the construction of pyrano- γ -lactones (see scheme; DBU: 1,8-diaza-

bicyclo[5.4.0]undec-7-ene), a highly efficient one-carbon homologation/bromination strategy, and a Weinreb ketone synthesis/cross-metathesis protocol for the elaboration of a sensitive side chain.

Natural Product Synthesis

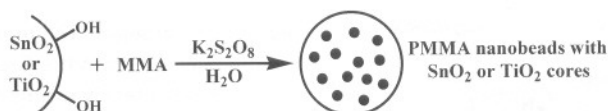
H. Lee, K. W. Kim, J. Park, H. Kim, S. Kim, D. Kim,* X. Hu, W. Yang, J. Hong — 4200–4203

A General Strategy for Construction of Both 2,6-*cis*- and 2,6-*trans*-Disubstituted Tetrahydropyrans: Substrate-Controlled Asymmetric Total Synthesis of (+)-Scanlonenine



Nanostructured Enrichment Materials

H.-M. Xiong, X.-Y. Guan, L.-H. Jin,
W.-W. Shen, H.-J. Lu,*
Y.-Y. Xia* 4204–4207

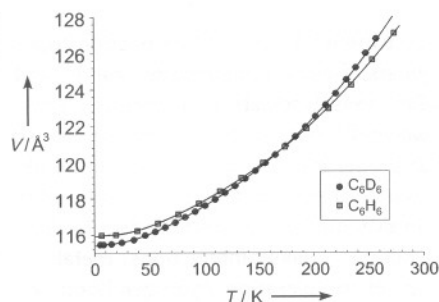


Extremely low concentrations of peptides and proteins can be enriched from complex solutions by SnO_2 @PMMA and TiO_2 @PMMA core-shell nanobeads with controlled size and composition (see picture for schematic synthesis), and their

MALDI-TOF MS signal intensities and signal-to-noise ratios are also significantly improved. These effects are ascribed to the physical properties and structure of the nanobeads. PMMA = poly(methyl methacrylate).

Deuterium Isotope Effects

J. D. Dunitz,*
R. M. Ibberson* 4208–4210

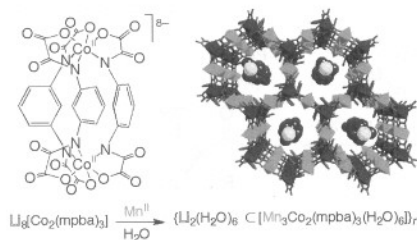


A question of size: At low temperatures the molecular volume in crystalline deuterated benzene is smaller than in the hydrogen isotopologue; above 170 K, however, the reverse is true (see graph).

Is Deuterium Always Smaller than Protium?

Molecular Magnets

E. Pardo, D. Cangussu, M. C. Dul,
R. Lescouëzec, P. Herson, Y. Journaux,*
E. F. Pedroso, C. L. M. Pereira,
M. C. Muñoz, R. Ruiz-García, J. Cano,
P. Amorós, M. Julve,
F. Lloret* 4211–4216

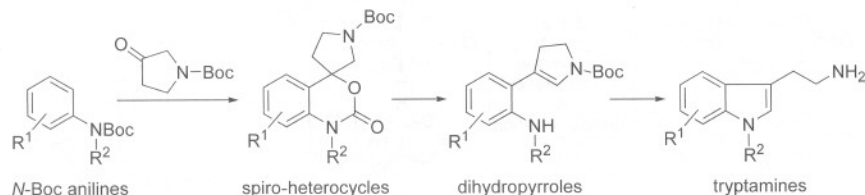


Building a three-dimensional magnet: The manganese(II)-mediated self-assembly of a ferromagnetically coupled dicobalt(II) metallacryptand provides the first example of an oxamato-bridged heterobimetallic ferrimagnet with a three-dimensional honeycomb open-framework structure hosting linear arrays of water-bridged lithium(I) guests (see picture; mpba = 1,3-phenylenebis(oxamato)).

A Metallacryptand-Based Manganese(II)–Cobalt(II) Ferrimagnet with a Three-Dimensional Honeycomb Open-Framework Architecture

Heterocycles

K. C. Nicolaou,* A. Krasovskiy,
V. É. Trépanier,
D. Y.-K. Chen* 4217–4220



An Expedient Strategy for the Synthesis of Tryptamines and Other Heterocycles

Making many from one: N-Boc-protected anilines are converted into an array of useful N-heterocycles and tryptamines through an expedient, cascade-based

synthetic sequence involving *ortho* metalation and subsequent coupling with N-Boc-pyrrolidin-3-one (see scheme).

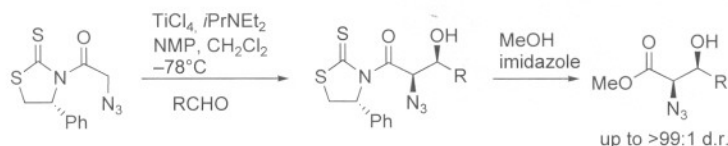


Alkaloids alchemy: A synthesis of the *Lycopodium* alkaloid (+)-fawcettidine (see structure) has been developed which requires 16 steps from (*R*)-(+)-pulegone as the chiral starting material. Key steps include a platinum(II)-catalyzed annulation reaction of a functionalized enamide and a one-pot Ramberg–Bäcklund process.

Alkaloid Synthesis

J. A. Kozak, G. R. Dake* — 4221–4223

Total Synthesis of (+)-Fawcettidine



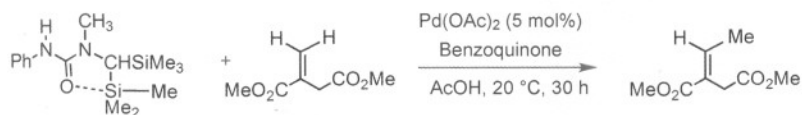
Titanium stability: *syn* α -Amino- β -hydroxy acid derivatives were prepared in excellent diastereoselectivities by an aldol reaction with chiral *N*-(azidoacetyl)thiazolidin-2-thione derivatives (see scheme);

NMP = *N*-methylpyrrolidinone). Titanium enolates of these derivatives are stable and provide a new and efficient method to access chiral amino acids.

Synthetic Methods

J. Patel, G. Clavé, P.-Y. Renard, X. Franck* — 4224–4227

Straightforward Access to Protected *syn* α -Amino- β -hydroxy Acid Derivatives



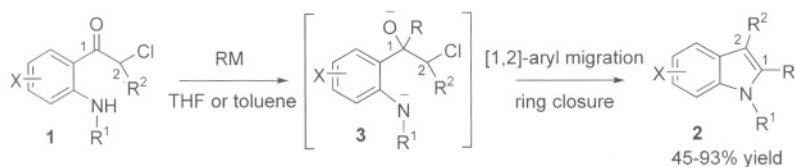
Intramolecular assistance: Carbon-bound trimethylsilyl groups are activated intramolecularly by a carbonyl group and can participate in Heck reactions under ox-

idative conditions. Good stereoselectivities are obtained for a range of di- and trisubstituted alkenes (see example).

Intermolecular Heck Methylations

W. Rauf, J. M. Brown* — 4228–4230

Catalytic Amide-Mediated Methyl Transfer from Silanes to Alkenes in Fujiwara–Moritani Oxidative Coupling



Closing in on the product: A range of 2- and 2,3-substituted indoles **2** have been synthesized in moderate to excellent yields by the addition of carbon nucleophiles (organometallic reagents, RM) to

readily accessible 1-(2-aminophenyl)-2-chloroethanones of type **1** under mild conditions (see scheme). A mechanism has been proposed that involves a unique [1,2]-aryl migration of intermediate **3**.

Synthetic Methods

T. Pei,* C.-Y. Chen,* P. G. Dormer, I. W. Davies — 4231–4233

Expanding the [1,2]-Aryl Migration to the Synthesis of Substituted Indoles

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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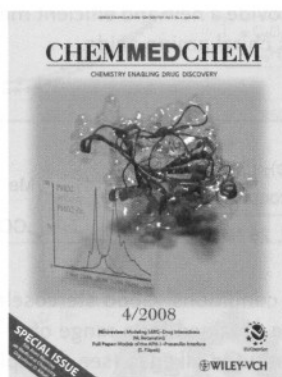
Authors _____ 4235

Preview _____ 4237

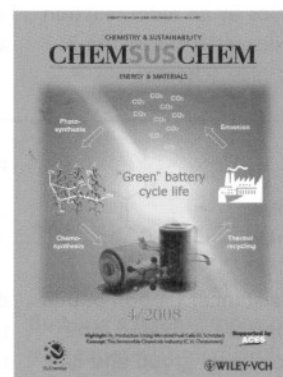
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Corrigendum

Medicinal Chemistry: F. von Nussbaum
Honored Solid-State Chemistry: Prize to
T. Loiseau Literature: 100 Years of CAS

_____ 3086–3086

Angew. Chem. Int. Ed. **2008**, 47

DOI 10.1002/anie.200800839

The last sentence in the news item in Issue 17 was incorrect. It should read: "CAS Director Robert Massie (right) presented an accolade to Dr. Reinhard Neudert on behalf of Wiley-VCH in recognition of the many years of collaboration."

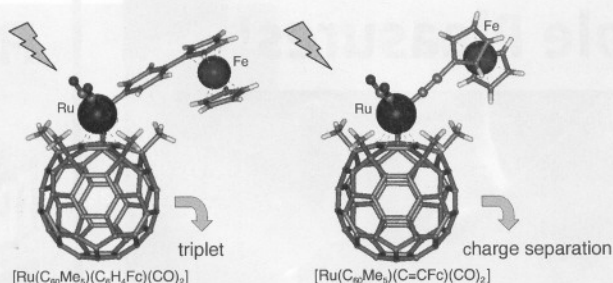
Fullerenes

Y. Matsuo,* K. Matsuo, T. Nanao,
R. Marczak, S. S. Gayathri,
D. M. Guldi,* E. Nakamura*

A Ruthenium Bridge in
Fullerene–Ferrocene Arrays: Synthesis of
[Ru(C₆₀Me₅)R(CO)₂] (R = C₆H₄Fc,
C≡CFc) and Their Charge-Transfer
Properties

Chem. Asian J.

DOI: 10.1002/asia.200700379



Making the connection: The new phenylene- and acetylene-bridged ferrocene–ruthenium–fullerene arrays shown convert into different states upon photoirradiation in toluene. The organometallic

connection thus provides a convenient and efficient way to control the physical behavior of donor/acceptor molecules. Fc = ferrocenyl.

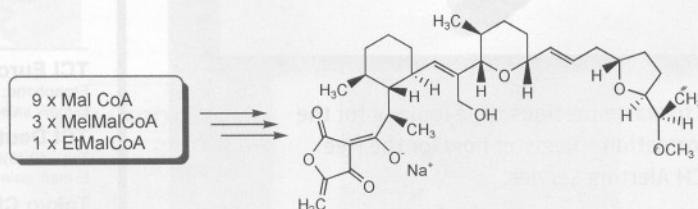
Biosynthesis

Y. Demydchuk, Y. Sun, H. Hong,
J. Staunton, J. B. Spencer, P. F. Leadlay*

Analysis of the Tetronomycin Gene
Cluster: Insights into the Biosynthesis of
a Polyether Tetronate Antibiotic

ChemBioChem

DOI: 10.1002/cbic.200700715



Molecular origami. Analysis of the biosynthetic gene cluster for the polyether tetronate antibiotic, tetronomycin, and the results of specific gene disruption have led to a detailed proposal for the multistep process in which a modular

polyketide synthase produces a C-26 polyketide chain, which is then folded and cyclised with complete stereochemical fidelity to create the metal-binding cavity of the ionophore (see illustration).

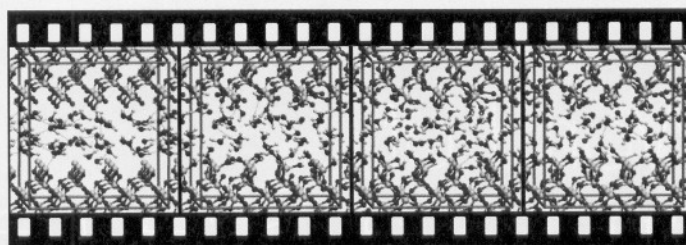
Molecular Dynamics

W. A. Adeagbo, N. L. Doltsinis,*
K. Klevakina, J. Renner

Transport Processes at α -Quartz–Water
Interfaces: Insights from First-Principles
Molecular Dynamics Simulations

ChemPhysChem

DOI: 10.1002/cphc.200700819



Hydroxylation of quartz surfaces: Car–Parrinello MD simulations, performed at high temperature and pressure, investigate processes at the α -quartz–water interface (see snapshot series). The

model system initially has O-terminated and Si-terminated surfaces sandwiching a film of liquid water. Eventually, both surfaces are fully hydroxylated and no further chemical reactions are observed.

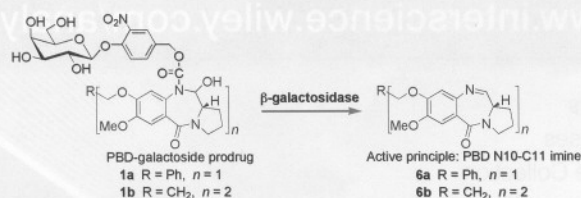
Antitumor Prodrugs

A. Kamal,* V. Tekumalla, A. Krishnan,
M. Pal-Bhadra, U. Bhadra*

Development of Pyrrolo[2,1-c][1,4]-
benzodiazepine β -Galactoside Prodrugs
for Selective Therapy of Cancer by
ADEPT and PMT

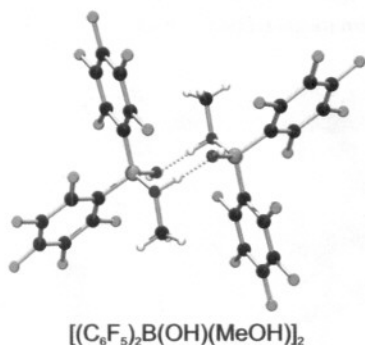
ChemMedChem

DOI: 10.1002/cmdc.200700328



Selective and effective: Two PBD-galactoside prodrugs **1a–b** have been synthesized and evaluated for use in selective therapy of cancer by ADEPT and PMT

protocols. The two prodrugs display anti-tumor activity closely resembling their parent moieties, when activated by the enzyme β -galactosidase.



$[(\text{C}_6\text{F}_5)_2\text{B}(\text{OH})(\text{MeOH})]_2$

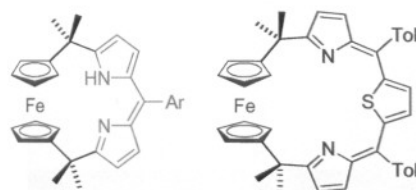
The complementary Lewis acid–base and hydrogen-bond donor/acceptor properties of $(\text{C}_6\text{F}_5)_2\text{BOH}$ and MeOH give rise to a number of interlaced association equilibria. In particular, hydrogen-bond pairing of the covalent adduct affords a dimer, the key intermediate in the esterification reaction, in fast equilibrium with the acid and ester through intramolecular proton transfer, as revealed by low-temperature NMR spectroscopy.

Perfluoroborinic Acid

D. Donghi, D. Maggioni, T. Beringhelli, G. D'Alfonso,* P. Mercandelli,* A. Sironi

Hydrogen Bonding and Lewis Acid–Base Interactions in the System Bis(pentafluorophenyl)borinic Acid / Methanol

Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.200701210



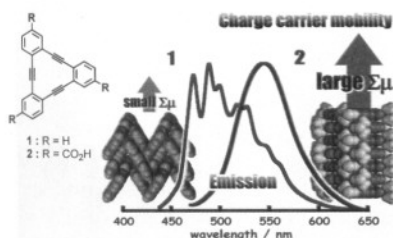
Ferrocene acts as a versatile building block for the construction of porphyrinoids, providing access to macrocyclic structures of various shapes and sizes. The two representative systems, shown in the figure, adopt helical conformations that undergo dynamic inversion in solution.

Porphyrin Analogues

M. Stępień, I. Simkova, L. Latos-Grażyński*

Helical Porphyrinoids: Incorporation of Ferrocene Subunits into Macrocyclic Structures

Eur. J. Org. Chem.
DOI: 10.1002/ejoc.200800146



Face up to it: The face-to-face stacked 1D column composed of [12]DBA macrocycle was successfully achieved by using the carboxylic derivative **2** in a crystalline state. Compared with the herringbone assembly of the parent compound **1**, the crystal of **2** exhibits superstructure-dependent properties: a red-shifted, broadened, weakened fluorescence profile and significantly anisotropic charge mobility along the columnar axis.

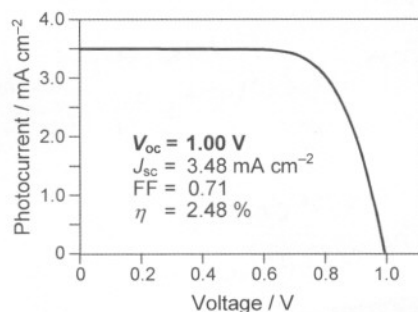
Dehydroannulenes

I. Hisaki,* Y. Sakamoto, H. Shigemitsu, N. Tohnai, M. Miyata,* S. Seki, A. Saeki, S. Tagawa

Superstructure-Dependent Optical and Electrical Properties of an Unusual Face-to-Face, π -Stacked, One-Dimensional Assembly of Dehydrobenzo[12]annulene in the Crystalline State

Chem. Eur. J.
DOI: 10.1002/chem.200800228

The big 1.0: A dye-sensitized solar cell that combines Mg-containing TiO_2 electrodes and an organic photosensitizer 2-cyano-3-(4-*N,N*-diphenylaminophenyl)-*trans*-acrylic acid displays the highest open-circuit voltage reported so far ($V_{\text{oc}} = 1.00 \text{ V}$). The electrodes have a negatively shifted conduction band, and the photosensitizer has a sufficiently negative LUMO energy level to inject the photoexcited electrons into the electrode efficiently.



Dye-Sensitized Solar Cells

S. Iwamoto,* Y. Sazanami, M. Inoue, T. Inoue, T. Hoshi, K. Shigaki, M. Kaneko, A. Maenosono

Fabrication of Dye-Sensitized Solar Cells with an Open-Circuit Photovoltage of 1 V

ChemSusChem
DOI: 10.1002/cssc.200700163