Carbon Nanotubes
In their Communication on page 2180 ff., D. M. Guldi, N. Martín, et al. report the immobilization of a photo- and redox-active 9,10-di(1,3-dithiol-2-yli-dene)-9,10-dihydroanthracene-based dipeptide onto single-walled carbon nanotubes.

High-Throughput Screen
Graphene oxide was used as the substrate for a screen for inhibitors of DNA helicases by D.-H. Min et al. in their Communication on page 2340 ff. Several inhibitors of disease-related helicase targets were identified using this method.

Photophysics
In their Communication on page 2247 ff., T. I. Sølling, K. B. Möller, et al. show the influence of small structural variations in the nuclear arrangement on the rate of internal conversion processes of cyclic ketones.

… in situ analysis methods, such as mid-infrared optochemical sensors utilizing evanescent field absorption techniques, may inherently provide qualitative and quantitative information on multiple volatile organic contaminants in water. In their Communication on page 2265 ff., B. Mizaikoff et al. describe a planar infrared attenuated total reflection (IR-ATR) fiberoptic sensor that was coated with an ethylene/propylene copolymer. Such a system may be used for continuous monitoring of the water quality.
"In a spare hour, I check out the latest news and listen to some folk music. My favorite name reaction is the Ferrier rearrangement ..." This and more about Liming Zhang can be found on page 2156.

Alzheimer Research Award: B. Schmidt 2157
TJ Park Science Award: J. Cheon 2157
Imbach–Townsend Award: F. Seela 2157
HMLS Investigator Award: C. Schultz 2157

Supercritical Water: Yizhak Marcus reviewed by C. H. Vogel 2158
**Highlights**

**Organocatalysis**
C. Moberg* 2160 – 2162

Mechanism of Diphenylprolinol Silyl Ether Catalyzed Michael Addition Revisited—but Still Controversial

Two views: The mechanism of the conjugate addition of linear aldehydes to nitro olefins has been investigated by two research groups. In spite of extensive experimental data, important questions remain unanswered (see scheme; TMS = trimethylsilyl, En = enamine).

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**Zeolite Synthesis**
R. E. Morris,* S. L. James* 2163 – 2165

Solventless Synthesis of Zeolites

No added solvent means no waste solvent or recycling costs. Understandably the chemical industry is interested in developing approaches to increase the product to solvent ratio in synthesis. In recent work various zeolites were prepared by grinding the dry materials and then heating to 180°C, and this method could lead to significant savings in zeolite synthesis.

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**Reviews**

**Mechanisms of Crystallization**
R. J. Davey,* S. L. M. Schroeder, J. H. ter Horst 2166 – 2179

Nucleation of Organic Crystals—A Molecular Perspective

Everything starts out small: The synthesis of organic materials depends strongly on the first steps of molecular self-assembly during crystal nucleation. This Review summarizes current knowledge on these processes. Self-association in different solvents can lead to the creation of differently packed nuclei and thus in each case specific crystalline phases.

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Communications

**Donor–Acceptor Nanohybrids**

F. G. Brunetti, C. Romero-Nieto, J. López-Andarias, C. Atienza, J. L. López, D. M. Guldi,* N. Martín*  
2180 – 2184

Self-Ordering Electron Donor–Acceptor Nanohybrids Based on Single-Walled Carbon Nanotubes Across Different Scales

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**G-Quadruplex Ligands**

V. Pradines, G. Pratviel*  
2185 – 2188

Interaction of Cationic Manganese Porphyrin with G-Quadruplex Nucleic Acids Probed by Differential Labeling of the Two Faces of the Porphyrin

---

**Cross-Coupling**

J. delPozo, D. Carrasco, M. H. Pérez-Temprano, M. García-Melchor, R. Álvarez, J. A. Casares,* P. Espinet*  
2189 – 2193

Stille Coupling Involving Bulky Groups Feasible with Gold Cocatalyst

---

**Heterocycle Synthesis**

J. L. Jeffrey, E. S. Bartlett, R. Sarpong*  
2194 – 2197

Intramolecular C(sp³)–N Coupling by Oxidation of Benzylc C,N-Dianions

---

**Frontispiece**

On the flip side: A free manganese porphyrin, when activated into a high-valent metal-oxo species, mediates O atom transfer (epoxidation) from both faces. This results in a mixed labeling of epoxide in labeled water. When the porphyrin (blue oval, see scheme) is bound to G-quadruplex DNA (yellow boxes), the O atom transfer reaction takes place only on the accessible face of the porphyrin. This shows the binding mode of the porphyrin to the G-quadruplex DNA.

Gold shuttle: Bulky groups, which will not (or only very sluggishly) undergo Stille coupling with stannanes and inexpensive ligands, can be efficiently coupled using bimetallic catalysis. A gold cocatalyst serves as an efficient shuttle to convey the bulky group from tin to palladium by reducing the steric crowding in the transition-states (see scheme).

What a couple! An intramolecular, C(sp³)–N coupling to afford azacycles is reported. This reaction proceeds through the oxidation of benzylc C,N-dianions with iodine and builds on an earlier discovery during the synthesis of the natural product lyconadin A. The current study employs conformationally unbiased substrates with less acidic C–H bonds and less reactive nitrogen nucleophiles. ZnCl₂ was identified as an important additive.

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From nano- to macroscale: The immobilization of photo- and redox-active 9,10-di(1,3-dithiol-2-ylidene)-9,10-dihydroanthracene-based dipeptide 1 onto SWCNTs resulted in a high order of self-alignment among 1/SWCNTs (see picture). The assembly of the 1/SWCNTs is the key for stabilizing long-lived charge-separated states that are formed upon photoexcitation of the SWCNTs.

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**From nano- to macroscale:** The immobilization of photo- and redox-active 9,10-di(1,3-dithiol-2-ylidene)-9,10-dihydroanthracene-based dipeptide 1 onto SWCNTs resulted in a high order of self-alignment among 1/SWCNTs (see picture). The assembly of the 1/SWCNTs is the key for stabilizing long-lived charge-separated states that are formed upon photoexcitation of the SWCNTs.
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E.W. “Bert” Meijer
Frank Schirrmacher (Publisher, FAZ)
Robert Schläfli
George M. Whitesides
Ahmed Zewail (Nobel Prize 1999)

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**Radical Reactions**

X. Wu, L. Chu, F.-L. Qing* 2198 – 2202

Silver-Catalyzed Hydrotrifluoromethylation of Unactivated Alkenes with CF$_3$SiMe$_3$

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**Synthetic Methods**

Y. Liu, W. Zhang* 2203 – 2206

Iridium-Catalyzed Asymmetric Hydrogenation of α-Alkylidene Succinimides

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**C–H Activation**

T. Yoshino, H. Ikemoto, S. Matsunaga,* M. Kanai* 2207 – 2211

A Cationic High-Valent Cp$^*$Co$^{III}$ Complex for the Catalytic Generation of Nucleophilic Organometallic Species: Directed C–H Bond Activation

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**Heterocycles**

N. S. Y. Loy, A. Singh, X. Xu, C.-M. Park* 2212 – 2216

Synthesis of Pyridines by Carbenoid-Mediated Ring Opening of 2$H$-Azirines

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**Angewandte Chemie**

**Radical Reactions**

A silver bullet: The title reaction results in selective formation of trifluoromethylated alkanes, and is in contrast to the previously reported transition-metal-catalyzed trifluoromethylation of olefins to generate a series of trifluoromethylated allylic compounds. Preliminary mechanistic investigations indicate that the current hydrotrifluoromethylation proceeds through a pathway involving a CF$_3$ radical species.

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**Synthetic Methods**

Not to be out PhOXed! The title reaction provides a new approach to chiral succinimide derivatives with excellent yields and ee values by using a low catalyst loading (0.05 mol%) and mild reaction conditions. Chiral 3-benzyl pyrrolidines and 1-hydroxy pyrrolidine-2,5-diones, important structural motifs in natural products and pharmaceuticals, could be readily prepared. BARF$^-$ = tetrakis[3,5-bis(trifluoromethyl)phenyl]borate.

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**C–H Activation**

Active without activation: In an inexpensive and atom-economical approach to C–H bond functionalization, a cationic Co$^{III}$ complex (see scheme) was used to generate nucleophilic organometallic species in situ without additional activating reagents. Under these conditions, aryl C–H bonds underwent efficient addition to polar electrophiles, including α,β-unsaturated N-acyl pyrroles as β-substituted ester and amide surrogates.

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**Heterocycles**

Roaming the range: The title reaction tolerates a wide range of substituents on the resulting pyridine ring using mild reaction conditions (see scheme; esp = α,α,α',α'-tetramethyl-1,3-benzenediproponic acid). The formation of the key intermediate is catalyst-controlled, and subsequent cyclization and oxidation affords pyridines in excellent yields. The method has been used for the efficient synthesis of polyarylpyridines.

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Homogeneous Catalysis

T. Nemoto, Z. Zhao, T. Yokosaka, Y. Suzuki, R. Wu, Y. Hamada* 2217 – 2220

Palladium-Catalyzed Intramolecular ipso-Friedel–Crafts Alkylation of Phenols and Indoles: Rearomatization-Assisted Oxidative Addition

Inspiration: A novel synthesis of spirocycles based on a palladium-catalyzed intramolecular ipso-Friedel–Crafts alkylation of phenols (see scheme; dba = dibenzylideneacetone) and indoles is described. Mechanistic studies show that the reaction proceeds through an unprecedented rearomatization-assisted oxidative addition.

Synthetic Methodology

H. Kawai, S. Okusu, Z. Yuan, E. Tokunaga, A. Yamano, M. Shiro, N. Shibata* 2221 – 2225

Enantioselective Synthesis of Epoxides Having a Tetrasubstituted Trifluoromethylated Carbon Center: Methylhydrazine-Induced Aerobic Epoxidation of β,β-Disubstituted Enones

The unprecedented title reaction is catalyzed by a methylhydrazine/base/organocatalyst (1) system. Biologically attractive epoxides (2) having a tetrasubstituted trifluoromethylated carbon center were obtained with excellent enantioselectivity for the first time. 18O-labeling experiments suggest a mechanism involving the activation of molecular oxygen. MTBE = methyl tert-butyl ether.

Synthetic Methods

A. Q. Pan, H. B. Wu, L. Yu, X. W. Lou* 2226 – 2230

Template-Free Synthesis of VO₂ Hollow Microspheres with Various Interiors and Their Conversion into V₂O₅ for Lithium-Ion Batteries

Getting a charge out of microspheres: Uniform VO₂ microspheres with various complex interiors, such as yolk-shelled and multi-shelled hollow structures, have been synthesized through a template-free solvothermal method. After annealing in air, the derived V₂O₅ microspheres manifest improved electrochemical performance as a high-capacity cathode material for lithium-ion batteries.

Amide Hydrogenation

M. Stein, B. Breit* 2231 – 2234

Catalytic Hydrogenation of Amides to Amines under Mild Conditions

Under (not so much) pressure: A general method for the hydrogenation of tertiary and secondary amides to amines with excellent selectivity using a bimetallic Pd–Re catalyst has been developed. The reaction proceeds under low pressure and comparatively low temperature. This method provides organic chemists with a simple and reliable tool for the synthesis of amines.
Growing pores: Exposure of a bis-norbornene trithiocarbonate to long-wavelength UV light, or sunlight, in the presence of N-isopropylacrylamide (NiPAAm) led to well-defined norbornene–telechelic poly(NiPAAm) macromers. The macromers were end-linked with a tris-tetrazine via inverse-electron-demand Diels–Alder cycloaddition to generate polymer gels. Addition of new monomer, followed by exposure to sunlight, led to “photo-growth” of the network pores.

The mechanisms for the reductive cleavage of benzylic esters and ethers by neutral organic electron donor 1 are different (see scheme). Products isolated from the cleavage of benzylic ethers result from the transfer of two electrons, without the intermediacy of benzyl radicals, which are believed to be intermediates in the reductive cleavage of benzylic esters.

A new reaction pathway: Carbon monoxide is readily reduced by Piers’ borane at a frustrated Lewis pair (FLP) to yield a formylborane stabilized by the FLP (see picture). This reaction may be considered a typical example of efficient activation of a small molecule by a FLP.

Internal conversion: The energy difference between the Franck-Condon and equilibrium geometries and the vibrational frequency of one or a few modes determine the relative importance of adiabatic and nonadiabatic dynamics and thus the rate of electronic energy dissipation (see picture). In the cycloketones, variations in these quantities lead to a difference in the timescale for the $S_2 \rightarrow S_1$ transition.
Diversity-Oriented Synthesis

N. T. Patil, V. S. Shinde, B. Sridhar
Relay Catalytic Branching Cascade: A Technique to Access Diverse Molecular Scaffolds

Oxidative Coupling

J. Wang, C. Liu, J. Yuan, A. Lei
Copper-Catalyzed Oxidative Coupling of Alkenes with Aldehydes: Direct Access to \(\alpha,\beta\)-Unsaturated Ketones

Asymmetric Catalysis

B. M. Trost, J. T. Masters, A. C. Burns
Palladium-Catalyzed Asymmetric Allylic Alkylation of 3-Aryloxindoles with Allylidene Dipivalate: A Useful Enol Pivalate Product

Analytical Methods

R. Lu, G. Sheng, W. Li, H. Yu, Y. Raichlin, A. Katzir, B. Mizaikoff
IR-ATR Chemical Sensors Based on Planar Silver Halide Waveguides Coated with an Ethylene/Propylene Copolymer for Detection of Multiple Organic Contaminants in Water

Skeletal diversity: The reactions of alkanoic acids (A, common type of substrates) with various scaffold-building agents (B) under gold catalysis produce a series of multifunctional polyheterocyclic structures (see scheme). The approach enables the preparation of compound libraries with high skeletal diversity.

Let’s get radical: The first copper-catalyzed oxidative coupling of alkenes and aldehydes was developed. Various aldehydes were utilized as substrates to construct \(\alpha,\beta\)-unsaturated ketones. A preliminary mechanistic study indicated that this reaction is likely to proceed through a single-electron transfer.

Triple A: The catalytic asymmetric allylic alkylation (AAA) of 3-aryloxindoles with allylidene dipivalate is described. This reaction affords stable, synthetically useful enol pivalates in high yield and with excellent regio- and enantioselectivity. A broad range of substrates is tolerated, including unprotected and 3-heteroaryl nucleophiles.

Sensitive: Several monocyclic aromatic hydrocarbons, for example \(p\), \(m\), \(o\)-xylene, toluene, and benzene (1–5), were detected in a single measurement by using a planar infrared attenuated total reflection (IR-ATR) fiberoptic sensor that was coated with ethylene/propylene copolymer. Compared to conventional IR sensing systems, this device exhibits a large dynamic detection range.
**DNA Structures**

V. Limongelli, S. De Tito, L. Cerofolini, M. Fragai, B. Pagano, R. Trotta, S. Cosconati, L. Marinelli, E. Novellino, I. Bertini, A. Randazzo, C. Luchinat, M. Parrinello

2269 – 2273

**The G-Triplex DNA**

**Nanotube Toxicology**

H. Ali-Boucetta, A. Nunes, R. Sainz, M. A. Herrero, B. Tian, M. Prato, A. Bianco, K. Kostarelos

2274 – 2278

**Asbestos-like Pathogenicity of Long Carbon Nanotubes Alleviated by Chemical Functionalization**

**Self-Assembled Peptide Architecture**

K. L. Morris, S. Zibaee, L. Chen, M. Goedert, P. Sikorski, L. C. Serpell

2279 – 2283

**The Structure of Cross-β Tapes and Tubes Formed by an Octapeptide, αSβ1**

---

**Triplex with a twist**

Through meta-dynamics calculations, the thrombin binding aptamer (TBA) has been shown to adopt a stable G-triplex structural motif, in addition to the usual G-quadruplex (see scheme). An 11-mer oligonucleotide was also shown to form a stable G-triplex, whose structural and thermodynamic properties have been characterized.

**Sometimes shorter is better**

The apparent similarity between multi-walled carbon nanotubes (MWNTs) and asbestos fibers has generated serious concerns about their safety profile. The asbestos-like pathogenicity observed for long, pristine nanotubes (NTlong, see scheme) can be completely alleviated if their effective length is decreased as a result of chemical functionalization, such as with tri(ethylene glycol) (TEG).

**Elaborate morphology**

The αSβ1 peptide, a fragment of α-synuclein, assembles into flat tapes consisting of a peptide bilayer, which can be modeled based on the cross-β structure found in amyloid proteins. The tapes are stabilized by hydrogen bonding, whilst the amphiphilic nature of the peptide results in the thin bilayer structure. To further stabilize the structure, these tapes may twist to form helical tapes, which subsequently close into nanotubes.

**Inside Cover**

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**DNA Structures**

V. Limongelli, S. De Tito, L. Cerofolini, M. Fragai, B. Pagano, R. Trotta, S. Cosconati, L. Marinelli, E. Novellino, I. Bertini, A. Randazzo, C. Luchinat, M. Parrinello

2269 – 2273

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**Self-Assembled Peptide Architecture**

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2279 – 2283

**The Structure of Cross-β Tapes and Tubes Formed by an Octapeptide, αSβ1**
**DNA Nanotechnology**

R. Crawford, C. M. Erben, J. Periz, L. M. Hall, T. Brown, A. J. Turberfield, A. N. Kapanidis*

Non-covalent Single Transcription Factor Encapsulation Inside a DNA Cage

**Surface Chemistry**

X. N. Zhang, Y. G. Cai*

Ultralow Voltage Electrowetting on a Solidlike Ionic-Liquid Dielectric Layer

**Enzyme Catalysis**

C. Wuensch, J. Gross, G. Steinkellner, K. Gruber, S. M. Glueck,* K. Faber*

Asymmetric Enzymatic Hydration of Hydroxystyrene Derivatives

**Natural Products**

P.-J. Zhao,* Y.-L. Yang, L. Du, J.-K. Liu, Y. Zeng*

Elucidating the Biosynthetic Pathway for Vibralactone: A Pancreatic Lipase Inhibitor with a Fused Bicyclic β-Lactone

**Electrowetting** was achieved on an ionic-liquid-coated (IL) dielectric layer at a driving voltage of just 70 mV and 5 V in AC and DC mode, respectively. AFM studies suggest that the high capacitance density of the ionic-liquid dielectric layer is the reason for the low voltage electrowetting (see picture; OTS = octadecyltrichlorosilane).

**More than one activity:** Owing to their hydratase activity, phenolic acid decarboxylases catalyze the regio- and stereoselective addition of H₂O across the C=C double bond of hydroxystyrene derivatives yielding (S)-4-(1-hydroxyethyl)phenols with up to 82% conversion and 71% ee. Based on structure analysis and molecular docking simulations, a catalytic mechanism for this novel enzymatic reaction is proposed.

**Not so simple:** Evidence from ¹³C-labeling studies, metabolite profiling, and cell-free conversion established that the bicycle skeleton of vibralactone is derived from an aryl ring moiety and both shikimate and phenylalanine pathways may contribute.

**CAP-turing the moment:** A cage made from DNA can be used to encapsulate a transcription factor (catabolite activator protein, CAP; see figure) without covalent attachment. CAP is shown to stably bind inside the DNA cage at a 1:1 ratio by bending one edge to accommodate the protein. Single-molecule fluorescence measurements confirm the orientation of CAP within the cage.

**VibPT** was found to be potentially involved in vibralactone biosynthesis, as well as an aromatic PTase, which was first characterized in basidiomycete fungi. OPP = pyrophosphate.
Raising the $^{18}$F-BAr: Specific activities of most $^{18}$F-labeled radiotracers fall below 2 Ci mol$^{-1}$, yet $^{18}$F-aryltrifluoroborate synthesis affords specific activities as high as 15 Ci mol$^{-1}$. This has been confirmed by using click chemistry to link an $[^{18}\text{F}]$-

ArBF$_4^-$ to rhodamine and thereby demonstrating a rapid and generalizable one-pot method for preparing a fluorescent tracer with about 10-fold higher specific activity than usual.

Aromatic micelles: Hydrophobic and aromatic–aromatic interactions promoted the spontaneous formation of micelle-inspired molecular capsules with large aromatic shells from bent bisanthracene amphiphiles (see picture). The micellar capsules could accommodate fluorescent-dye guests in water, and the resultant nanocomposites exhibited strong fluorescence through efficient energy transfer from the host shells to the encapsulated guests.

A high-pressure job: Under high-pressure conditions, within a diamond anvil cell, irradiation of red phosphorus (see scheme, orange) and water was found to lead to a reaction that gives H$_2$, PH$_3$, H$_3$PO$_2$, H$_3$PO$_4$, and H$_3$PO$_4$ (H gray, O red, P orange). This reaction can be easily monitored using Raman spectroscopy and presents an interesting method for H$_2$ generation.

An innovative platform for targeted oral drug delivery is proposed based on the functionalization of drug/dye-loaded mesoporous silica nanoparticles (MSNs) with a biodegradable nutraceutical (β-lactoglobulin). The attachment of the nutraceutical not only protects the drug/dye from leaching in acidic environment, but also effectively allows their release in desired basic sites (pH 7.4).
**Fluorescent Sensors**

Q. Wang, M. A. Priestman, D. S. Lawrence*  
2323 – 2325

**Monitoring of Protein Arginine Deiminase Activity by Using Fluorescence Quenching: Multicolor Visualization of Citrullination**

**Colorful**: The protein arginine deiminases are members of the enzyme family that catalyze posttranslational histone modification and consequent changes in gene expression. A visual readout of catalytic activity was developed that yields large fluorescence changes across the visible spectrum. The use of different fluorophores (see picture) enables the simultaneous multicolor monitoring of a mixture of histone-modifying enzymes.

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**Anode Nanotubes**

J. W. Deng, H. X. Ji, C. L. Yan,* J. Zhang, W. Si, S. Baunack, S. Oswald, Y. F. Mei, O. G. Schmidt  
2326 – 2330

**Rolling their own**: Naturally rolled-up C/Si/C trilayer nanomembranes (see scheme) exhibit a high reversible capacity of about 2000 mAh g\(^{-1}\) at 50 mAh g\(^{-1}\), and 100% capacity retention at 500 mAh g\(^{-1}\) after 300 cycles. This technique is general and could be applied to the fabrication of other battery materials that undergo large volume changes.

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**Gas-Phase Tautomers**

J. L. Alonso,* V. Vaquero, I. Peña, J. C. López, S. Mata, W. Caminati  
2331 – 2334

**Give me five!** All five tautomers and conformers of cytosine were characterized in the gas phase by laser ablation molecular beam Fourier transform microwave spectroscopy. The spectra were assigned unambiguously on the basis of the hyperfine structure due to the three \(^{14}\)N nuclei (see picture; N blue, O red). The relative energies of the identified species were estimated from the relative intensities of the spectra.

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**Single-Chain Technology**

N. Baradel, S. Fort, S. Halila, N. Badi, J.-F. Lutz*  
2335 – 2339

**Polymers that toe the line**: Well-defined linear polystyrene chains containing precisely positioned hexose moieties (mannose, galactose, and N-acetylglucosamine) were synthesized by a sequence-controlled polymerization approach followed by a series of site-selective modification steps. Such multifunctional single-chain hexose arrays associate specifically with complementary lectins (see picture).
A GO-to solution: A simple graphene oxide (GO)-based assay to screen for selective inhibitors of a hepatitis C virus (HCV) helicase along with inhibitors of a severe acute respiratory syndrome coronavirus (SARS CoV) helicase was tested (see scheme). A single screen found five inhibitors highly selective for the HCV helicase orthologous to the SARS CoV helicase. Some of these hits were validated using the same GO-based assay.

Both protonated and deuterated samples were employed in the study of the L7Ae box C/D RNA complex by $^1$H-detected solid-state NMR spectroscopy. This approach yielded high-resolution spectra and was used to determine the intermolecular interface and extract structural parameters with high accuracy.

The virtue of enantiomers: A general method has been developed for measuring the individual contributions of noncovalent interactions within transition-metal complexes and dissecting them from electronic effects. On Pd complexes with one enantiopure and two enantiomeric phosphoramidite ligands, it was experimentally shown that modulations in extended CH–π and π–π interaction interfaces provide a ΔΔG value that is significant for stereoselection.

Electrodes from the ink-jet printer: Cellulose sheets can be transformed into mesostructured graphene nanostructures by a simple and general method. Since the iron catalyst can be printed on paper with an ink-jet printer, the products can be prepared with 2D patterns. Subsequent Cu deposition results in further functionalization of the microstructured electrodes (see picture).
**Alkane Oxidation**

S. Staudt, E. Burda, C. Giese, C. A. Müller, J. Marienhagen, U. Schwaneberg, W. Hummel, K. Drauz, H. Gröger* 2359 – 2363

Direct Oxidation of Cycloalkanes to Cycloalkanones with Oxygen in Water

It doesn’t take much to oxidize cycloalkanes directly to the corresponding cyclic ketones: molecular oxygen as the oxidant, water as the solvent, the cofactor NADP⁺ (and a little 2-propanol to reduce it), as well as two catalytic enzymes—a hydroxylating P450 monoxygenase and an alcohol dehydrogenase (see scheme).

**Biological Mass Spectrometry**

R. Cramer,* A. Pirkl, F. Hillenkamp, K. Dreisewerd 2364 – 2367

Liquid AP-UV-MALDI Enables Stable Ion Yields of Multiply Charged Peptide and Protein Ions for Sensitive Analysis by Mass Spectrometry

All charged up: High and prolonged yields of multiply charged peptide and protein ions can be formed in MALDI mass spectrometry using liquid UV-MALDI matrices and a heated ion-transfer tube. The key features are low laser energies of 1–10 μJ, resulting in fluences of less than 200 to 2000 J m⁻² and low sample ablation, high sensitivity, and continuous ion generation over tens of thousands of laser shots.

**Interaction Energy**

K. Fumino, V. Fossog, K. Wittler, R. Hempelmann, R. Ludwig* 2368 – 2372

Dissecting Anion–Cation Interaction Energies in Protic Ionic Liquids

The strength of the interaction between anions and cations in protic ionic liquids (PILs) can be extracted from far-IR spectra. A suitable set of specially synthesized PILs was used to correct the frequency shifts of these low vibrational modes for contributions resulting from changing reduced masses only. The experimental results were confirmed by DFT calculations.
Angewandte Corrigendum

The authors of this Communication wish to correct the author information in reference [10c]. The authors also wish to add a new citation as reference [10e] with regard to the polymer synthesis. The correct reference [10] should be as follows:

[10] See, for example: a) D. M. Lynn, R. Langer, J. Am. Chem. Soc. 2000, 122, 10761 – 10768; b) Y.-L. Lin, G. Jiang, L. K. Birrell, M. E. H. El-Sayed, Biomaterials 2010, 31, 7150 – 7166; c) L. V. Christensen, C.-W. Chang, W. J. Kim, S. W. Kim, Z. Zhong, C. Lin, J. F. J. Engbersen, J. Feijen, Bioconjugate Chem. 2006, 17, 1233 – 1240; d) R. S. Burke, S. H. Pun, Bioconjugate Chem. 2010, 21, 140 – 150; e) C. Lin, C.-I. Blaauuboer, M. M. Timoneda, M. C. Lok, M. van Steenbergen, W. E. Hennink, Z. Zhong, J. Feijen, J. F. J. Engbersen, J. Controlled Release 2008, 126, 166 – 174.

Angewandte Corrigendum

While the two reported organometallic reactions (2 → 4 and 4 → 5) mediated by cage 1 are new, the overall reaction (2 → 5) in a common solvent has been reported by Knox and co-workers for R = Ph.[13, 14] Therefore, reference [14] is cited as an additional paper and the following sentence must be deleted from the introduction: “The overall reaction provides the first example of a photochemical organometallic transformation of a Ru2 dinuclear complex that occurs across the two metal centers.”

[14] J. N. L. Dennett, S. A. R. Knox, K. M. Anderson, J. P. H. Charmant, A. G. Orpen, Dalton Trans. 2005, 63 – 73.

Angewandte Corrigendum

The authors of this Communication unintentionally provided the incorrect recommended name “9β-p-presilphiperfolan-1α-ol” for the natural product isolated by König and Leitão. The correct name should instead be “9β-p-presilphiperfolan-1β-ol” to reflect the syn orientation of the hydroxy group relative to the C9-methyl group of the natural product. This error appears in the table-of-contents graphic, a portion of the article text, and a portion of the Supporting Information.

Enantioselective Total Synthesis of the Reported Structures of (−)-9-epi-Presilphiperfolan-1-ol and (−)-Presilphiperfolan-1-ol: Structural Confirmation and Reassignment and Biosynthetic Insights

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Angew. Chem. Int. Ed. 2012, 51

DOI: 10.1002/anie.201205276
Low-Valent Ge₂ and Ge₄ Species Trapped by N-Heterocyclic Gallylene

A. Doddi, C. Gemel, M. Winter, R. A. Fischer, C. Goedecke, H. S. Rzepa, G. Frenking

Angew. Chem. Int. Ed. 2013, 52

DOI: 10.1002/anie.201204440

After publication of this Communication, the authors learned about theoretical and experimental studies of four-membered cyclic compounds containing a B₂E₂ moiety (E = N, P, As) which possess a similar bonding situation as in their Ge₂Ga₂ species. In particular, the isolated and structurally characterized 1,3-dibora-2,4-diphosphonio-cyclobutane-1,3-diyl which has a cyclic B₂P₂ fragment exhibits a transannular B–B \(\pi\) bond without a B–B \(\sigma\) bond. Thus, the Ge₂Ga₂ compound described in the Communication is not the first example of a stable species which exhibits a \(\pi\) bond between two atoms without a \(\sigma\) bond. The authors are grateful to Didier Bourissou for drawing their attention to these precedents.

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