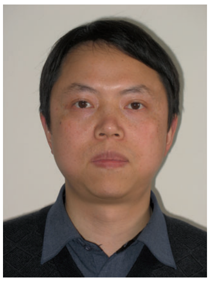
Service

Author Profile



"My favorite name reaction is the Diels–Alder reaction. The secret of being a successful scientist is to keep reading and thinking …"
This and more about Ying-Chun Chen can be found on page 11198.

News

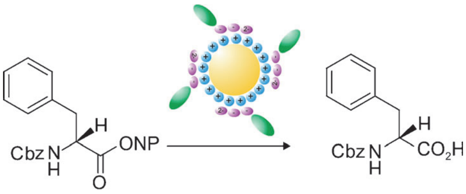
B. K. Kobilka

R. J. Lefkowitz

Books

Highlights

Peptide Nanoparticles



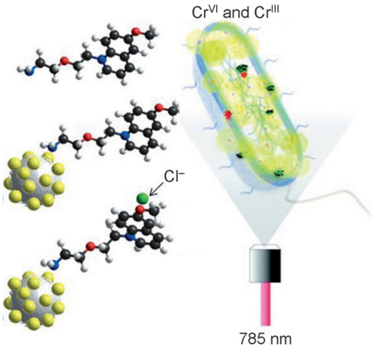
Inspired by nature: Self-assembled peptide nanoparticles have been designed that accelerate ester hydrolysis (see picture; Cbz = carbobenzyloxy, NP = p-NO_2-C_6H_4). The concerted interplay of the multivalent surface with the catalytically active peptide and the substrate at the same time combines several aspects decisive for the catalyst's efficiency, a property characteristic of enzymes.

Behind the wheel: A 10 nm diameter nanoring, containing 24 porphyrin units, has been created by a Vernier-templating self-organization of hexa- or octadentate templating units and linear covalently linked porphyrin oligomers. Coordination of a bidentate ligand triggers a conversion of the molecular nanocylinder into a molecular nanoannulus to afford the dimeric species, which can adopt a water wheel structure (see picture).

Essays

Dawn of nanotechnology: The immersion ultramicroscope was patented a century ago. When an analyte was examined with an antique instrument and with state-of-the-art technology, the historic assumptions were confirmed: the size and shape of the nanoparticles are in the same range as that described 100 years ago. The spectra of the Tyndall cones caused by the shape of the nanoparticles were also described correctly—long before electron microscopy was able to image single nanoparticles.

Minireviews



SERS you right: Surface-enhanced Raman scattering (SERS) can be used for the direct or indirect detection of inorganic molecules and even ions, in spite of their intrinsically low Raman scattering cross-sections. Recent advances even allow ion sensing and localization within living organisms (see picture).

For the USA and Canada:
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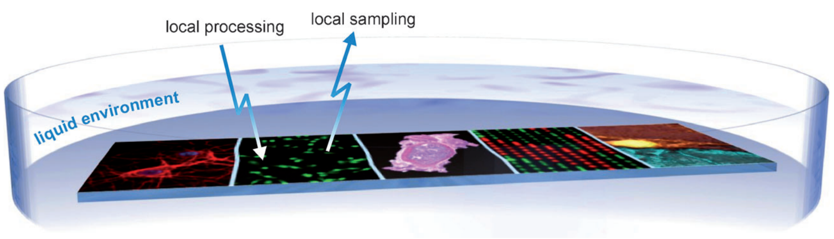
Reviews

Microfluidics

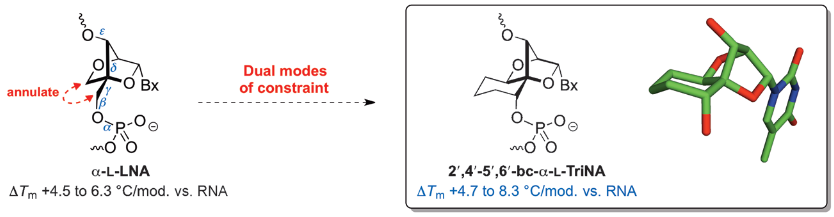


Space, the final frontier? Microfluidic technologies for controlling liquid dispensing and handling will become central for localizing (bio)chemical reactions/functions on biological interfaces. However, microfluidic systems must then operate in the "open space", that is, without the sealed channels and chambers commonly used (see picture). The development of such open-space microfluidic technologies is reported.

Communications

Modified Nucleotides

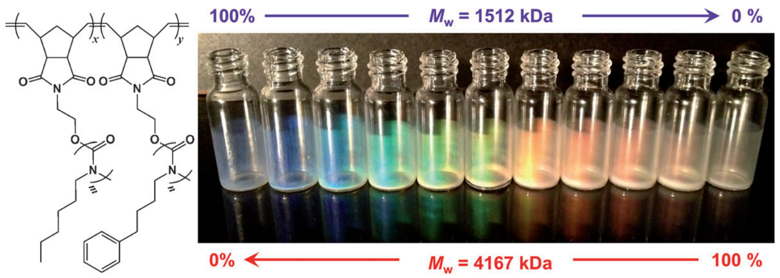
Frontispiece



Dual conformational restriction: A new, highly constrained modification of the α-L-locked nucleic acid (α-L-LNA) scaffold that locks the sugar furanose ring in an N-type configuration and also restricts rotation around torsion angle γ was synthesized (see scheme). This new modification increases the thermostability of an oligonucleotide duplex compared to using a single mode of constraint alone.

Block Copolymers

Front Cover



Colorful: Enabled by their reduced capacity for chain entanglement, high-molecular-weight brush block copolymers can rapidly self-assemble to photonic crystals. The blending of two polymers of different molecular weight can predictably modulate the sizes of the polymer domains, giving rise to a facile means of precision tuning of these photonic-band-gap materials.

The German Chemical Society (GDCh) invites you to:

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125 JAHRE

GDCh

Eine Zeitschrift der Gesellschaft Deutscher Chemiker

Tuesday, March 12, 2013

Henry Ford Building / FU Berlin

Speakers

Carolyn R. Bertozzi

François Diederich

Alois Fürstner

Roald Hoffmann
(Nobel Prize 1981)

Susumu Kitagawa

Jean-Marie Lehn
(Nobel Prize 1987)

E.W. “Bert” Meijer

Frank Schirrmacher
(Publisher, *FAZ*)

Robert Schlögl

George M. Whitesides

Ahmed Zewail
(Nobel Prize 1999)

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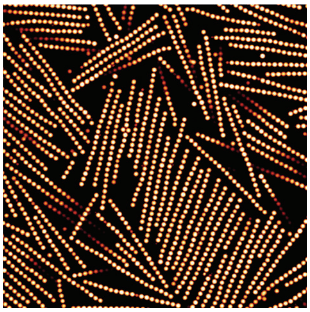


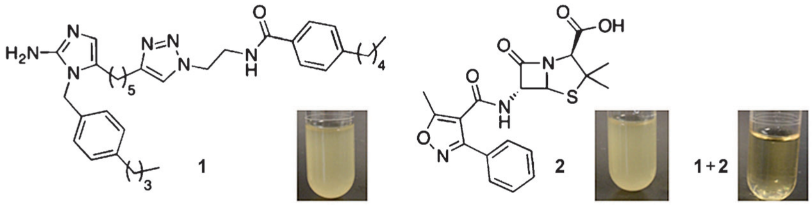
Yanking the chain: A general method for the preparation of colloidal analogues of polymer chains was developed (see picture). The flexibility of these chains can be tuned by applying electric fields in combination with their subjection to simple linkage-forming procedures.

Colloids

H. R. Vutukuri,* A. F. Demirörs, B. Peng, P. D. J. van Oostrum, A. Imhof, A. van Blaaderen* ______ 11249 – 11253

Colloidal Analogues of Charged and Uncharged Polymer Chains with Tunable Stiffness

Inside Back Cover



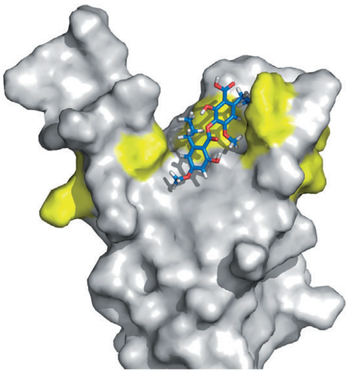
Shields down! Adjuvant molecules that have the ability to restore the susceptibility of multi-drug-resistant bacteria, such as MRSA, to clinically available antibiotics are a promising alternative to the development of novel antimicrobials. Pictured is a potent small molecule (**1**) that, at subminimum inhibitory concentration (sub-MIC) levels, lowers the MIC of oxacillin (**2**) against a number of MRSA strains by up to 512-fold.

Disarming Bacterial Resistance

T. L. Harris, R. J. Worthington, C. Melander* ______ 11254 – 11257

Potent Small-Molecule Suppression of Oxacillin Resistance in Methicillin-Resistant *Staphylococcus aureus*

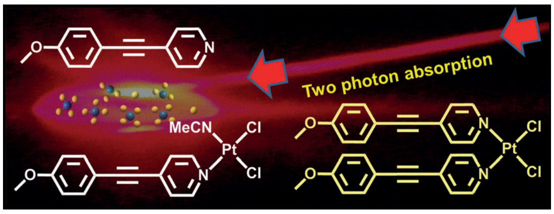
Capturing a coactivator, naturally: The natural products sekikaic acid and lobaric acid, isolated after a high-throughput screen of a structurally diverse extract collection, effectively target the dynamic binding interfaces of the GACKIX domain of the coactivator CBP/p300 (see structure). These molecules are the most effective inhibitors of the GACKIX domain yet described and are uniquely selective for this domain.



Protein–Protein Interactions

C. Y. Majmudar, J. W. Højfeldt, C. J. Arevang, W. C. Pomerantz, J. K. Gagnon, P. J. Schultz, L. C. Cesa, C. H. Doss, S. P. Rowe, V. Vásquez, G. Tamayo-Castillo, T. Cierpicki, C. L. Brooks, III, D. H. Sherman, A. K. Mapp* ______ 11258 – 11262

Sekikaic Acid and Lobaric Acid Target a Dynamic Interface of the Coactivator CBP/p300



Two photons are better than one: A square-planar Pt^{II} complex with derivatized pyridine ligands was synthesized (see scheme), which undergoes two-photon-induced ligand substitution with 600–740 nm light. Linear and quadratic density functional response theory allowed identification of the electronic transitions involved.

Platinum Chemistry

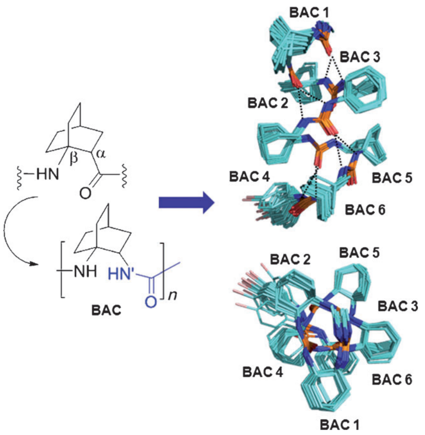
Y. Zhao, G. M. Roberts, S. E. Greenough, N. J. Farrer, M. J. Paterson, W. H. Powell, V. G. Stavros,* P. J. Sadler* ______ 11263 – 11266

Two-Photon-Activated Ligand Exchange in Platinum(II) Complexes

Oligourea Foldamers

B. Legrand, C. André, E. Wenger, C. Didierjean, M. C. Averlant-Petit, J. Martinez, M. Calmes,* M. Amblard* ____ **11267 – 11270**

Robust Helix Formation in a New Family of Oligoureas Based on a Constrained Bicyclic Building Block

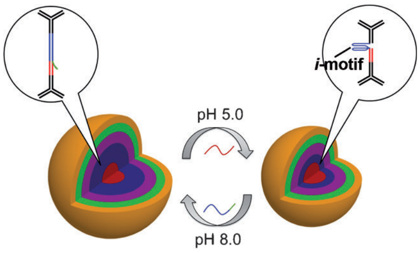


BAC for more: A constrained bicyclic building block with urea linkages is an efficient combination for the formation of a highly rigid helical system. This type of bicyclic amino carbamoyl (BAC) foldamer was studied both in solution (see scheme) and in the solid state. A robust H-bond (dotted line) network was found between the carbonyl oxygen atoms (red) and the amino groups (dark blue) within the helix.

DNA Nanostructures

T. Zhou, P. Chen, L. Niu, J. Jin, D. Liang, Z. Li, Z. Yang, D. Liu* ____ **11271 – 11274**

pH-Responsive Size-Tunable Self-Assembled DNA Dendrimers



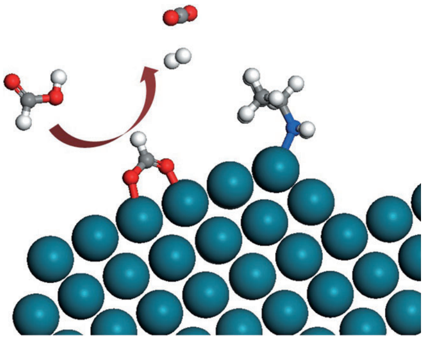
Putting the DNA in dendrimers: A strategy to swiftly prepare DNA dendrimers based solely on DNA self-assembly is presented. This technique produces highly pure DNA dendrimers with an excellent yield of high generation dendrimers. The incorporation of molecular motors (*i*-motifs) into the DNA dendrimers allows for a change in size (up to 30%) in response to changing pH values (see scheme).

Organic–Metal Particulate Catalysts

S. Jones, J. Qu, K. Tedsree, X.-Q. Gong, S. C. E. Tsang* ____ **11275 – 11278**

Prominent Electronic and Geometric Modifications of Palladium Nanoparticles by Polymer Stabilizers for Hydrogen Production under Ambient Conditions

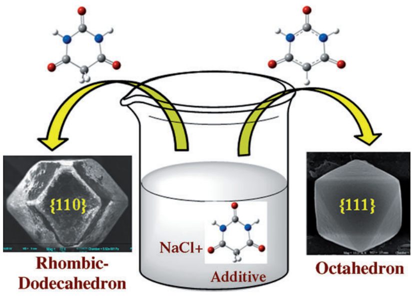
A remarkable effect from the modification of electronic and geometric properties of Pd nanoparticles by the use of polymer pendant groups bound to the surface of palladium nanoparticles is reported. The degree of electron promotion to the Pd nanoparticles under ambient conditions was found to be dependent on the availability of the lone pair electrons of the pendant groups.



Crystal Growth

A. Sen, B. Ganguly* ____ **11279 – 11283**

Is Dual Morphology of Rock-Salt Crystals Possible with a Single Additive? The Answer Is Yes, with Barbituric Acid



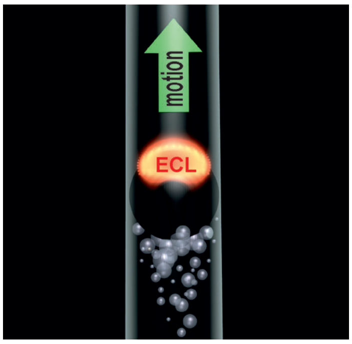
Crystal face lift: Barbituric acid is shown to be a new crystal-habit modifier for sodium chloride crystals (see scheme). Two morphologies of salt crystals can be prepared separately with this new additive. It is of the few additives able to induce rhombic dodecahedron crystals for NaCl, and is required only a trace of amount, unlike other additives, such as glycine.

Luminescent Motion

M. Sentic, G. Loget, D. Manojlovic,
A. Kuhn, N. Sojic* ——— **11284 – 11288**

Light-Emitting Electrochemical "Swimmers"

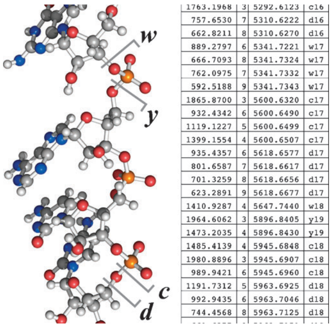
Swimmer in the dark: Propulsion of a conducting object is intrinsically coupled with light emission using bipolar electrochemistry. Asymmetric redox activity on the surface of the swimmer (black bead; see picture) causes production of gas bubbles to propel the swimmer in a glass tube with simultaneous electrochemiluminescence (ECL) emission to monitor the progress of the swimmer.



RNA Sequencing

M. Taucher, K. Breuker* — **11289 – 11292**

Characterization of Modified RNA by Top-Down Mass Spectrometry



1763.1968	3	5292.6123	c16
757.6530	7	5310.6222	d16
662.8211	8	5310.6270	d16
889.2797	6	5341.7221	w17
666.7093	8	5341.7324	w17
762.0975	7	5341.7332	w17
592.5188	9	5341.7343	w17
1865.8700	3	5600.6320	c17
932.4342	6	5600.6490	c17
1119.1227	5	5600.6499	c17
1399.1554	4	5600.6507	c17
935.4357	6	5618.6577	d17
801.6587	7	5618.6617	d17
701.3259	8	5618.6656	d17
623.2891	9	5618.6677	d17
1410.9287	4	5647.7440	w18
1964.6062	3	5896.8405	y19
1473.2035	4	5896.8430	y19
1485.4139	4	5945.6848	c18
1980.8896	3	5945.6907	c18
989.9421	6	5945.6960	c18
1191.7312	5	5963.6925	d18
992.9435	6	5963.7046	d18
744.4568	8	5963.7125	d18

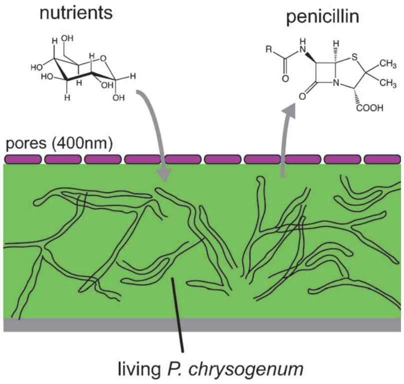
Characteristic mass differences between fragment ions from backbone cleavage of RNA by electron detachment (***d***, ***w***) and fragment ions from collisionally activated dissociation (***c***, ***y***) provide extensive sequence information (see picture). Structure analysis by this approach should be especially useful for the detailed characterization of synthetic or post-transcriptionally modified RNA.

Living Materials

L. C. Gerber, F. M. Koehler, R. N. Grass,
W. J. Stark* ——— **11293 – 11296**

Incorporation of Penicillin-Producing Fungi into Living Materials to Provide Chemically Active and Antibiotic-Releasing Surfaces

Living materials: Artificial biological niches are loaded with the penicillin-producing mold *Penicillium chrysogenum*. This living material consumes food through a nanoporous top layer and releases the antibiotic on-site. No reloading of the active compound is needed. Gram-positive bacteria were efficiently killed if nearby, whereas Gram-negative bacteria (control experiment, not sensitive to penicillin) were not affected.

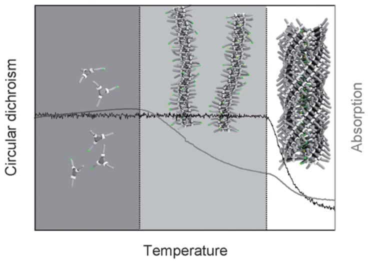


Chirality

P. J. M. Stals, P. A. Korevaar,
M. A. J. Gillissen, T. F. A. de Greef,
C. F. C. Fitié, R. P. Sijbesma,*
A. R. A. Palmans,*
E. W. Meijer* ——— **11297 – 11301**

Symmetry Breaking in the Self-Assembly of Partially Fluorinated Benzene-1,3,5-tricarboxamides

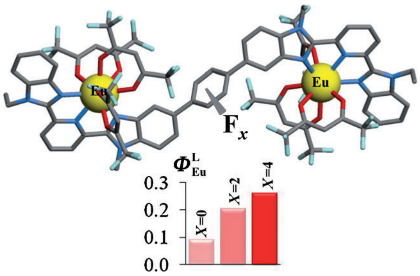
The interplay of two subsequent aggregation processes results in a symmetry-breaking phenomenon in an achiral self-assembling system. Partially fluorinated benzene-1,3,5-tricarboxamide molecules self-assemble into a racemic mixture of one-dimensional *P*- and *M*-helical aggregates, followed by bundling into optically active higher-order aggregates or fibers (see picture).



Energy Transfer

J.-F. Lemonnier, L. Babel, L. Guénée,
P. Mukherjee, D. H. Waldeck,*
S. V. Eliseeva, S. Petoud,*
C. Piguet* ____________ **11302 – 11305**

Perfluorinated Aromatic Spacers for Sensitizing Europium(III) Centers in Dinuclear Oligomers: Better than the Best by Chemical Design?

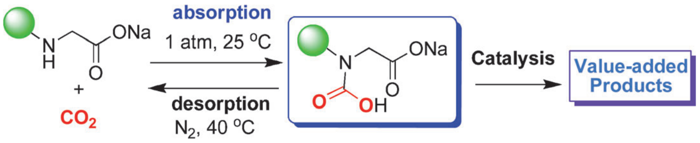


Transfer news: The use of a simple method allows the various sensitization steps in Eu^{III}-containing complexes to be deciphered. Incorporation of an increasing number of electron-withdrawing fluorine atoms on the rigid and electronically tunable phenyl spacer between two tridentate binding units (see picture, red O, dark blue N) affects the quantum yield, intersystem crossing, and energy-transfer processes in a rational way.

CO_2 Capture

A.-H. Liu, R. Ma, C. Song, Z.-Z. Yang,
A. Yu,* Y. Cai, L.-N. He,* Y.-N. Zhao, B. Yu,
Q.-W. Song ____________ **11306 – 11310**

Equimolar CO_2 Capture by N-Substituted Amino Acid Salts and Subsequent Conversion



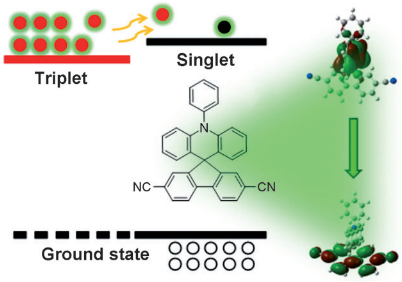
Steric bulk controls CO_2 absorption: N-substituted amino acid salts in poly(ethylene glycol) reversibly absorb CO_2 in nearly 1:1 stoichiometry. Carbamic acid is thought to be the absorbed form of CO_2; this was supported by NMR and in situ IR spectroscopy, and DFT calculations. The captured CO_2 could be converted directly into oxazolidinones and thus CO_2 desorption could be sidestepped.

Organic Light-Emitting Diodes

G. Méhes, H. Nomura, Q. Zhang,
T. Nakagawa, C. Adachi* _ **11311 – 11315**

Enhanced Electroluminescence Efficiency in a Spiro-Acridine Derivative through Thermally Activated Delayed Fluorescence

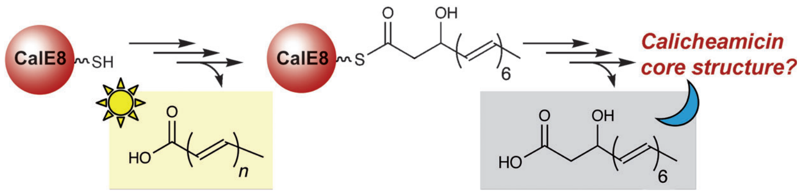
Make your OLED fluorescent: An aromatic molecule based on a spiro-acridine derivative was designed (see picture), and its photoluminescence and electroluminescence were characterized. By combining the donor and acceptor moieties a small energy gap between the lowest singlet and triplet states was achieved. This design leads to an organic light-emitting diode (OLED) that rivals phosphorescent devices regarding exciton generation efficiency.



Enediyne Biosynthesis

K. Belecki,
C. A. Townsend* ________ **11316 – 11319**

Environmental Control of the Calicheamicin Polyketide Synthase Leads to Detection of a Programmed Octaketide and a Proposal for Enediyne Biosynthesis

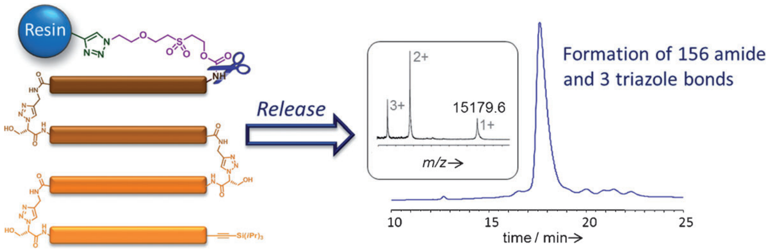


A light in the dark: The fermentation products of the polyketide synthase CalE8 (without its cognate thioesterase) were identified and gave some insight into the elusive early steps of calicheamicin biosynthesis. Fermentation in either the light or dark resulted in different proportions of a new octaketide (see scheme) and led to an updated mechanistic proposal.

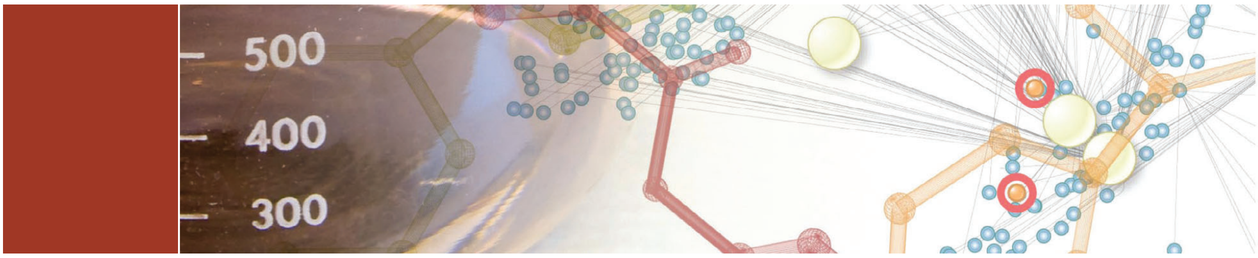
Solid-Phase Chemical Ligation

V. Aucagne,* I. E. Valverde, P. Marceau,
M. Galibert, N. Dendane,
A. F. Delmas* ________ **11320 – 11324**

Towards the Simplification of Protein Synthesis: Iterative Solid-Supported Ligations with Concomitant Purifications



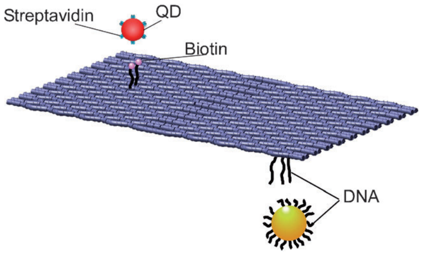
Please release me: A new linker for the temporary tagging of peptides at their N-terminus after solid-phase elongation, and its potential for capture/release purification is demonstrated. This concept is extended to a remarkably efficient self-purifying N-to-C iterative triazole ligation strategy, which is applied to the synthesis of a polypeptide having 160 residues, in a high purity without the need for chromatographic purification (see picture; orange blocks: peptide segments).



DNA Nanotechnology

R. Wang,* C. Nuckolls,
S. J. Wind* ______ 11325 – 11327

Assembly of Heterogeneous Functional Nanomaterials on DNA Origami Scaffolds

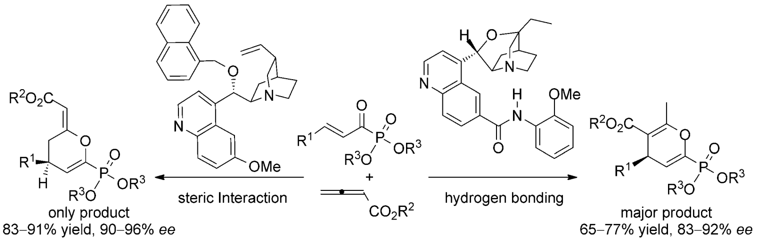


One on each side: Gold nanoparticles (AuNPs) and semiconducting quantum dots (QDs) are integrated on a single DNA origami scaffold. Streptavidin-functionalized QDs bind to biotin anchors on one side of the DNA origami, while DNA-coated AuNPs bind through DNA hybridization to single-stranded DNA on the other side of the scaffold. This approach offers a new path toward the organization of complex systems consisting of disparate materials.

Asymmetric Organocatalysis

C.-K. Pei, Y. Jiang, Y. Wei,*
M. Shi* ______ 11328 – 11332

Enantioselective Synthesis of Highly Functionalized Phosphonate-Substituted Pyrans or Dihydropyrans Through Asymmetric [4+2] Cycloaddition of β,γ-Unsaturated α-Ketophosphonates with Allenic Esters

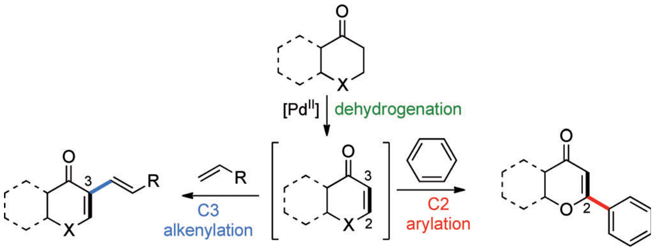


Tell me which you want: Catalytic asymmetric [4+2] cycloadditions of β,γ-unsaturated α-ketophosphonates with allenic esters catalyzed by organocatalysts derived from different cinchona alkaloids have been developed, affording phosphonate-substituted functionalized pyran and dihydropyran derivatives in excellent yields with high enantioselectivities under mild conditions. The choice of product is controlled by the hydrogen bonding characteristics of the chosen catalyst.

Synthetic Methods

Y. Moon, D. Kwon,
S. Hong* ______ 11333 – 11336

Palladium-Catalyzed Dehydrogenation/Oxidative Cross-Coupling Sequence of β-Heteroatom-Substituted Ketones

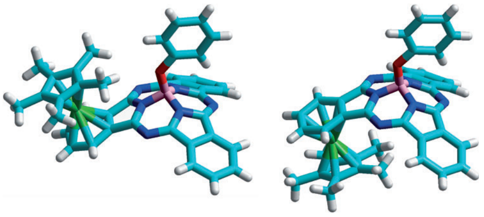


Concise and selective: The title one-pot sequence allows formation of the enone functionality and subsequent cross-coupling. The process provides access to highly functionalized cyclic enolones and enaminones from readily accessible β-heteroatom-substituted cyclic ketones.

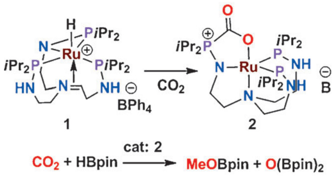
π Complexes

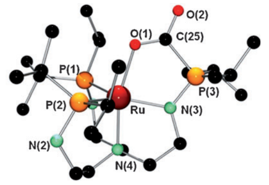
E. Caballero, J. Fernández-Ariza,
V. M. Lynch, C. Romero-Nieto,
M. S. Rodríguez-Morgade,* J. L. Sessler,*
D. M. Guldi,* T. Torres* _ 11337 – 11342

Cyclopentadienylruthenium π Complexes of Subphthalocyanines: A "Drop-Pin" Approach To Modifying the Electronic Features of Aromatic Macrocycles



Facing facts: Coordination of Cp*Ru (Cp* = C_5Me_5) to the concave and convex π surfaces of subphthalocyanines constitutes a new approach to the functionalization of subazaporphyrins. While the convex face shows higher reactivity, coordination to the concave side produces a stronger diatropic influence on the Cp* ligand and a greater perturbation of the macrocyclic π-electronic features.





Frustrating ruthenium: The ruthenium complex **1** is shown to bind carbon dioxide or aldehyde in a manner similar to a frustrated Lewis pair. Compound **2** catalyzes the reduction of CO$_2$ in the presence of pinacolborane (HBpin), yielding MeOBpin and O(Bpin)$_2$ (see picture; Ru red, P orange, N green, O light red, C black).

CO$_2$ Reduction

M. J. Sgro,
D. W. Stephan* ——— **11343 – 11345**

Frustrated Lewis Pair Inspired Carbon Dioxide Reduction by a Ruthenium Tris(aminophosphine) Complex

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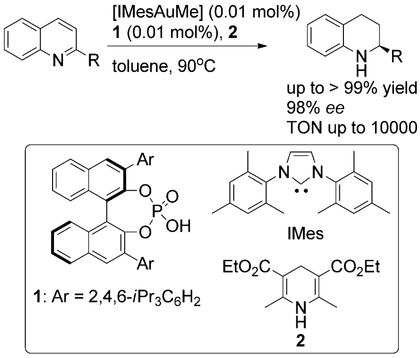

A little gold goes a long way: As little as 0.01 mol% of chiral gold phosphate is sufficient to afford the asymmetric transfer hydrogenation of quinolines with high stereoselectivity (up to 98% *ee*). The achiral ligands on gold were found to have considerable effect on the catalytic efficiency.

Gold Catalysis

X.-F. Tu, L.-Z. Gong* ——— **11346 – 11349**

Highly Enantioselective Transfer Hydrogenation of Quinolines Catalyzed by Gold Phosphates: Achiral Ligand Tuning and Chiral-Anion Control of Stereoselectivity

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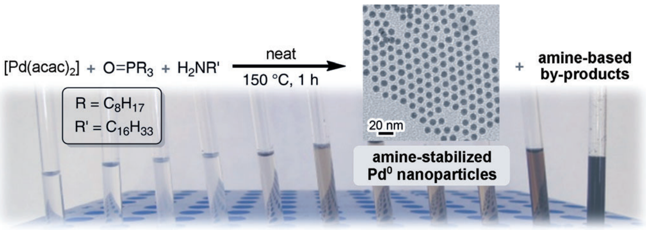


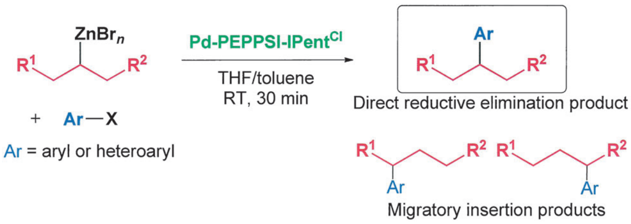
Small and cool: The mechanism of formation of amine-capped Pd nanoparticles from [Pd(acac)$_2$] (acac = acetylacetonate) is elucidated, and shown to involve Pd–amido and Pd–hydride intermediates. The addition of a Lewis base results in a significant reduction in the temperature at which highly monodisperse nanoparticles are isolated.

Nanoparticle Formation

R. W. Y. Man, A. R. C. Brown,
M. O. Wolf* ——— **11350 – 11353**

Mechanism of Formation of Palladium Nanoparticles: Lewis Base Assisted, Low-Temperature Preparation of Monodisperse Nanoparticles

Back Cover



No migration? No problem! A series of new N-heterocyclic carbene based Pd complexes has been created and evaluated in the Negishi cross-coupling of aryl and heteroaryl chlorides, bromides, and triflates with a variety of secondary alkylzinc reagents (see scheme). The direct elimination product is nearly exclusively formed; in most examples there is no migratory insertion at all.

Homogeneous Catalysis

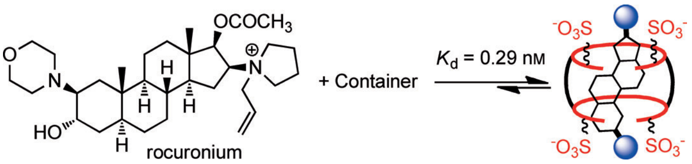
M. Pompeo, R. D. J. Froese, N. Hadei,
M. G. Organ* ——— **11354 – 11357**

Pd-PEPPSI-IPent^{Cl}: A Highly Effective Catalyst for the Selective Cross-Coupling of Secondary Organozinc Reagents

Host–Guest Chemistry

D. Ma, B. Zhang, U. Hoffmann,
M. G. Sundrup, M. Eikermann,*
L. Isaacs* ______ **11358 – 11362**

Acyclic Cucurbit[*n*]uril-Type Molecular Containers Bind Neuromuscular Blocking Agents In Vitro and Reverse Neuromuscular Block In Vivo

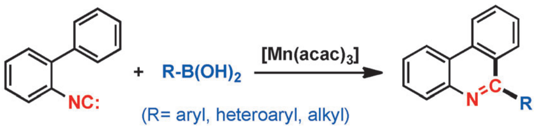


Be My Guest: Two acyclic cucurbit[*n*]uril-type receptors that carry SO_3^--groups bind tightly to several commonly used neuromuscular blocking agents, such as rocuronium, in aqueous solution as revealed by direct and competitive UV/Vis binding assays. One of these containers functions as a potent reversal agent for rocuronium-induced neuromuscular block in rats.

Heterocycle Synthesis

M. Tobisu,* K. Koh, T. Furukawa,
N. Chatani* ______ **11363 – 11366**

Modular Synthesis of Phenanthridine Derivatives by Oxidative Cyclization of 2-Isocyanobiphenyls with Organoboron Reagents



Where HAS you been? A manganese-mediated annulation of 2-isocyanobiaryls with organoboronic acids is developed for the synthesis of a broad range of phenanthridine derivatives (see scheme). Mechanistic studies indicate that the reaction proceeds by the intramolecular homolytic aromatic substitution (HAS) of an imidoyl radical intermediate.

DOI: 10.1002/anie.201206408

50 Years Ago . . .

Angewandte Chemie International Edition was first published in 1962, the mother journal first in 1888. In this monthly flashback, we feature some of the articles that appeared 50 years ago. This look back can open our eyes, stimulate discussion, or even raise a smile.

Are the noble gases really inert? This question was answered 50 years ago with the synthesis of noble-gas compounds, and Rudolf Hoppe et al. reported the synthesis of XeF_2 when a 1:2 mixture of purified Xe and F_2 was subjected to an electric discharge in a sealed vessel. This report followed work reported in the same year by Neil Bartlett on $XePtF_6$ and Howard H. Claasen on XeF_4 and launched a new field of research, thus paving the way for classic chemistry textbooks to be rewritten. For a Review on the discovery of noble-gas compounds, see P. Laszlo, G. J. Schrobilgen, *Angew. Chem.* **1988**, *100*, 495; *Angew. Chem. Int. Ed. Engl.* **1988**, *27*, 479.

The Review by R. Brill was on a "cool" topic: the structure of ice. Hydrogen bridges, disorder in the crystal structure, and mixed crystals were discussed in order to give an overview on the complex structure of such a well-known substance—a topic that is as "hot" today as it was 50 years ago.

G. Wittig and D. Hellwinkel described the synthesis of bis(diphenylene)arylarsoranes. This synthesis, which involved the reaction of spirobis(diphenylene)arsonium salts, provides an alternative route to that reported by the same authors in Issue 1/1962.

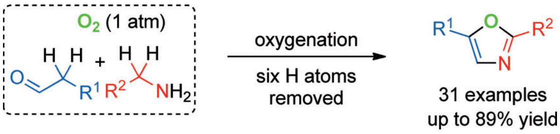
The complaints from workers in a veneer factory about skin irritation led W. Sandermann and M. H. Simatupang to investigate the active principle of teak wood. Analysis of golden yellow crystals that were deposited on teak veneers showed them to contain the toxic 2-γ,γ-dimethylallyl-1,4-naphthaquinone.

Read more in Issue 11/1962

Oxygenation

Z. Xu, C. Zhang, N. Jiao* 11367 – 11370

Synthesis of Oxazoles through Copper-Mediated Aerobic Oxidative Dehydrogenative Annulation and Oxygenation of Aldehydes and Amines



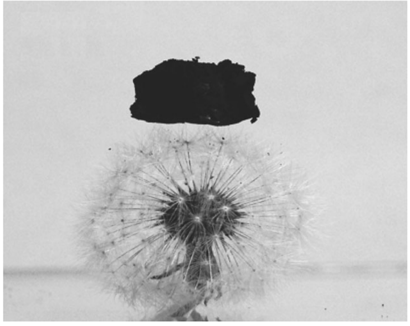
A fragment-assembling strategy is used to form oxazoles from aryl acetaldehydes, amines, and molecular oxygen under mild conditions (see scheme). The transformation is highly efficient with the removal of six hydrogen atoms, including the cleavage of four $C(sp^3)$–H bonds.

Ultralight Graphene

Y. Zhao, C. Hu, Y. Hu, H. Cheng, G. Shi, L. Qu* 11371 – 11375

A Versatile, Ultralight, Nitrogen-Doped Graphene Framework

Inside Cover

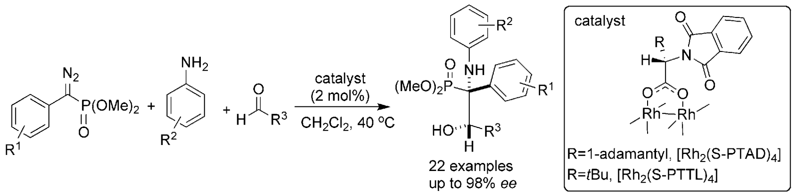


Graphene lite: A density of $(2.1 \pm 0.3)\ \mathrm{mg\,cm^{-3}}$, the lowest to date for a graphene framework architecture, is achieved by preparing an ultralight, N-doped, 3D graphene framework (see photo of a block of the material balancing on a dandelion). Its adsorption capacity for oils and organic solvents is much higher than that of the best carbonaceous sorbents, and it is a promising electrode material for supercapacitors ($484\ \mathrm{F\,g^{-1}}$) and as a metal-free catalyst for the oxygen reduction reaction.

Asymmetric Catalysis

C.-Y. Zhou, J.-C. Wang, J. Wei, Z.-J. Xu, Z. Guo, K.-H. Low, C.-M. Che* 11376 – 11380

Dirhodium Carboxylates Catalyzed Enantioselective Coupling Reactions of α-Diazophosphonates, Anilines, and Electron-Deficient Aldehydes

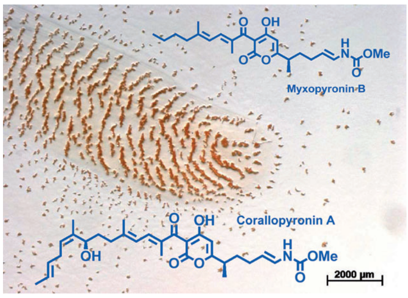


Chiral dirhodium carboxylate complexes ($[Rh_2(S\text{-}PTAD)_4]$ or $[Rh_2(S\text{-}PTTL)_4]$, see scheme) efficiently catalyze asymmetric three-component coupling reactions of α-diazophosphonates, anilines, and electron-deficient aldehydes to give α-amino-β-hydroxyphosphonates. The high level of enantiocontrol provides evidence for the intermediacy of metal-bound ammonium ylide in the product-forming step.

Natural Products

A. Rentsch, M. Kalesse* 11381 – 11384

The Total Synthesis of Corallopyronin A and Myxopyronin B



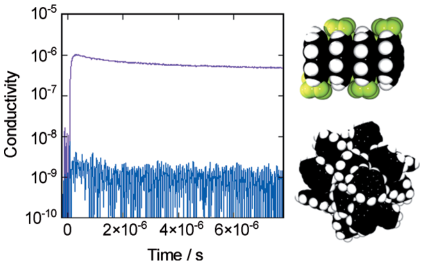
Leading the way: The synthesis of natural products with new biological targets is one of the driving forces for the development of new antibiotics. The synthesis of the two secondary metabolites corallopyronin and myxopyronin (see picture) have been achieved, which are prominent leads for the inhibition of bacterial RNA polymerase.

Nanostructures

B. M. Schmidt, S. Seki, B. Topolinski,
K. Ohkubo, S. Fukuzumi, H. Sakurai,
D. Lentz* ______________ **11385 – 11388**

Electronic Properties of
Trifluoromethylated Corannulenes

With great stacking comes great conductivity: Trifluoromethylated corannulenes are unexpectedly strong electron acceptors in solution. Even a polycrystalline film of 1,2-$(F_3C)_2$-corannulene (top structure and curve in the plot) exhibits conductivity three orders of magnitude higher than that of pristine corannulene!



Supporting information is available on www.angewandte.org (see article for access details).

A video clip is available as Supporting Information on www.angewandte.org (see article for access details).

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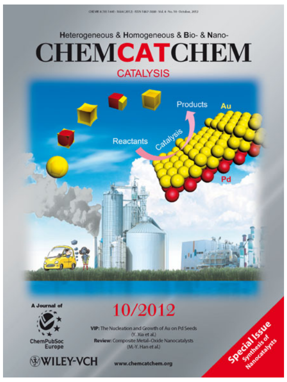

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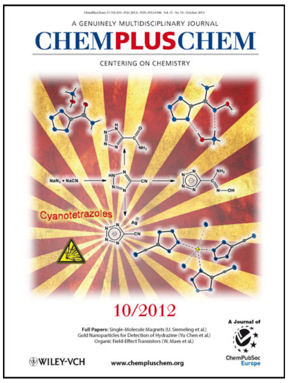

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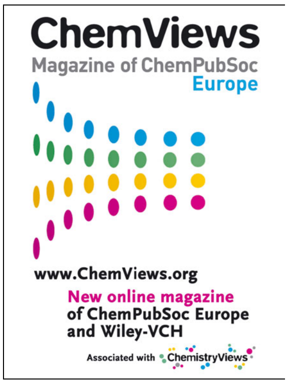

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