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:

Y. Fu, Q. Dai, W. Zhang, J. Ren, T. Pan, C. He**
AlkB Domain of Mammalian ABH8 Catalyzes Hydroxylation of 5-Methoxycarbonylmethyluridine at the Wobble Position of tRNA

*H. Zheng, J. Gao**
Highly Specific Heterodimerization Mediated by Quadrupole Interactions

M. Willis, M. Götz, A. K. Kandalam, G. F. Ganteför, P. Jena**
Hyperhalogens: A New Class of Highly Electronegative Species

*V. Mazumder, M. Chi, K. L. More, S. Sun**
Synthesis and Characterization of Multimetallic Pd/Au and Pd/Au/FePt Core/Shell Nanoparticles

*S.-Y. Moon, J.-S. Bae, E. Jeon, J.-W. Park**
Organic Sol-Gel Synthesis: Solution-Processable Microporous Organic Networks

*D. V. Esposito, S. T. Hunt, A. L. Stottlemyer, K. D. Dobson, B. E. McCandless, R. W. Birkmire, J. G. Chen**
Low-Cost Hydrogen-Evolution Catalysts Based on Monolayer Platinum on Tungsten Monocarbide (WC) Substrates

K. Sasaki, H. Naohara, Y. Cai, Y. M. C. Liu, M. B. Vukmirovic, J. X. Wang, R. R. Adzic
Platinum-Monolayer-Protected Cores: High-Stability Electrocatalysts for Fuel-Cell Cathodes

R. Matsui, K. Seto, K. Fujita, T. Suzuki, A. Nakazaki, S. Kobayashi
Unusually *E*-Selective Ring-Closing Metathesis to Form Eight-Membered Rings

*J. S. Chen, T. Zhu, C. M. Li, X. W. Lou**
Building Hematite Nanostructures Using Oriented Attachment

*S. Sun, G. Zhang, D. Geng, Y. Chen, R. Li, M. Cai, X. Sun**
A New Highly Durable Platinum Nanocatalyst for PEM Fuel Cells: Multiarmed Starlike Nanowire Single Crystals

*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

*Y. Zhang, G. M. Miyake, E. Y.-X. Chen**
Alane-Based Classical and Frustrated Lewis Pairs in Polymer Synthesis: Rapid Polymerization of Methyl Methacrylate and Naturally Renewable Methylene Butyrolactones to High-Molecular-Weight Polymers

News

Richard F. Heck

Ei-ichi Negishi

Akira Suzuki

Nobel Prizes 2010:

Author Profile

"The part of my job which I enjoy the most is working with motivated and talented students.
I am waiting for the day when someone will discover a cure for major diseases such as Alzheimer's disease and cancer …"
This and more about Milko E. van der Boom can be found on page 8301.

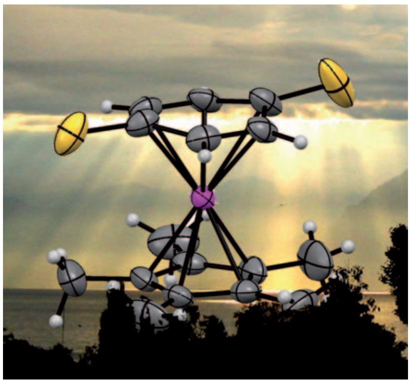
Highlights

Reactive Species

C. G. Hartinger* ____________ **8304 – 8305**

Trapping Unstable Benzoquinone Analogues by Coordination to a $[(\eta^5\text{-}C_5Me_5)Ir]$ Fragment and the Anticancer Activity of the Resulting Complexes

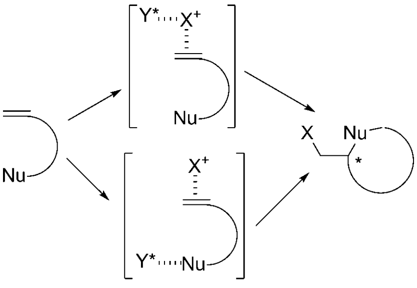
Gotcha! Unstable dithio- and diselenobenzoquinones can be trapped by coordination to an $[(\eta^5\text{-}C_5Me_5)Ir]$ moiety (see structure; gray C, white H, pink Ir, yellow Se). In vitro investigations on the anticancer activity of the resulting complexes showed them to be comparable to *cis*-platin. These organometallic species could form the basis for new anticancer agents.



Asymmetric Synthesis

G. Chen, S. Ma* ____________ **8306 – 8308**

Enantioselective Halocyclization Reactions for the Synthesis of Chiral Cyclic Compounds



Y* = chiral reagent

Ground-breaking progress has been made in the synthesis of chiral cyclic compounds from nonchiral unsaturated substrates with a nucleophilic functionality. A number of highly enantioselective electrophilic halocyclizations based on either the interaction of a chiral Lewis acid with an unsaturated substrate or the generation of a chiral electrophilic intermediate in situ from an electrophile and a chiral reagent (see scheme) were developed.

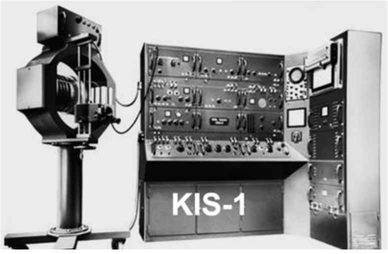
Essays

History in the Making

R. R. Ernst* ____________ **8310 – 8315**

Zurich's Contributions to 50 Years Development of Bruker

Humble beginnings: It is 50 years since the foundation of Bruker Physik AG in Karlsruhe. In this Essay, Prof. Richard R. Ernst looks at the early years of the company, and how researchers in Zurich contributed to its success in the field of NMR instrumentation.



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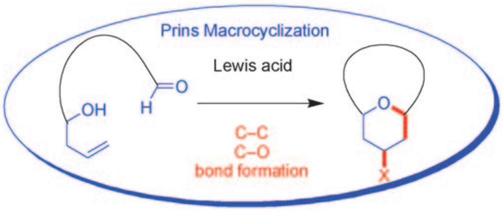
Minireviews

Macrocyclization Strategies

E. A. Crane, K. A. Scheidt* **8316 – 8326**

Prins-Type Macrocyclizations as an Efficient Ring-Closing Strategy in Natural Product Synthesis



A "Prins" among reactions: The first report of a Prins macrocyclization appeared in 1979, but only since late 2008 has this strategy gained momentum in natural product synthesis. Convergent, selective, and high yielding, the Prins macrocyclization forms tetrahydropyran-containing macrocycles in a merged C–O and C–C bond-forming event (see scheme).

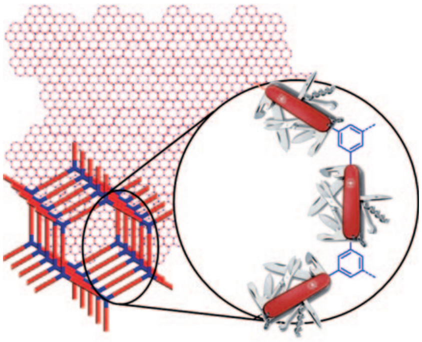
Reviews

Porous Materials

A. Thomas* **8328 – 8344**

Functional Materials: From Hard to Soft Porous Frameworks

Pores for thought: This Review describes porous functional materials in which the organic groups act as a part of the pore wall. The focus is on functional mesoporous organosilicas as well as meso- and microporous polymers. The large number of functional groups in such porous materials allows, for example, a new approach to bridging the gap between homogeneous and heterogeneous catalysis.



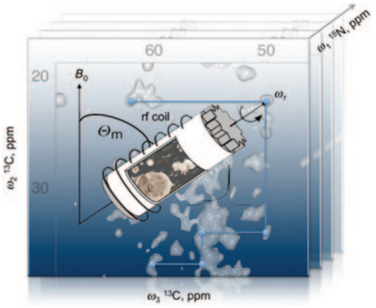
Functional Porous Frameworks

Spectroscopic Methods

M. Renault, A. Cukkemane,
M. Baldus* **8346 – 8357**

Solid-State NMR Spectroscopy on Complex Biomolecules

The bigger they are, the harder they fall: Recent advancements in NMR spectroscopy, biophysics, and related research areas have resulted in solid-state NMR (ssNMR) spectroscopy having the potential to study complex biomolecular systems at atomic resolution in situ. Methodological challenges of ssNMR spectroscopy for studying complex biomolecules are described as well as recent and possible applications.



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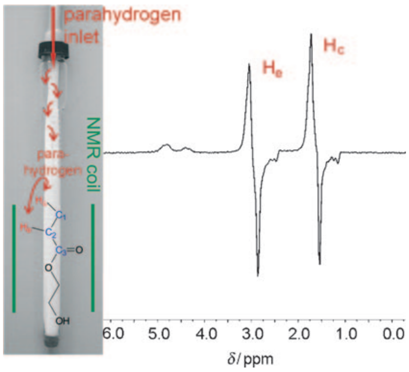
Communications

NMR Signal Enhancement

M. Roth, P. Kindervater, H.-P. Raich,
J. Bargon, H. W. Spiess,*
K. Münnemann* ———— **8358 – 8362**

Continuous ^{1}H and ^{13}C Signal Enhancement in NMR Spectroscopy and MRI Using Parahydrogen and Hollow-Fiber Membranes

Parahydrogen-induced polarization is used for the continuous generation of hyperpolarized molecules. Constant ^{1}H and ^{13}C NMR signal enhancement is demonstrated using a continuous delivery of parahydrogen by hollow fiber membranes (see picture, left), which allows the acquisition of two-dimensional NMR signals requiring multiple acquisitions with constant initial polarization.

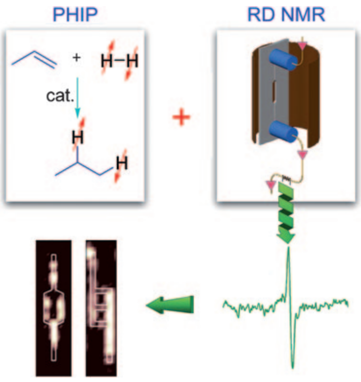


Imaging in Microfluidics

V.-V. Telkki,* V. V. Zhivonitko, S. Ahola,
K. V. Kovtunov, J. Jokisaari,
I. V. Koptyug ———— **8363 – 8366**

Microfluidic Gas-Flow Imaging Utilizing Parahydrogen-Induced Polarization and Remote-Detection NMR

Sensitivity enhancement of several orders of magnitude provided by combining parahydrogen-induced polarization (PHIP) and remote-detection (RD) NMR techniques enables gas-flow visualization in microfluidic devices (see scheme). A 7700-fold reduction in the imaging time compared to the current state-of-the-art is achieved, and it can also be used to significantly improve the spatial resolution in such experiments.

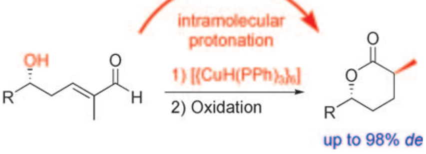


Stereoselective Protonation

A. Kena Diba, C. Noll, M. Richter,
M. T. Gieseler, M. Kalesse* **8367 – 8369**

Intramolecular Stereoselective Protonation of Aldehyde-Derived Enolates

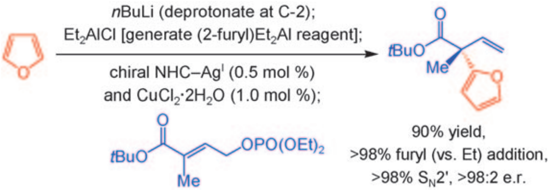
Picking sides: Asymmetric protonation of the titled compounds poses a most significant challenge and has been addressed by taking advantage of internal protonation and subsequent hemiacetal formation to avoid epimerization (see scheme). The substrates employed in these transformations can be easily accessed through a sequence of vinylogous aldol reactions with subsequent conjugate reductions.



Enantioselective Catalysis

F. Gao, Y. Lee, K. Mandai,
A. H. Hoveyda* ———— **8370 – 8374**

Quaternary Carbon Stereogenic Centers through Copper-Catalyzed Enantioselective Allylic Substitutions with Readily Accessible Aryl- or Heteroaryllithium Reagents and Aluminum Chlorides



The case of the notorious aryls is solved: The first efficient catalytic and enantioselective method for allylic substitutions that furnish quaternary carbon stereogenic centers by additions of aryl- or heteroarylmetals is reported (see scheme). Highly site- and enantioselective processes begin with readily available organolithium reagents.

BRUKER

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Celebrating 50 years of innovative excellence, technical leadership, integrity and long term commitment to quality. With thanks to our customers for their numerous collaborations that set the ground for the inventive approaches, that has enabled us to deliver the most innovative solutions. We look forward to continuing cooperation in an ever-challenging future.

think forward

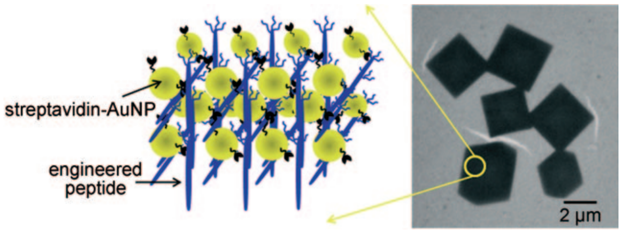
Analytical Solutions

Contents

Bionanotechnology

P. Kaur, Y. Maeda, A. C. Mutter,
T. Matsunaga, Y. Xu,
H. Matsui* ______ 8375 – 8378

Three-Dimensional Directed Self-Assembly of Peptide Nanowires into Micrometer-Sized Crystalline Cubes with Nanoparticle Joints

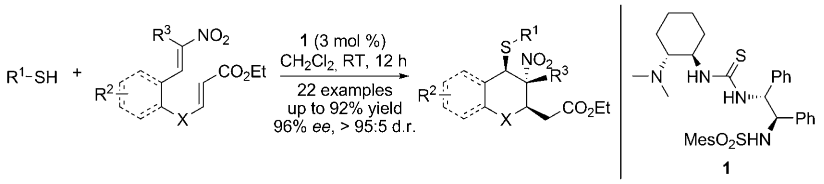


Micro construction sites: Engineered peptides and ligand-functionalized gold nanoparticles have been assembled into micrometer-scale 3D cube-shaped crystals (see picture), creating a physical framework for a biomimetic assembly strategy. The NPs join the peptide nanowires through streptavidin–biotin interactions to create cubic unit cells.

Asymmetric Synthesis

X.-F. Wang, Q.-L. Hua, Y. Cheng, X.-L. An,
Q.-Q. Yang, J.-R. Chen,*
W.-J. Xiao* ______ 8379 – 8383

Organocatalytic Asymmetric Sulfa-Michael/Michael Addition Reactions: A Strategy for the Synthesis of Highly Substituted Chromans with a Quaternary Stereocenter



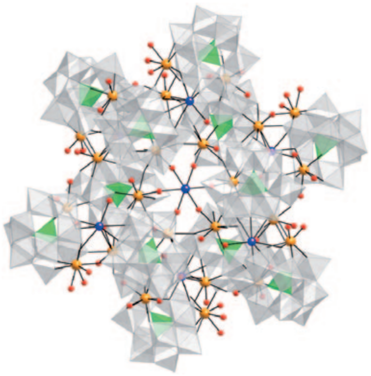
Simply complex: Diverse and structurally complex chroman derivatives with a quaternary stereocenter have been obtained through the titled reaction of thiols with nitroolefin enoates using the bifunctional catalyst **1**. The reaction features simple experimental procedures, high yield, enantiomeric excess, and excellent diastereoselectivity.

Polyoxometalates

S. Reinoso,* M. Giménez-Marqués,
J. R. Galán-Mascarós, P. Vitoria,
J. M. Gutiérrez-Zorrilla ______ 8384 – 8388

Giant Crown-Shaped Polytungstate Formed by Self-Assembly of Ce^{III}-Stabilized Dilacunary Keggin Fragments

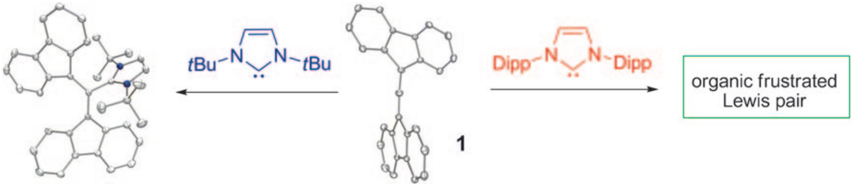
The largest tungstogermanate and third-largest polytungstate (see picture) was obtained by K^+-directed self-assembly of three unprecedented types of $[GeW_{10}O_{38}]^{12-}$ fragments stabilized by coordination of Ce ions on the vacancies. In its Ce_6O_{42} central ring, which displays antiferromagnetic interactions, a K^+ cation is captured by internal water molecules. Gray octahedra WO_6, green tetrahedra GeO_4; Ce orange, K purple, O red.



Organic Frustrated Lewis Pairs

B. Inés, S. Holle, R. Goddard,
M. Alcarazo* ______ 8389 – 8391

Heterolytic S–S Bond Cleavage by a Purely Carbogenic Frustrated Lewis Pair

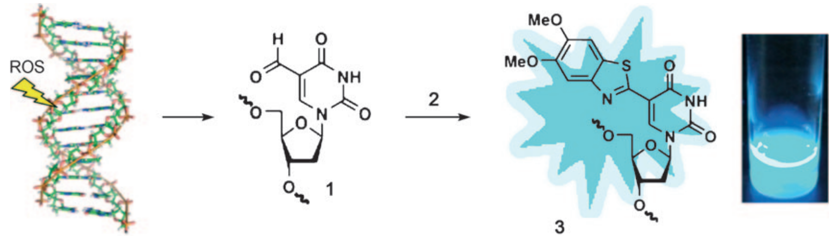


Boranes were getting borin': Owing to the Lewis acidic character of the central carbon atom, a bisfluorenyl-substituted allene **1** could be used instead of $B(C_6F_5)_3$ for the generation of frustrated Lewis pairs. Mixtures of the allene and the bulky N-heterocyclic carbene shown in red (Dipp = diisopropylphenyl) caused heterolytic cleavage of the S–S bond in disulfides.

DNA-Damage Detection

W. Hirose, K. Sato,
A. Matsuda* ———— **8392 – 8394**

Selective Detection of 5-Formyl-2′-deoxyuridine, an Oxidative Lesion of Thymidine, in DNA by a Fluorogenic Reagent

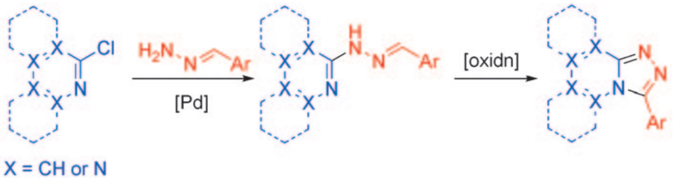


Chemoselectivity in DNA: The thymidine lesion 5-formyl-2′-deoxyuridine (**1**) induces the mutation of DNA. Its derivatization with the specific fluorogenic reagent 2-amino-4,5-dimethoxythiophenol (**2**) gives **3**, which shows strong fluorescence. This fast method for the detection of **1** requires no enzymatic digestion, HPLC separation, or MS analysis. ROS = reactive oxygen species.

Synthetic Methods

O. R. Thiel,* M. M. Achmatowicz,*
A. Reichelt, R. D. Larsen ———— **8395 – 8398**

Palladium-Catalyzed Coupling of Aldehyde Hydrazones: Practical Synthesis of Triazolopyridines and Related Heterocycles



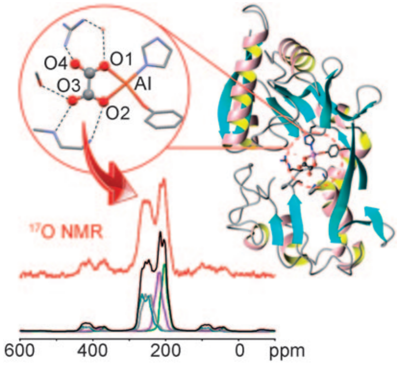
The palladium-catalyzed intermolecular coupling of aldehyde-derived hydrazones with chloroazines, followed by oxidative cyclization under mild conditions afforded access to a broad variety of bicyclic heterocyclic scaffolds (see scheme) that have potential for use in drug discovery.

NMR Spectroscopy

J. Zhu, E. Ye, V. Terskikh,
G. Wu* ———— **8399 – 8402**

Solid-State ^{17}O NMR Spectroscopy of Large Protein–Ligand Complexes

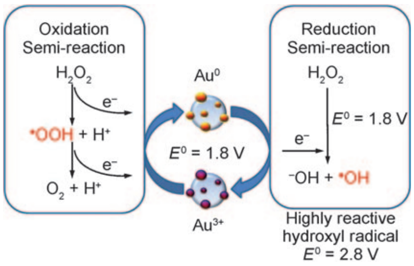
Oxygen, oxygen, everywhere! Poor sensitivity has hindered the development of solid-state ^{17}O NMR spectroscopy as a practical technique for the structural elucidation of protein complexes. However, this has now changed and it has been demonstrated that multinuclear ^{17}O, ^{27}Al, ^{13}C NMR parameters can be used to aid structural refinement for a protein-bound ligand molecule (see picture).



Catalytic Fenton Reaction

S. Navalon, R. Martin, M. Alvaro,
H. Garcia* ———— **8403 – 8407**

Gold on Diamond Nanoparticles as a Highly Efficient Fenton Catalyst



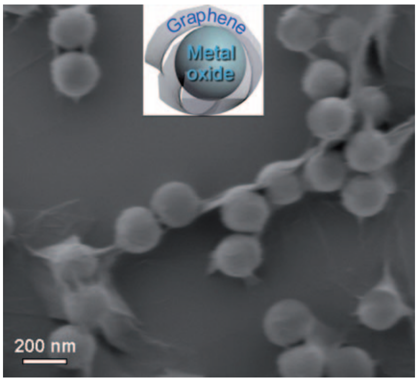
Nanojewels as catalysts: Degradation of phenol with a small excess of H_2O_2 can be achieved by using gold nanoparticles supported on Fenton-treated diamond nanoparticles as a highly selective (at least 79%) and efficient (turnover number: 321 000) catalyst for the Fenton reaction at room temperature. The proposed mechanism is shown schematically in the picture.

Electrochemistry

S. Yang, X. Feng,* S. Ivanovici,
K. Müllen* ______________ **8408 – 8411**

Fabrication of Graphene-Encapsulated Oxide Nanoparticles: Towards High-Performance Anode Materials for Lithium Storage

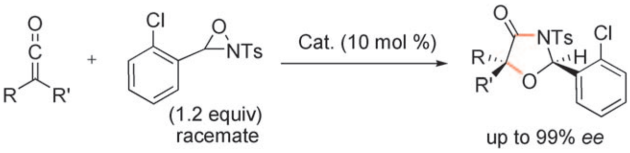
Storage shells: The assembly of negatively charged graphene oxide and positively charged oxide nanoparticles by electrostatic interactions, and subsequent chemical reduction, leads to metal oxides encapsulated in flexible and ultrathin graphene shells (see picture). These electrochemically active nanoparticles show a remarkable lithium storage capacity, with an excellent cycle performance.



Asymmetric Catalysis

P.-L. Shao, X.-Y. Chen,
S. Ye* ______________ **8412 – 8416**

Formal [3+2] Cycloaddition of Ketenes and Oxaziridines Catalyzed by Chiral Lewis Bases: Enantioselective Synthesis of Oxazolin-4-ones

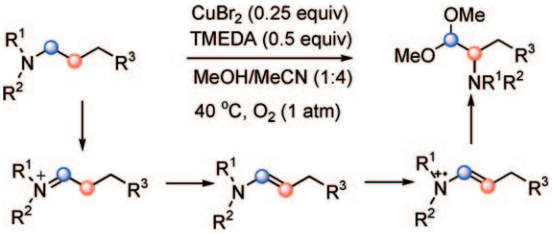


Choose the right cat.: A highly enantioselective synthesis of oxazolin-4-ones by the formal [3+2] cycloaddition of ketenes and a racemic oxaziridines has been developed (see scheme; cat. = N-heterocyclic carbenes for disubstituted ketenes or cinchona alkaloids for monosubstituted ketenes, Ts = 4-toluenesulfonyl).

Oxidative Rearrangement

J.-S. Tian, T.-P. Loh* ______ **8417 – 8420**

Copper-Catalyzed Rearrangement of Tertiary Amines through Oxidation of Aliphatic C—H Bonds in Air or Oxygen: Direct Synthesis of α-Amino Acetals



A surprising turn of events: Mechanistic studies, including trapping, control, and isotope-labeling experiments, led to the proposal of a rearrangement mechanism involving oxidation of aliphatic C—H bonds (see scheme; TMEDA = tetramethylethylenediamine).

Isopeptide Bonds

R. M. Hagan, R. Björnsson,
S. A. McMahon, B. Schomburg,
V. Braithwaite, M. Bühl, J. H. Naismith,
U. Schwarz-Linek* ________ **8421 – 8425**

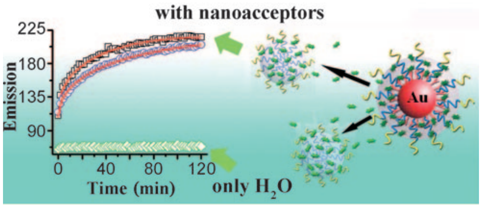
NMR Spectroscopic and Theoretical Analysis of a Spontaneously Formed Lys–Asp Isopeptide Bond

One bond makes all the difference: Three suitably positioned amino acid side chains (see picture) and a hydrophobic environment are all that is required for an amidation reaction with remarkable consequences. An emerging central building block of bacterial surface proteins owes its stability to a spontaneously formed isopeptide bond. The impact of this bond on protein structure and dynamics and the mechanism of its formation are scrutinized in detail.

Drug Delivery

H. Wang, J. Xu, J. Wang, T. Chen, Y. Wang,
Y. W. Tan, H. Su, K. L. Chan,
H. Chen* ________ **8426 – 8430**

Probing the Kinetics of Short-Distance Drug Release from Nanocarriers to Nanoacceptors

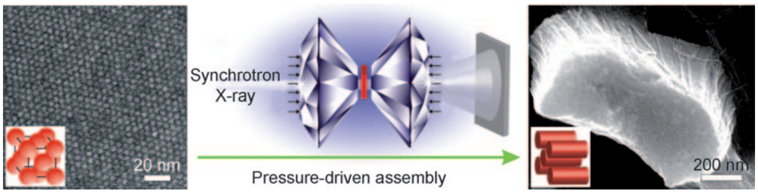


Quick release: Polymer-coated gold nanoparticles (AuNPs) are used as nanocarriers and nanoscale acceptors are used to represent proteins and lipid membranes in a model drug-delivery system. The fluorescence of a drug is quenched in the vicinity of the AuNPs but reemerges upon its release (see picture). The critical role of nanoacceptors in facilitating drug release is demonstrated.

High-Pressure Chemistry

H. Wu, F. Bai, Z. Sun, R. E. Haddad,
D. M. Boye, Z. Wang,
H. Fan* ________ **8431 – 8434**

Pressure-Driven Assembly of Spherical Nanoparticles and Formation of 1D-Nanostructure Arrays

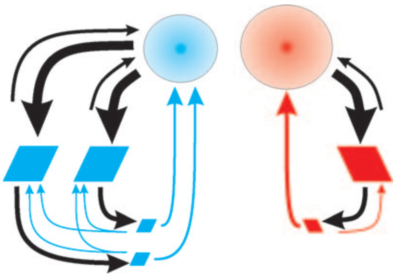


Forced into line: External pressure was used to engineer nanoparticle assembly. Reversible manipulation of the unit-cell dimensions of a 3D ordered nanoparticle array under a hydrostatic pressure field enabled the fine-tuning of the interparticle distance. Under a uniaxial pressure field, nanoparticles were forced to contact and coalesce into nanorods or nanowires and ordered ultrahigh-density arrays (see picture; small arrows denote pressure).

Chiral Resolution

W. L. Noorduin, W. J. P. van Enckevort,
H. Meekes, B. Kaptein, R. M. Kellogg,
J. C. Tully, J. M. McBride,
E. Vlieg* ________ **8435 – 8438**

The Driving Mechanism Behind Attrition-Enhanced Deracemization

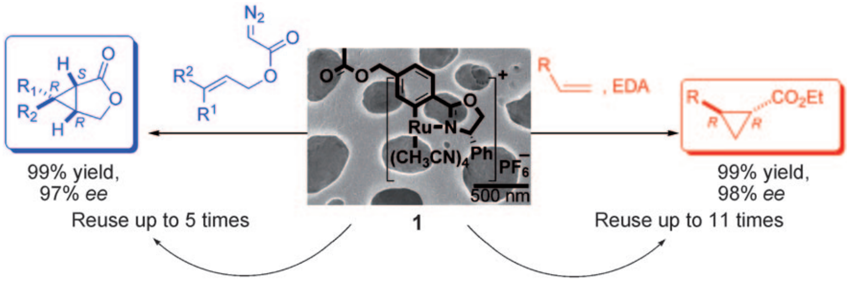


Change of heart: A solution-phase enantiomeric excess that has the handedness of the minor population of the solid phase is observed during grinding of a slurry of racemic conglomerate crystals. This excess is the driving force for a net flux of molecules from crystals of the minor handedness to crystals of the major handedness, thus explaining the complete deracemization of the solid phase (see picture: blue: *S* form, red: *R* form).

Macroporous Catalysts

A. Abu-Elfotoh, K. Phomkeona,
K. Shibatomi, S. Iwasa* ________ **8439 – 8443**

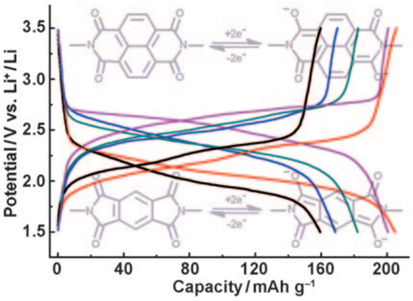
Asymmetric Inter- and Intramolecular Cyclopropanation Reactions Catalyzed by a Reusable Macroporous-Polymer-Supported Chiral Ruthenium(II)/Phenyloxazoline Complex



Along came poly: A novel macroporous polymer-supported chiral Ru^{II}/pheox catalyst (**1**, see SEM image) afforded excellent reactivity and enantioselectivity in inter- and intramolecular cyclopropanation reactions with a broad range of substrates. The catalyst showed no leaching and could be reused up to 11 times, even after storage.

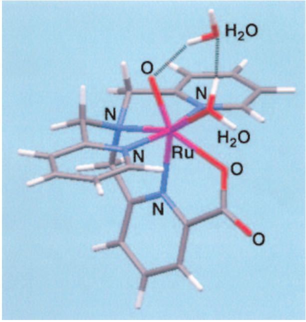
Lithium Batteries

Plastic batteries: Polyimides are proposed as cathode materials for rechargeable lithium batteries. Although they are regarded as insulators, five polyimides with different structures all show good electrochemical activity and some of them show promising performance, which could allow their use in a new generation of “green battery” applications.

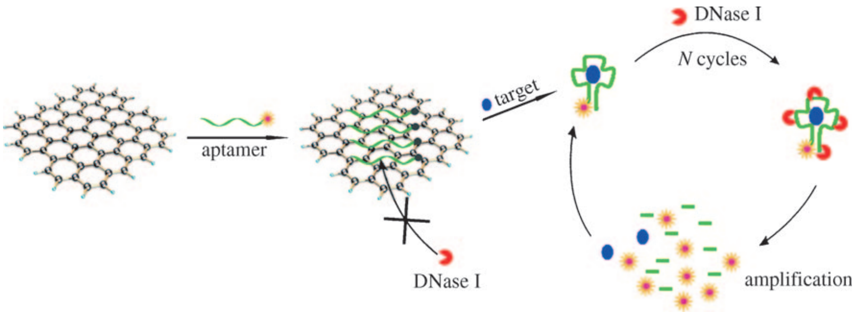


Oxo Complexes

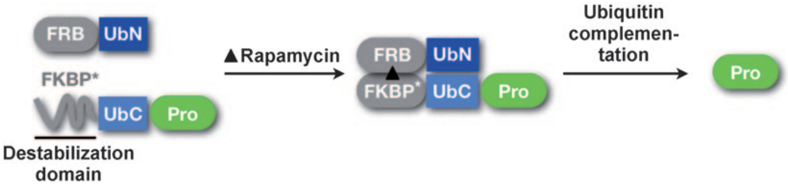
Spin doesn’t matter: A ruthenium(II)–aqua complex bearing a pentadentate pyridylamine with a carboxylate group as a ligand affords a seven-coordinate low-spin ($S=0$) ruthenium(IV)–oxo complex (see structure) by oxidation through proton-coupled electron transfer. Comparison of the reactivity of the low-spin and an intermediate-spin ($S=1$) Ru^{IV}–oxo complexes revealed that the spin state does not affect the reactivity of catalytic oxidation of organic compounds.



Biological Assays



Turn up the volume: In a simple and highly sensitive aptamer-based assay that relies on the ability of nanomaterials to protect DNA from nuclease cleavage, the aptamer is released from the nanomaterial when challenged with a target. The nuclease then cleaves the free aptamer and releases the target, which can initiate a new cycle. Recycling of the target in this way leads to significant signal amplification (see diagram).

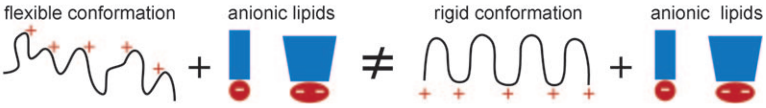


Rapamycin to the rescue: Native protein concentration was precisely controlled in living cells by using the small molecule rapamycin. The addition of rapamycin "shielded" a destabilization domain from degradation and induced complementation of split ubiquitin (UbN and UbC); as a result, proteins (Pro) of interest were released. This technology enables the investigation of native protein biology over a broad concentration range.

Protein Biology

H. D. Lau, J. Yaegashi, B. W. Zaro, M. R. Pratt* ______ **8458 – 8461**

Precise Control of Protein Concentration in Living Cells

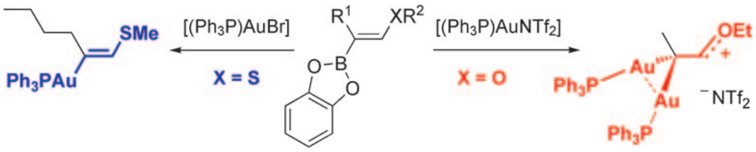


When structural flexibility is a plus: A link between structural flexibility of biomimetic antimicrobials and their ability to penetrate into the hydrophobic core and disrupt the integrity of bacterial lipid model membranes has been established using liquid surface X-ray scattering techniques. Results indicate that the modes of interaction of flexible and conformationally restrained antimicrobials with the bacterial membranes are different (see picture).

Antimicrobial Peptides

A. Ivankin, L. Livne, A. Mor, G. A. Caputo, W. F. DeGrado, M. Meron, B. Lin, D. Gidalevitz* ______ **8462 – 8465**

Role of the Conformational Rigidity in the Design of Biomimetic Antimicrobial Compounds

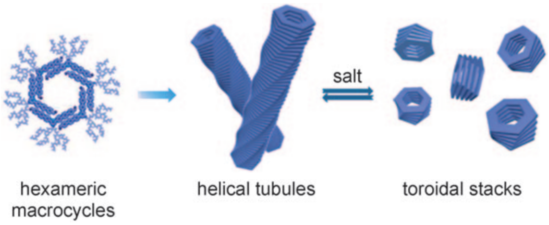


Disturbing neighbors: Alkenylgold species with a heteroatom substituent are thought to be key intermediates in gold-catalyzed *trans* additions of protic nucleophiles to alkynes. One reason for the scarcity of such compounds lies in the non-innocence of the neighboring heteroatom, which may enforce the uptake of a second gold fragment with formation of surprisingly robust species with a *gem*-digold unit adjacent to a largely cationic center (see scheme).

Homogeneous Catalysis

G. Seidel, C. W. Lehmann, A. Fürstner* ______ **8466 – 8470**

Elementary Steps in Gold Catalysis: The Significance of *gem*-Diauration



Donuts anyone? Molecules based on a *meta*-linked aromatic segment self-assemble into hexameric macrocycles that, in turn, stack on top of each other to from elongated tubular helical suprastructures. The formed tubules dissociate into discrete stacks of toroids in response to the addition of silver salt (see picture).

Self-Assembly

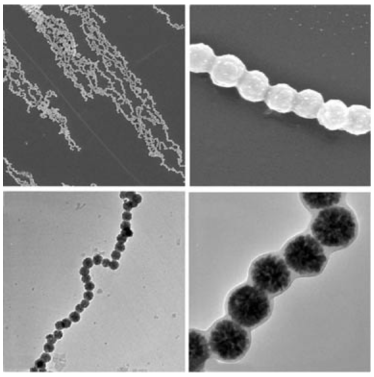
H.-J. Kim, S.-K. Kang, Y.-K. Lee, C. Seok, J.-K. Lee, W.-C. Zin, M. Lee* **8471 – 8475**

Self-Dissociating Tubules from Helical Stacking of Noncovalent Macrocycles

Imaging Agents

J. Zhou, L. Meng,* X. Feng, X. Zhang, Q. Lu* —— **8476 – 8479**

One-Pot Synthesis of Highly Magnetically Sensitive Nanochains Coated with a Highly Cross-Linked and Biocompatible Polymer

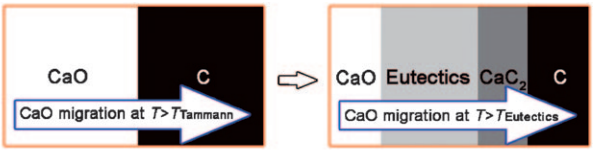


Neptune's necklace: Fe_3O_4 colloidal nanocrystal clusters (ca. 200 nm in diameter) were organized into one-dimensional nanochains and coated with a highly cross-linked polymer in a facile one-pot synthesis (see picture). The nanochains have enhanced hydrogen T_2 relaxation rates, facile magnetic manipulation, good water dispersivity, and excellent biocompatibility.

Biomass

G. Li, Q. Liu, Z. Liu,* Z. C. Zhang,* C. Li, W. Wu —— **8480 – 8483**

Production of Calcium Carbide from Fine Biochars

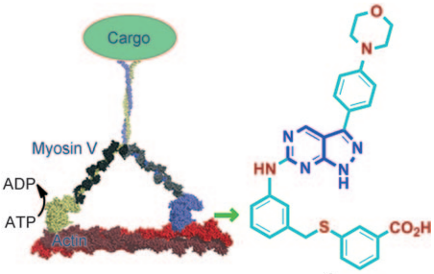


Rising from the ashes: Fine chars produced from biomass can be used as a feedstock for the production of CaC_2 in an autothermal process that operates at a temperature 500 °C lower than the traditional electric arc process and with greatly reduced reaction time (see scheme for the reaction of CaO and C forming CaC_2).

Enzyme Inhibition

K. Islam, H. F. Chin, A. O. Olivares, L. P. Saunders, E. M. De La Cruz,* T. M. Kapoor* —— **8484 – 8488**

A Myosin V Inhibitor Based on Privileged Chemical Scaffolds



1

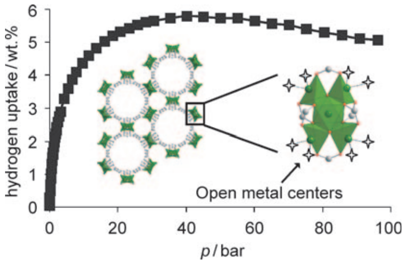
Switching the motor off: Privileged chemical scaffolds were used as a starting point for the development of a specific chemical inhibitor **1** of myosin V, a key motor protein required for intracellular transport (see picture; ADP = adenosine diphosphate, ATP = adenosine triphosphate). The potency of **1**, which does not compete directly with nucleotide binding, is comparable to that of other known motor-protein inhibitors used as probes in chemical biology.

Porous Materials

K. Gedrich, I. Senkovska, N. Klein, U. Stoeck, A. Henschel, M. R. Lohe, I. A. Baburin, U. Mueller, S. Kaskel* —— **8489 – 8492**

A Highly Porous Metal–Organic Framework with Open Nickel Sites

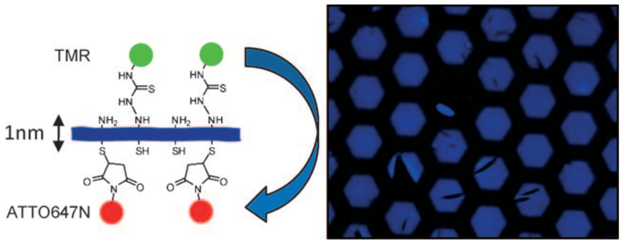
A healthy appetite: A new metal–organic framework (DUT-9; see picture) has an unprecedented topology that contains $\{Ni_5(\mu_3\text{-}O)_2(CO_2)_6\}$ clusters (green polyhedra; C gray, O red). DUT-9 has very high storage capacities for methane, hydrogen, and carbon dioxide because of the presence of open metal sites (marked by stars).



Nanosheets

Z. Zheng, C. T. Nottbohm, A. Turchanin, H. Muzik, A. Beyer, M. Heilemann, M. Sauer, A. Gölzhäuser* — **8493 – 8497**

Janus Nanomembranes: A Generic Platform for Chemistry in Two Dimensions

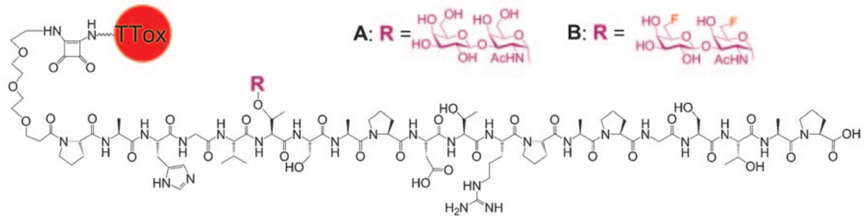


Buttered side up: A one nanometer thick membrane with different functional groups on each side was fabricated from self-assembled monolayers of aromatic molecules. The amino side of this Janus membrane was modified with tetramethylrhodamine (TMR) fluorescent dye, and the thiol side with ATTO647N (see picture). The functionalization and functionality of the nanomembrane were demonstrated by X-ray photoelectron spectroscopy and fluorescence microscopy.

Antitumor Vaccines

A. Hoffmann-Röder,* A. Kaiser, S. Wagner, N. Gaidzik, D. Kowalczyk, U. Westerlind, B. Gerlitzki, E. Schmitt, H. Kunz* — **8498 – 8503**

Synthetic Antitumor Vaccines from Tetanus Toxoid Conjugates of MUC1 Glycopeptides with the Thomsen–Friedenreich Antigen and a Fluorine-Substituted Analogue

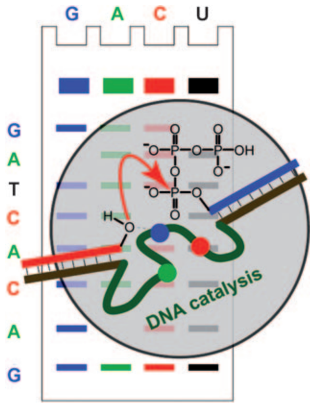


A "shot in the arm" for cancer therapy: Coupling of synthetic glycopeptide tandem-repeat sequences of the epithelial mucin MUC1 with the Thomsen–Friedenreich (T) antigen (**A**) or a difluoro analogue (**B**) to tetanus toxoid (TTox) affords synthetic vaccines, which induce very strong immune responses in mice overriding the natural tolerance of the immune system. The induced antibodies are selectively directed against the tumor-associated MUC1 structures and strongly bind to breast cancer cells of the MCF-7 cell line.

DNA Enzymes

F. Wachowius, F. Javadi-Zarnaghi, C. Höbartner* — **8504 – 8508**

Combinatorial Mutation Interference Analysis Reveals Functional Nucleotides Required for DNA Catalysis

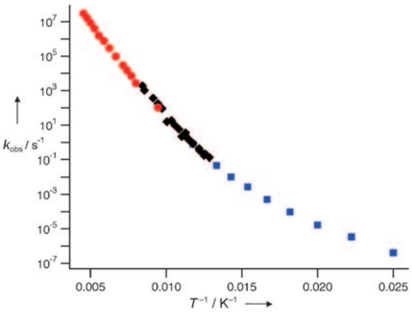


Complete analysis! Combinatorial mutation interference analysis (CoMA) is a highly efficient method to identify catalytically essential nucleotides in deoxyribozymes by the simultaneous assessment of all possible mutations in the active site of the catalyst. The application of CoMA for two different deoxyribozymes revealed indispensable guanosine nucleotides for DNA-catalyzed RNA ligation.

Spin Crossover

I. Krivokapic, P. Chakraborty, R. Bronisz, C. Enachescu, A. Hauser* — **8509 – 8512**

Significant Variation of the Singlet–Quintet Intersystem Crossing Rate Constant in an Iron(II) High-Spin Complex as a Function of Temperature

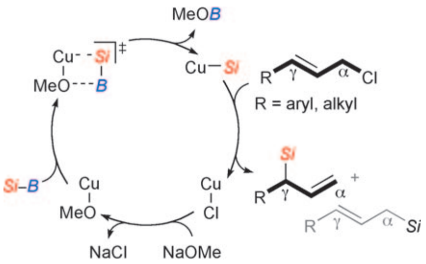


Relax! In the dilute mixed-crystal system $[Zn_{1-x}Fe_x(bbtr)_3](ClO_4)_2$, $x = 2\%$ (bbtr = 1,4-di(1,2,3-triazol-1-yl)butane), the iron(II) centers are predominantly in the high-spin state. The low-spin state can be populated as a metastable state by irradiation with near-IR light; the rate constant of the low-spin→high-spin relaxation spans 14 orders of magnitude between 40 and 220 K (see picture).

Allylic Substitution

D. J. Vyas, M. Oestreich* ___ **8513–8515**

Copper-Catalyzed Si–B Bond Activation in Branched-Selective Allylic Substitution of Linear Allylic Chlorides

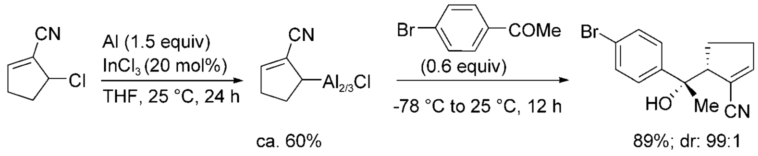


The harder they come, the better they leave! Chloride is superior to all common leaving groups in the γ-selective allylic substitution of linear precursors. This approach involves a novel copper-catalyzed Si–B bond activation (see scheme; $\gamma/\alpha \geq 98{:}2$, 7 examples; *Si* = $SiMe_2Ph$ and *B* = Bpin with pin = pinacolato).

Aluminum Reagents

Z. Peng, T. D. Blümke, P. Mayer, P. Knochel* ___ **8516–8519**

Diastereoselective Synthesis of Homoallylic Alcohols with Adjacent Tertiary and Quaternary Centers by Using Functionalized Allylic Aluminum Reagents

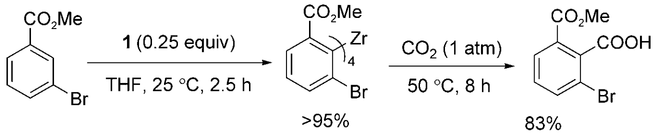


Al be there for you: Sensitive functional groups, including ester and cyano groups, can be present in allylic aluminum reagents prepared by aluminum insertion in the presence of $InCl_3$. These aluminum organometallic compounds undergo addition reactions to various functionalized aldehydes or ketones with remarkable diastereoselectivities allowing the construction of two adjacent quaternary and tertiary centers (see scheme).

Directed Zirconation

M. Jeganmohan, P. Knochel* ___ **8520–8524**

tmp$_4$Zr: An Atom-Economical Base for the Metalation of Functionalized Arenes and Heteroarenes

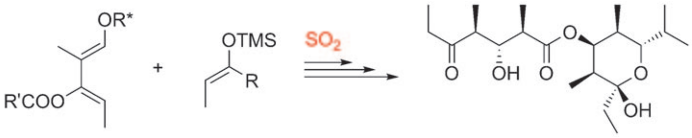


Zirconium bases reach lots of places: Only 25 % of zirconium metal is required for the metalation of various functionalized aromatic compounds and heterocycles. All four 2,2,6,6-tetramethylpiperidyl (tmp) groups of the new base $tmp_4Zr{\cdot}4\,MgCl_2{\cdot}6\,LiCl$ (**1**) are used up in the metalation process. The resulting zirconium species smoothly undergo palladium-catalyzed cross-couplings and addition to CO_2 and epoxides (see scheme).

Natural Product Synthesis

S. Laclef, M. Turks, P. Vogel* ___ **8525–8527**

Total Synthesis and Determination of the Absolute Configuration of (−)-Dolabriferol



A reaction cascade combining sulfur dioxide with a 1-oxy-1,3-diene and (*E*)-silyl enol ether formed the basis of a short total synthesis of (−)-dolabriferol (see scheme; TMS = trimethylsilyl). The absolute configuration of this natural product, which was first extracted from a gastropod mollusc in 1996, was established unequivocally.

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).

Service

Corrigendum

Throughout this Communication (DOI: 10.1002/anie.200907175), the “pyrene” dye molecule should be correctly referred to as “perylene”. The authors apologize for this mistake.

Inversion of Particle-Stabilized Emulsions to Form High-Internal-Phase Emulsions

G. Sun, Z. Li, T. Ngai* ______ **2163–2166**

Angew. Chem. Int. Ed. **2010**, *49*

DOI 10.1002/anie.200907175

Vacancy

GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

The Faculty of Chemistry wishes to appoint a

Professor (W3) of Functional Supramolecular Chemistry

to commence as soon as possible.

The professor is expected to perform research and teaching in inorganic chemistry and suitably complement the research interests of the Institute of Inorganic Chemistry. Applicants should be recognised for exceptional achievements in a modern area of inorganic chemistry, preferably in the area of „Functional Supramolecular Chemistry“. Participation in existing and planned research collaborations of the faculty (such as the PhD program CaSuS or the SFB 803) would be desirable. The teaching duties include inorganic chemistry courses for chemistry majors and other students.

The requirements for an appointment as a professor are specified by § 25 of the Niedersächsischen Hochschulgesetzes of February 26th, 2007 (Nds. GVBl. 2007 S. 69). The Stiftungsuniversität Göttingen has the right to make this appointment. Further details are available on request.

Applications from scientists working abroad are particularly welcome. A part time appointment is in principle possible. Appropriately qualified severely handicapped applicants will be given preference. The University would like to increase the percentage of women in areas in which they are underrepresented and thus encourages suitably qualified women to apply.

Online applications with CV, publications list and details of teaching and research experience should be received not later than **December 12th, 2010.** Applications by regular mail are accepted.

Online link for applications and further information:
http://www.uni-goettingen.de/de/192187.html