



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:

L. Soderholm,* P. M. Almond, S. Skanthakumar, R. E. Wilson, P. C. Burns*

The Structure of a 38-Plutonium Oxide Nanocluster:
 $[\text{Pu}_{38}\text{O}_{56}\text{Cl}_{54}(\text{H}_2\text{O})_8]^{14-}$

T. Dohi, M. Ito, K. Morimoto, M. Iwata, Y. Kita*

Single Electron Transfer Induced Oxidative Cross-Coupling of Arenes Leading to Biaryls by the Use of Organoiodine(III) Oxidants

Y. Filinchuk,* D. Chernyshov, A. Nevidomskyy, V. Dmitriev

High-Pressure Polymorphism as a Step towards Destabilization of LiBH_4

V. Aubert, V. Guerchais, E. Ishow, K. Hoang-Thi, I. Ledoux, K. Nakatani, H. Le Bozec*

Efficient Photoswitching of the Nonlinear Optical Properties of Dipolar Photochromic Zinc(II) Complexes

D. Maiti, D.-H. Lee, K. Gaoutchenova, C. Würtele, M. C. Holthausen, A. A. N. Sarjeant, J. Sundermeyer, S. Schindler, K. D. Karlin*

Copper(II)-Superoxo Complex Reactions Lead to C–H and O–H Substrate Oxygenations: Modeling Copper-Monooxygenase C–H Hydroxylation

K. Tanaka, T. Masuyama, K. Hasegawa, T. Tahara, H. Mizuma, Y. Wada, Y. Watanabe, K. Fukase*

A Submicrogram-Scale Protocol for Biomolecule-Based PET Imaging via Rapid 6π Azaelectrocyclization: Visualization of Sialic Acid Dependent Circulatory Residence of Glycoproteins

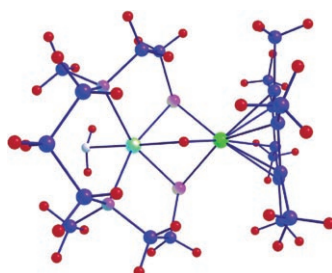
New Frontiers in Asymmetric Catalysis

Koichi Mikami, Mark Lautens

Books

reviewed by J. Zhu ————— 8938

Not just a pretty face: A new structural model for the [NiFe] hydrogenases (see structure, pale green Ni, dark green Ru, pink S, red H) is also functional: it activates H_2 to give a bimetallic hydride and H^+ . This advance will encourage reinvestigation of the heterolysis of the implied H_2 adduct. Questions arise regarding Ni^{II} low-spin to high-spin interconversion and reclassification of [FeFe] versus [NiFe] hydrogenase models.



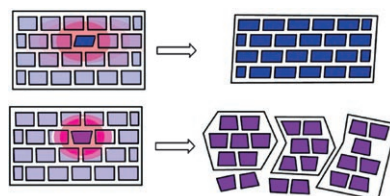
Highlights

Hydrogenase Modeling

C. Mealli,* T. B. Rauchfuss* 8942–8944

Models for the Hydrogenases Put the Focus Where It Should Be—Hydrogen

Molecular musclemen: Local stress from organic solid-state photoreactions may be released in a catastrophic manner, causing single crystals to fragment (see picture, bottom). Alternatively, crystals in topotactic reactions (see picture, top) release the stress by changing size and shape. These mechanical processes may be used to design photoactuators capable of performing work at the nano- to micrometer scales.



Crystalline Molecular Machines

M. A. Garcia-Garibay* ——— 8945–8947

Molecular Crystals on the Move: From Single-Crystal-to-Single-Crystal Photoreactions to Molecular Machinery

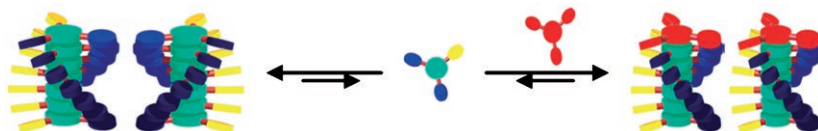
Reviews

Chirality Amplification

A. R. A. Palmans,
E. W. Meijer* — 8948–8968



Amplification of Chirality in Dynamic Supramolecular Aggregates



Origin of chirality: A subtle interplay of noncovalent interactions is necessary to observe the amplification of chirality in dynamic systems. Understanding why some systems amplify chirality may, ultimately,

help answer the question as to how the molecules of life became homochiral. (The picture shows the sequence of fixing the chirality in a supramolecular aggregate.)

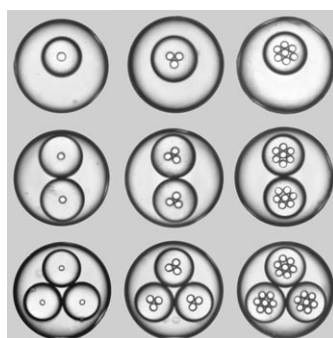
Communications

Microfabrication

L.-Y. Chu,* A. S. Utada, R. K. Shah,
J.-W. Kim, D. A. Weitz* — 8970–8974



Controllable Monodisperse Multiple Emulsions



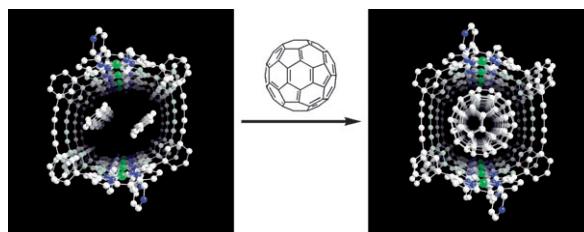
A drop within a drop within a drop: A microfluidic technique is used to generate highly controlled multiple emulsions (see picture). The high degree of control and scalability afforded by this method makes it a flexible and promising route for engineering designer emulsions and microcapsules with multiphase structures. Moreover, its generality will enable fabrication of novel materials containing complex internal structures.

Organic Nanotubes

H. Nobukuni, Y. Shimazaki, F. Tani,*
Y. Naruta — 8975–8978



A Nanotube of Cyclic Porphyrin Dimers Connected by Nonclassical Hydrogen Bonds and Its Inclusion of C₆₀ in a Linear Arrangement



Like peas in a pod: X-ray crystallography reveals a self-assembled nanotube of cyclic porphyrin dimers and its inclusion complex with C₆₀ (see picture, N blue, Ni green). The cyclic molecules stack

through nonclassical C–H...N hydrogen bonds and π–π interactions of pyridyl groups to form the tubular structure. The C₆₀ molecules are linearly arranged to form a supramolecular peapod.

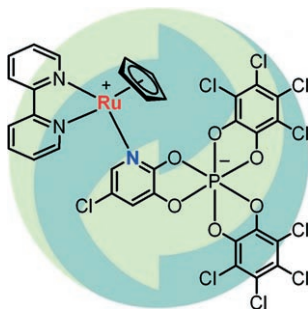
For the USA and Canada:

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electronic / print or electronic delivery); for individuals who are personal members of a national chemical society prices are available on request. Postage and handling charges included. All prices are subject to local VAT/sales tax.

Reduce, reuse, recycle: Zwitterionic adducts of pyridyl-containing hexacoordinate phosphorus anions and $(C_5H_5)_3Ru$ moieties (see picture) are air-, moisture-, and microwave-stable catalysts that can be readily purified and in some instances recycled. Carroll rearrangements of allylic β -ketoesters performed with these species occur with improved regio- and enantioselectivity.



Homogeneous Catalysis

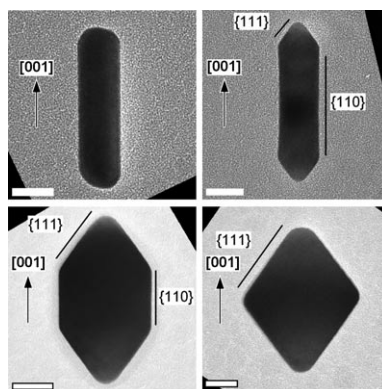


S. Constant, S. Tortoili, J. Müller,
D. Linder, F. Buron,
J. Lacour* ————— **8979 – 8982**

Air- and Microwave-Stable $(C_5H_5)_3Ru$
Catalysts for Improved Regio- and
Enantioselective Carroll Rearrangements



Changing faces: The shape of gold nanorods can be finely tuned by controlled growth under sonication in DMF in the presence of poly(vinylpyrrolidone). Reshaping involves the formation of rods with sharp tips and strongly faceted lateral faces, and ultimately leads to perfect, single-crystal octahedrons (see images). Mechanistic considerations indicate a shape-inducing effect of the polymer through different binding interactions for the different faces.



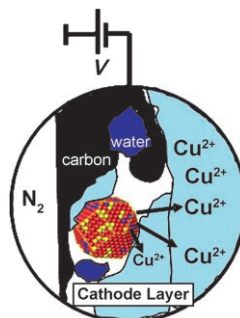
Gold Nanostructures

E. Carbó-Argibay, B. Rodríguez-González,
J. Pacifico, I. Pastoriza-Santos,*
J. Pérez-Juste,
L. M. Liz-Marzán* ————— **8983 – 8987**

Chemical Sharpening of Gold Nanorods:
The Rod-to-Octahedron Transition



Getting rid of copper: A class of ternary Pt–Cu–Co electrocatalysts for the reduction of oxygen in polymer electrolyte membrane fuel cells shows unprecedented activity improvements over state-of-the-art Pt catalysts. The active phase of the catalysts is synthesized by selective electrochemical dissolution (dealloying, see picture) of Cu-rich alloy-particle precursors, resulting in Pt-enriched core-shell particles.



Electrocatalysis

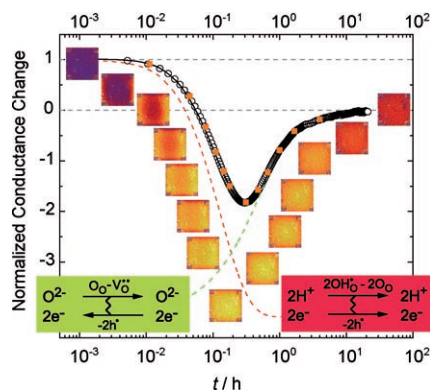


R. Srivastava, P. Mani, N. Hahn,
P. Strasser* ————— **8988 – 8991**

Efficient Oxygen Reduction Fuel Cell
Electrocatalysis on Voltammetrically
Dealloyed Pt–Cu–Co Nanoparticles



Hydrogen first, oxygen next: The kinetics of water incorporation in situ has been followed by spatially resolved local optical absorption spectroscopy as well as by integral conductance by using $SrTiO_3$ as a model oxide proton conductor. The surprising nonmonotonic redox kinetics can be explained by a decoupling of the H_2O diffusion into a fast diffusion of hydrogen and a more sluggish diffusion of oxygen (see picture).

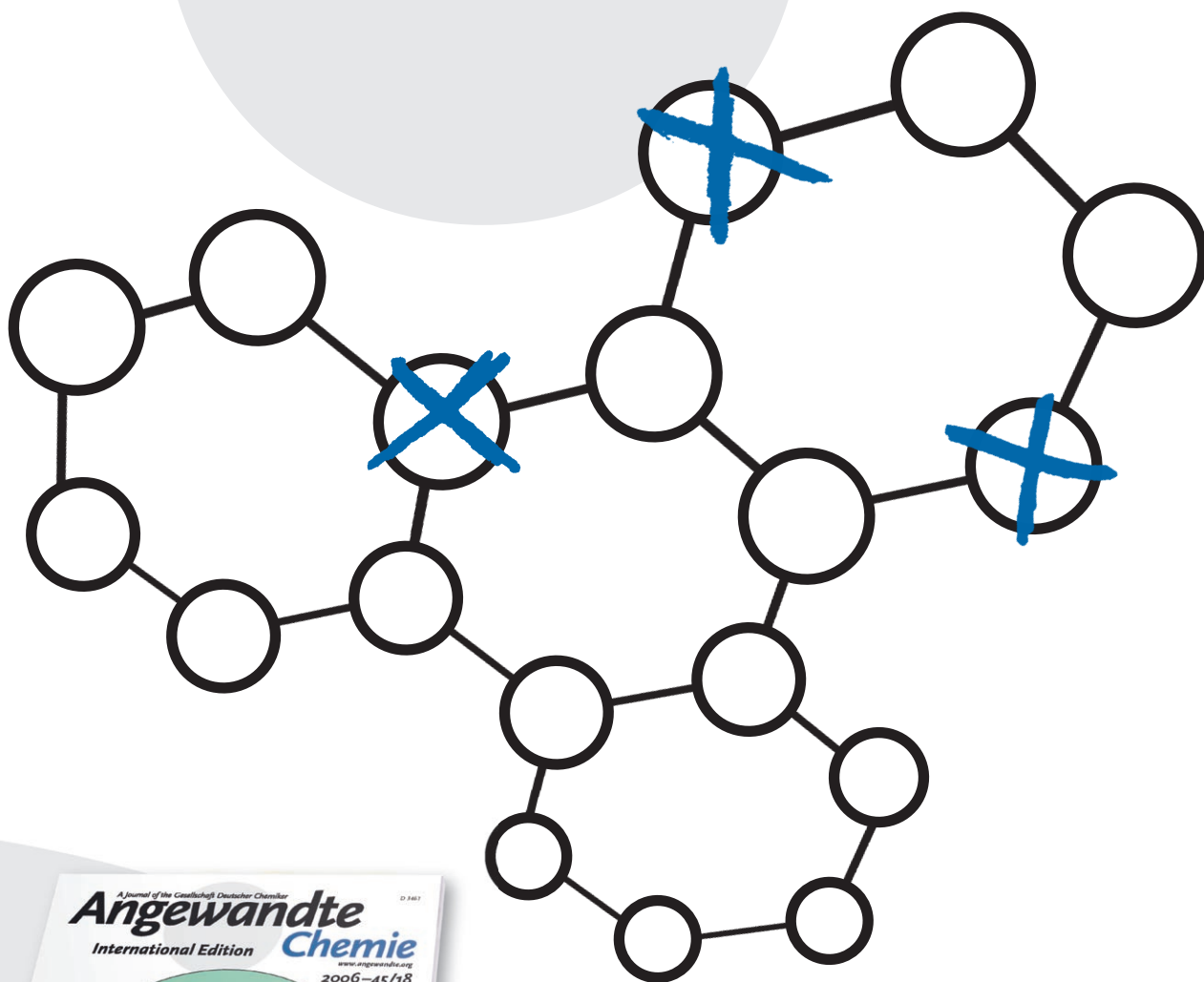


Water Incorporation

J. H. Yu, J.-S. Lee,* J. Maier* **8992 – 8994**

Peculiar Nonmonotonic Water
Incorporation in Oxides Detected by Local
In Situ Optical Absorption Spectroscopy

Incredibly *selective!*



Angewandte Chemie chooses its articles carefully. Most of its Reviews, Highlights, and Essays are written upon invitation, from authors who are among the very best in their fields. Just 30 % of all submitted Communications in 2006 were accepted after peer review - only about 1400 from nearly 5000. Communications that are judged to be exceptionally important within a particular field are featured as Very Important Papers (VIPs).

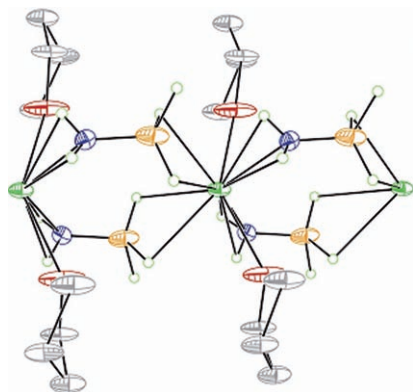


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No foaming at the mouth here: A calcium(II) derivative of ammonia-borane, $\text{Ca}(\text{NH}_2\text{BH}_3)_2$ (see picture; green Ca, red O, blue N, yellow B, gray C, small green H), has thermal properties that are quite different from those of ammonia-borane. $\text{Ca}(\text{NH}_2\text{BH}_3)_2$ releases hydrogen over a temperature range of 100 to 170 °C without foaming.

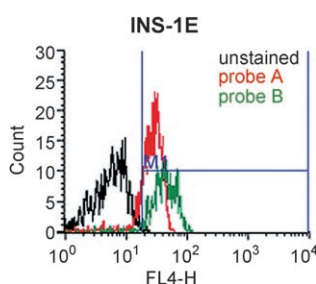
Hydrogen Storage

H. V. K. Diyabalanage, R. P. Shrestha, T. A. Semelsberger, B. L. Scott, M. E. Bowden, B. L. Davis, A. K. Burrell* — 8995 – 8997

Calcium Amidotrihydroborate:
A Hydrogen Storage Material



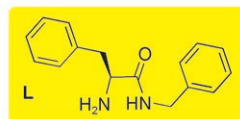
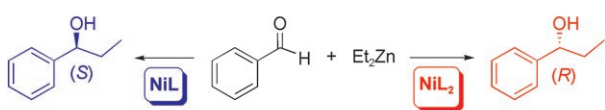
Labeling diabetes: Streptozotocin-derived, cyanine-5.5-labeled imaging probes were synthesized and tested with the beta-cell-mimic INS-1E cell line in cell uptake assays, as well as by flow cytometry and confocal microscopy. Both probes showed superb labeling of INS-1E cells and human pancreatic islets (see graph) with no toxicity.



Fluorescent Probes

C. Ran, P. Pantazopoulos, Z. Medarova,* A. Moore* — 8998 – 9001

Synthesis and Testing of Beta-Cell-Specific Streptozotocin-Derived Near-Infrared Imaging Probes



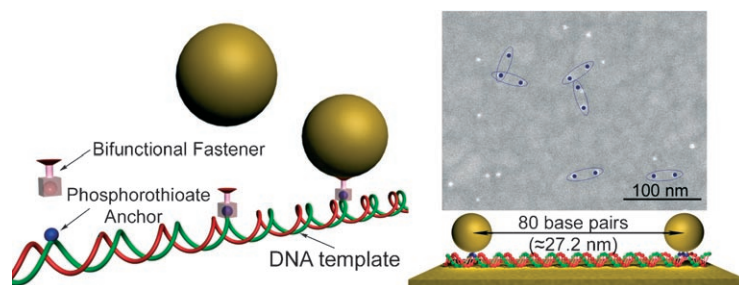
Asymmetric Catalysis

M. I. Burguete,* M. Collado, J. Escorihuela, S. V. Luis* — 9002 – 9005

Efficient Chirality Switching in the Addition of Diethylzinc to Aldehydes in the Presence of Simple Chiral α -Amino Amides

It works both ways: A very simple and efficient dual enantioselective control in the addition of diethylzinc to benzaldehyde can be achieved by using nickel complexes of chiral α -amino amide derivatives.

Whereas complexes with 1:1 stoichiometries afford the *S* alcohol as the major enantiomer, 1:2 (metal/ligand) complexes lead to the predominant formation of the *R* enantiomer (see scheme).



Going for double gold: Precise control of the positions of and distances between gold nanoparticles (AuNP; gold spheres in picture) is achieved by linking the AuNPs to phosphorothioate-modified

DNA (green and red helices) with a bifunctional fastener. The distance between AuNPs is controlled simply by changing the position of the modifications on the DNA template.

DNA Nanotechnology

J. H. Lee, D. P. Wernette, M. V. Yigit, J. Liu, Z. Wang, Y. Lu* — 9006 – 9010

Site-Specific Control of Distances between Gold Nanoparticles Using Phosphorothioate Anchors on DNA and a Short Bifunctional Molecular Fastener

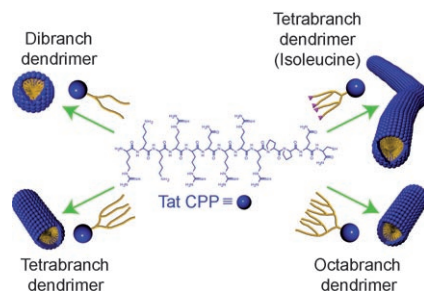


Peptide-Coated Nanostructures

Y.-b. Lim, E. Lee, M. Lee* — 9011–9014



Controlled Bioactive Nanostructures from Self-Assembly of Peptide Building Blocks



Dendrimers wearing functional coats:

Dendrimerization of hydrophobic lipid segments in supramolecular building blocks comprising lipid dendrimers and Tat cell-penetrating peptide (Tat CPP; see schematic representation) enables the morphology, size, and aggregation strength of peptide-coated functional nanostructures to be controlled.

Nanoparticles

F. Boato, R. M. Thomas, A. Ghasparian, A. Freund-Renard, K. Moehle, J. A. Robinson* — 9015–9018



Synthetic Virus-Like Particles from Self-Assembling Coiled-Coil Lipopeptides and Their Use in Antigen Display to the Immune System

Vanquishing viruses: Access to nanoscale particles is provided by synthetic lipopeptide building blocks that self-assemble into virus-like particles in aqueous solution, and which can be decorated with synthetic antigens for the purpose of generating humoral antigen-specific immune responses in vivo.



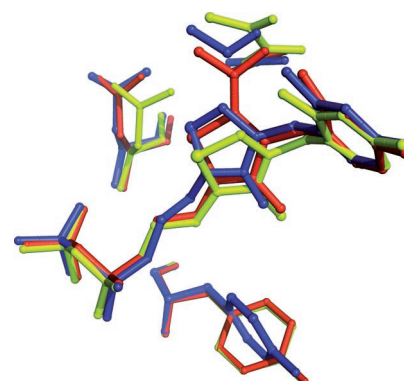
Molecular Modeling of Enzymes

P. Amara,* I. Fdez. Galván, J. C. Fontecilla-Camps,* M. J. Field — 9019–9022



The Enamine Intermediate May Not Be Universal to Thiamine Catalysis

Contrast and controversy: Molecular modeling of the degradation of pyruvate in the active site of pyruvate:ferredoxin oxidoreductase (PFOR) and comparison of the energy cost of enamine formation in PFOR and transketolase has shown that in this case enamine formation, generally postulated for such enzymes, is unlikely. Optimized structures of possible intermediates are shown overlayed with an X-ray crystal structure of the active site of the radical PFOR.

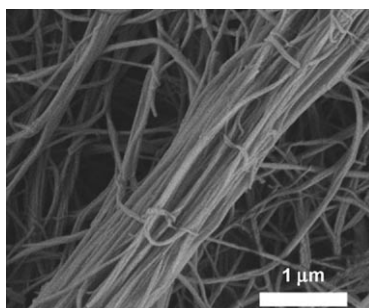


Biomimetalization

S. Kessel, A. Thomas, H. G. Börner* — 9023–9026

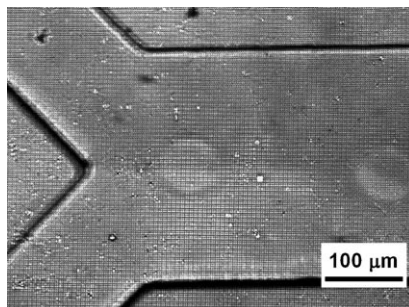


Mimicking Biosilicification: Programmed Coassembly of Peptide–Polymer Nanotapes and Silica



Spinning a yarn: A biomimetic approach to hierarchically structured silica composite fibers mimics the process of bioglass fiber formation. The fibers, which tend to form bundles (see image), are formed in seconds by combining the self-assembly of peptide–polymer conjugates with peptide-directed silicification. These reinforced silica fibers exhibit a structure with six levels of hierarchical order.

Go with the flow: The combination of phase-mask interference lithography and microfluidic flow lithography yields stop-flow interference lithography, a new route for the fabrication of large numbers of three-dimensionally patterned polymeric particles with sub-micrometer features. For example, two-sided Janus particles can be formed when streams of different photopolymerizable liquids are combined (see picture).

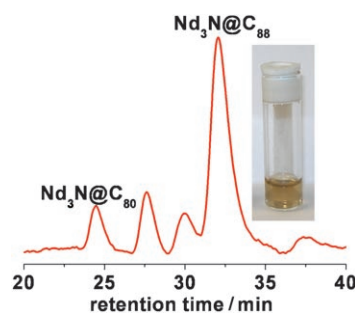


Lithography

J.-H. Jang, D. Dendukuri, T. A. Hatton, E. L. Thomas,* P. S. Doyle* **9027–9031**

A Route to Three-Dimensional Structures in a Microfluidic Device: Stop-Flow Interference Lithography

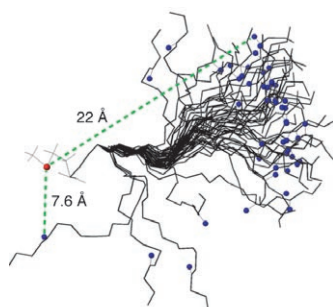
Nd₃N pushes the limits: Unlike all the other encapsulated trimetallic nitride clusters (Sc₃N, Y₃N, Dy₃N, Gd₃N, ...), which prefer a C₈₀ cage, the Nd₃N cluster is preferentially encapsulated in a larger C₈₈ cage (see the HPLC trace in the picture). UV/Vis/NIR spectroscopy and electrochemistry performed on the isolated Nd₃N@C₈₈ fraction show a very small band gap for this compound.



Endohedral Fullerenes

F. Melin, M. N. Chaur, S. Engmann, B. Elliott, A. Kumbhar, A. J. Athans, L. Echegoyen* **9032–9035**

The Large Nd₃N@C_{2n} (40 ≤ n ≤ 49) Cluster Fullerene Family: Preferential Templating of a C₈₈ Cage by a Trimetallic Nitride Cluster

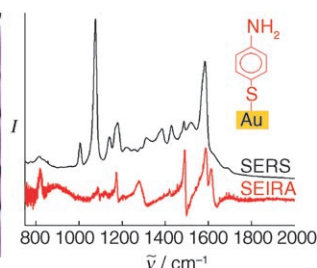
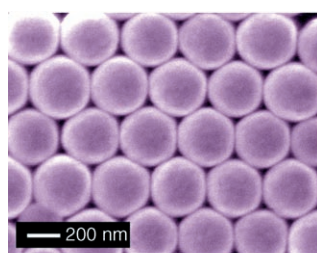


Local order goes with random coil: An ensemble of peptide structures is generated with over 90% extended conformation for Ala and Pro. The population-averaged long-range distance from the N-terminal spin-label residue (see picture, red dot) to the C-terminal amide proton of Ala (blue dots) is fully consistent with the results from NMR spin relaxation measurements.

Protein Folding

K. Chen,* Z. Liu, C. Zhou, W. C. Bracken, N. R. Kallenbach* **9036–9039**

Spin Relaxation Enhancement Confirms Dominance of Extended Conformations in Short Alanine Peptides



Sensitive support: Assembling plasmonic nanoshells into periodic arrays with nanoscale interparticle gaps gave a substrate on which surface-enhanced (SE) Raman spectroscopy (RS) and infrared absorption (IRA) spectroscopy can be performed simultaneously to enable

molecular detection and characterization with high precision and sensitivity. The picture shows an SEM image of the Au nanoshell array and SERS and SEIRA spectra of a *p*-mercaptoaniline monolayer on the array.

Nanoshell Arrays

H. Wang, J. Kundu, N. J. Halas* **9040–9044**

Plasmonic Nanoshell Arrays Combine Surface-Enhanced Vibrational Spectroscopies on a Single Substrate

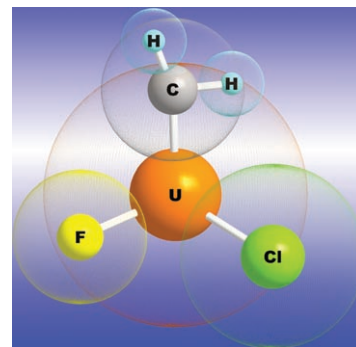
Chiral Actinide Complexes

J. Li,* H.-S. Hu, J. T. Lyon,
L. Andrews* 9045–9049



Chirality, Agostic Interactions, and
Pyramidal in Actinide Methylidene
Complexes

Actinide goes chiral: Theoretical and experimental investigations demonstrate that actinide methylidene complexes form agostic structures with significant pyramidal at the actinide center, leading to chirality, for example in the $[H_2C=UFC]$ complex shown. A whole series of actinide methylidene complexes $[H_2C=AnXY]$ ($An=Th, U$; $X, Y=F, Cl, Br, I, H$) was investigated and shown to be chiral.

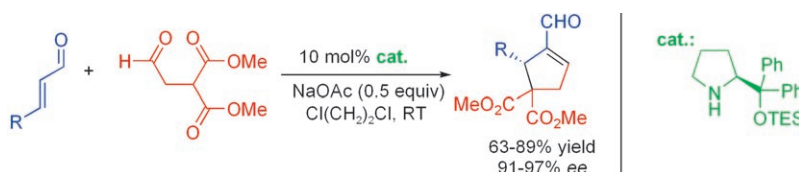


Organocatalysis

J. Wang, H. Li, H. Xie, L. Zu, X. Shen,
W. Wang* 9050–9053



Organocatalytic Enantioselective Cascade
Michael–Aldol Condensation Reactions:
Efficient Assembly of Densely
Functionalized Chiral Cyclopentenones



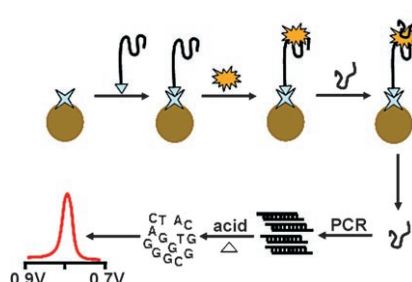
A cascade of possibility: A novel and highly enantioselective cascade Michael–aldol condensation reaction of α,β -unsaturated aldehydes with dimethyl malonate aldehyde has been developed. The process, efficiently catalyzed by a simple

chiral diphenylprolinol TES ether, serves as a powerful approach to the preparation of highly functionalized chiral cyclopentenones with the formation of two new C–C bonds. TES = triethylsilyl.

Biosensors

Y. Xiang, M. Xie, R. Bash, J. J. L. Chen,
J. Wang* 9054–9056

Ultrasensitive Label-Free Aptamer-Based
Electronic Detection



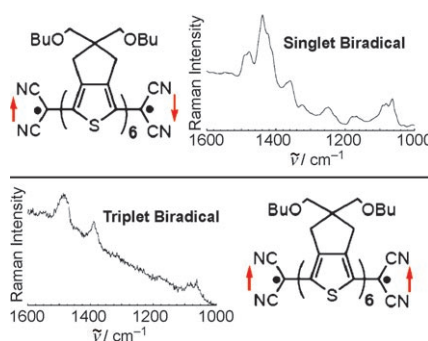
The highs and lows of proteins: A dramatically amplified aptamer-based bioelectronic assay has been developed that allows the ultrasensitive measurement of thrombin down to the femtomolar level. This label-free electronic detection of thrombin takes advantage of the intrinsic electroactivity of a second aptamer with guanine bases, and the enormous amplification feature of the polymerase chain reaction (PCR, see picture).

Thienyl Biradicals

R. Ponce Ortiz, J. Casado, V. Hernández,
J. T. López Navarrete,* P. M. Viruela,
E. Ortí,* K. Takimiya,
T. Otsubo 9057–9061

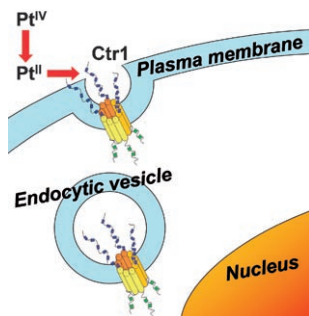


On the Biradicaloid Nature of Long
Quinoidal Oligothiophenes: Experimental
Evidence Guided by Theoretical Studies



Raman spectroscopy in conjunction with quantum chemistry allows efficient inspection of the electronic and structural properties of biradicals. Investigations on a series of quinoidal oligothiophenes uncover a thermal equilibrium between singlet and triplet biradical states (see picture) for the longest of the investigated systems.

Going to the Mets: The uptake of Pt anticancer drugs also involves the Cu transporter Ctr1, which is located on the plasma membrane and contains functionally essential methionine-rich motifs. The methionine-rich peptide Mets7 reacts readily with Pt^{II} species. A striking difference between *cis*- and *trans*- $[\text{PtCl}_2(\text{NH}_3)_2]$ is that, upon reaction with Mets7, only the latter retains its N-donor ligands. Delivery of undegraded Pt drug to intracellular organelles by vesicle trafficking is hypothesized.

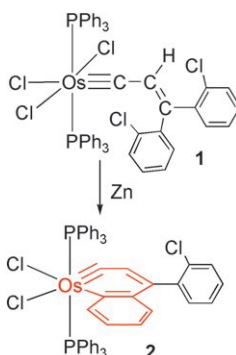


Anticancer Agents

F. Arnesano, S. Scintilla,
G. Natile* 9062 – 9064

Interaction between Platinum Complexes and a Methionine Motif Found in Copper Transport Proteins

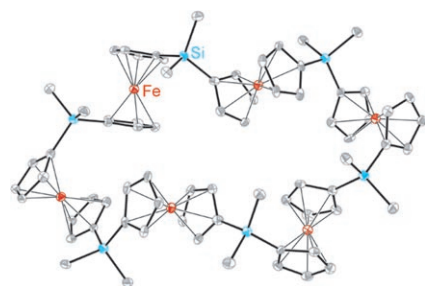
Cl prevents insertion: The first metallanaphthalene **2** has been obtained by Zn reduction of Os carbyne complex **1**. The key to its isolation was the use of *o*-chlorophenyl instead of phenyl substituents to avoid formation of a putative hydrido metallanaphthalene intermediate (supported by DFT calculations), which undergoes migratory insertion of the carbyne into the Os–H bond and rearrangement to give an indenyl complex as the final product.



Metallaarenes

G. He, J. Zhu, W. Y. Hung, T. B. Wen,
H.-Y. Sung, I. D. Williams, Z. Lin,*
G. Jia* 9065 – 9068

A Metallanaphthalene Complex from Zinc Reduction of a Vinylcarbyne Complex



Coming full circle: Cyclic ferrocenylsilane oligomers (see structure) and polymers were prepared by the photolytic ring opening of a silicon-bridged [1]ferrocenophane with a bipyridine initiator. The relative amounts of cyclic oligomers and cyclic polymer, as well as the molecular weight of the cyclic polymer, can be controlled by the reaction temperature.

Organometallic Macrocycles

W. Y. Chan, A. J. Lough,
I. Manners* 9069 – 9072

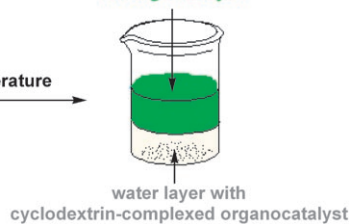
Organometallic Macrocycles and Cyclic Polymers by the Bipyridine-Initiated Photolytic Ring Opening of a Silicon-Bridged [1]Ferrocenophane

achiral stoichiometric hydrophobic reactants
as organic layer



stir at room temperature

enantiopure product
as organic layer



Hydrophobic pocket pleaser: A novel asymmetric catalytic system in water mediated by sulfated β -cyclodextrin (see picture) can bind the organocatalyst *tert*-butylphenoxyproline and associated hydrophobic reactants. Enantio- and dia-

stereoselectivities up to >99% and close to quantitative yields could be achieved for stoichiometric direct aldol reactions of cyclohexanone and aryl aldehydes with this system.

Asymmetric Synthesis

J. Huang, X. Zhang,
D. W. Armstrong* 9073 – 9077

Highly Efficient Asymmetric Direct Stoichiometric Aldol Reactions on/in Water

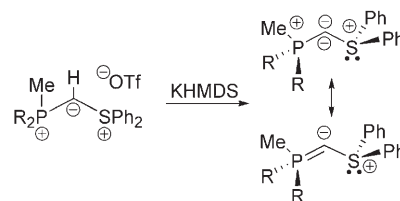
Mixed Bisylides

S. Pascual, M. Asay, O. Illa, T. Kato,
G. Bertrand, N. Saffon-Merceron,
V. Branchadell,
A. Baceiredo* _____ **9078–9080**



Synthesis of a Mixed Phosphonium–
Sulfonium Bisylide $R_3P=C=SR_2$

Mixing it up: The first persistent mixed phosphorus-sulfur bisylide has been synthesized (see scheme). Its formation was clearly demonstrated by its chemical reactivity, such as by methylation and complexation with Cu^I ions. DFT calculations on a model compound indicate that they are highly polarized species as a result of the interaction of the lone pairs of electrons on the central carbon atom with only the phosphonium function.

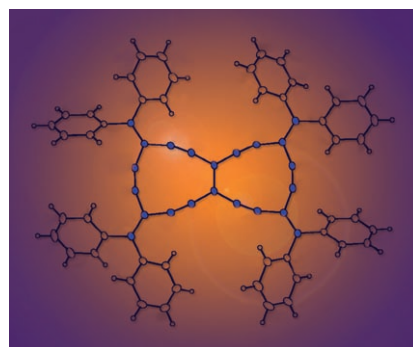


Cross-Coupling Reactions

M. Gholami, F. Melin, R. McDonald,
M. J. Ferguson, L. Echegoyen,
R. R. Tykwinski* _____ **9081–9085**



Synthesis and Characterization of
Expanded Radialenes, Bistradialenes,
and Radiaannulenes



Room for expansion: A versatile protocol for the synthesis of a new generation of strained cross-conjugated macrocycles (expanded radialenes) has been achieved. This method uses the Sonogashira cross-coupling reaction to prepare expanded radialenes, bistradialenes, and radiaannulenes. Preliminary electronic, redox, and structural characterization of the macrocycles are presented.

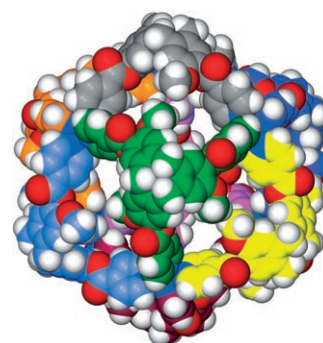
Supramolecular Chemistry

T. K. Ronson, J. Fisher, L. P. Harding,
M. J. Hardie* _____ **9086–9088**



Star-Burst Prisms with Cyclotrimeratylene-
Type Ligands: A $[Pd_6L_8]^{12+}$ Stella
Octangular Structure

Star treatment: Host molecule tris(isonicotinoyl)cyclotrimeratylene self-assembles with $Pd(NO_3)_2$ to form a $[Pd_6L_8]^{12+}$ metallo-supramolecular cage of over 3 nm in diameter that resembles a stella octangular structure (see picture). ESMS and DOSY NMR studies show the assembly also exists in solution with a hydrodynamic radius of approximately 19 Å.

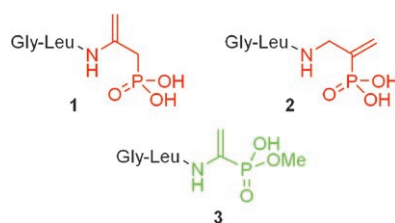


Structure Elucidation

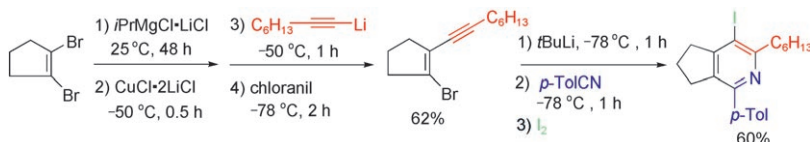
J. T. Whitteck, W. Ni, B. M. Griffin,
A. C. Eliot, P. M. Thomas, N. L. Kelleher,
W. W. Metcalf,
W. A. van der Donk* _____ **9089–9092**



Reassignment of the Structure of the
Antibiotic A53868 Reveals an Unusual
Amino Dehydrophosphonic Acid



Third time's the charm! The structure of the phosphonate antibiotic A53868, first isolated in 1983 from *Streptomyces luridus*, has proven quite elusive. Originally reported as **1** and later revised to **2**, the actual structure of the compound is the unusual dehydro aminophosphonic acid **3**.



All crossed: The reaction of unsaturated copper reagents with various alkynyl lithium compounds provides mixed lithium cuprates, which in the presence of chloranil undergo an oxidative coupling, thus leading to polyfunctional alkynes or

enynes. Bromoenynes prepared by this method are readily converted into pyridine derivatives by a new ring closure that proceeds at low temperature (see scheme, tol = tolyl).

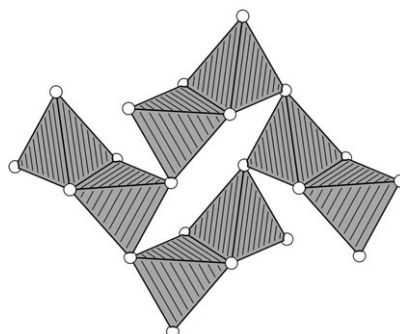
Oxidative Coupling

S. R. Dubbaka, M. Kienle, H. Mayr, P. Knochel* **9093 – 9096**

Copper(I)-Mediated Oxidative Cross-Coupling between Functionalized Alkynyl Lithium and Aryl Magnesium Reagents



Going to extremes: A high-pressure borate was obtained under extreme conditions. In this species, each BO_4 tetrahedron is connected to a second BO_4 tetrahedron through a common edge (see structure).

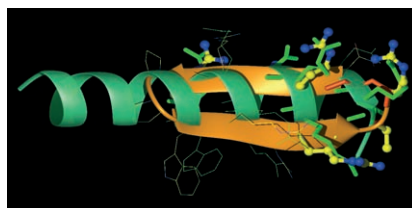


High-Pressure Borates

J. S. Knyrim, F. Roeßner, S. Jakob, D. Johrendt, I. Kinski, R. Glaum, H. Huppertz* **9097 – 9100**

Formation of Edge-Sharing BO_4 Tetrahedra in the High-Pressure Borate $\text{HP-NiB}_2\text{O}_4$

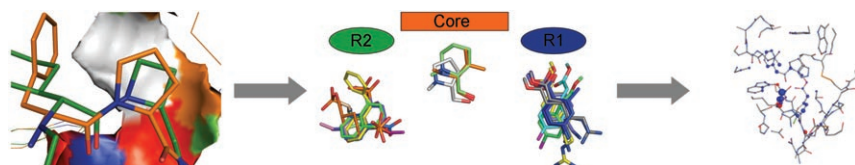
Bound to please: Binding of the Rev protein to HIV-1 RRE RNA is essential for virus replication. A strategy for the discovery of Rev-RRE inhibitors, based on the use of protein epitope mimetics, is described. Template-bound β -hairpin peptidomimetics (see picture, orange) are designed that mimic the Rev helical epitope (green). The mimetics bind with high affinity and selectivity to the target RNA, and have potential for development into novel anti-viral drugs.



HIV Inhibitors

K. Moehle, Z. Athanassiou, K. Patora, A. Davidson, G. Varani,* J. A. Robinson* **9101 – 9104**

Design of β -Hairpin Peptidomimetics That Inhibit Binding of α -Helical HIV-1 Rev Protein to the Rev Response Element RNA



Divide and combine: KNOWledge Based Ligand Enumeration (KNOBLE) is a strategy for the design and synthesis of focused combinatorial libraries. This approach is based on the assembly of

potential leads from fragments that are detected by the Cavbase subcavity matching algorithm comparing data from known crystal structures.

Drug Design

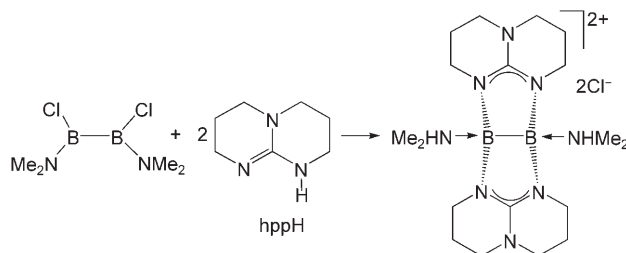
C. Gerlach, M. Münzel, B. Baum, H.-D. Gerber, T. Craan, W. E. Diederich, G. Klebe* **9105 – 9109**

KNOBLE: A Knowledge-Based Approach for the Design and Synthesis of Readily Accessible Small-Molecule Chemical Probes To Test Protein Binding



Boron Cations

R. Dinda, O. Ciobanu, H. Wadepohl,
O. Hübner, R. Acharyya,
H.-J. Himmel* _____ **9110–9113**



Synthesis and Structural Characterization
of a Stable Dimeric Boron(II) Dication

Bor-muda triangle: The first representative of a new type of boron cation is formed as the product of the reaction between $B_2Cl_2(NMe_2)_2$ and the guanidine derivative hppH (see scheme). The B–B

bond length is typical for a single bond, and both boron atoms and the hpp nitrogen atoms bound directly to them form a trigonal prism.



Supporting information is available on the WWW (see article for access details).



A video clip is available as Supporting Information on the WWW (see article for access details).

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Corrigendum

A numerical error in Table 1 and Figure 3 has been brought to the attention of the authors of this Communication. The correct versions are provided below. Two corrections are also made to the figures in the Supporting Information. The authors apologize for the oversight, but note that the conclusions of the manuscript are not affected by these corrections.

Table 1: The parameters of the Eckart potential for the tunneling barrier to H₂ migration.

| Cage, orientation ^[a] | E_0 [kcal mol ⁻¹] | I [Å] | ν_s [10 ¹² s ⁻¹] |
|---|---------------------------------|---------|---|
| H ₂ in small cage, \perp | 23.687 | 3.30 | 15.024 |
| H ₂ in small cage, \parallel | 28.414 | 3.14 | 17.246 |
| H ₂ in large cage, \perp | 5.758 | 3.35 | 7.291 |
| H ₂ in large cage, \parallel | 6.533 | 4.17 | 6.248 |

[a] See Figure 1.

Hydrogen-Gas Migration through
Clathrate Hydrate Cages

S. Alavi,* J. A. Ripmeester — 6102–6105

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DOI 10.1002/anie.200700250

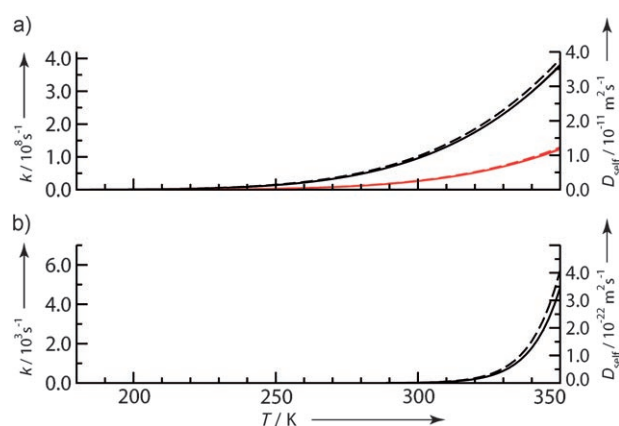


Figure 3. The rate of H₂ migration (k ; left axis) and self-diffusion coefficient (D_{self} ; right axis) through the cages of the sII clathrate hydrate as function of temperature: a) for an H₂ molecule oriented perpendicular (black: without tunneling, dashed black: with tunneling) and parallel (red: without tunneling, dashed red: with tunneling) to a hexagonal face of the large cage; b) for an H₂ molecule oriented perpendicular (black: without tunneling, dashed black: with tunneling) to a pentagonal face of the small cage (see Figure 1)