VIP 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:

*K. Fuchibe, T. Kaneko, K. Mori, T. Akiyama**
Expedient Synthesis of N-Fused Indoles: A C–F Activation and C–H Insertion Approach

*S. T. Scroggins, Y. Chi, J. M. J. Fréchet**
Polarity-Directed One-Pot Asymmetric Cascade Reactions Mediated by Two Catalysts in an Aqueous Buffer

*D. C. K. Rathwell, S.-H. Yang, K. Y. Tsang, M. A. Brimble**
An Efficient Formal Synthesis of the Human Telomerase Inhibitor (±)-γ-Rubromycin

D. Loffreda, F. Delbecq, F. Vigné, P. Sautet*
Fast Prediction of Selectivity in Heterogeneous Catalysis from Extended Brønsted–Evans–Polanyi Relations: A Theoretical Insight

*P. Eisenberger, R. O. Ayinla, J. M. P. Lauzon, L. L. Schafer**
Ta Amidate Complexes for the Hydroaminoalkylation of Secondary Amines: Enhanced Substrate Scope and Enantioselective Chiral Amine Synthesis

J. E. Hein, J. C. Tripp, L. Krasnova, K. B. Sharpless, V. V. Fokin**
Copper(I)-Catalyzed Cycloaddition of Organic Azides and 1-Iodoalkynes

*J. N. Payette, H. Yamamoto**
Cationic Oxazaborolidine-Catalyzed Enantioselective Diels–Alder Reaction of α,β-Unsaturated Acetylenic Ketones

T. Shibata, T. Chiba, H. Hirashima, Y. Ueno, K. Endo*
The Catalytic Enantioselective Synthesis of Chiral Tetraphenylenes by Consecutive Inter- and Intramolecular Cycloadditions of Two Triynes

Author Profile

"My favorite subject at school was biology. The biggest problem that scientists face is global warming. …" This and more about Uli Kazmaier can be found on page 7730.

Uli Kazmaier _____ **7730**

Obituary

Roland Köster (1924–2009)
B. Wrackmeyer _____ **7731 – 7732**

Books

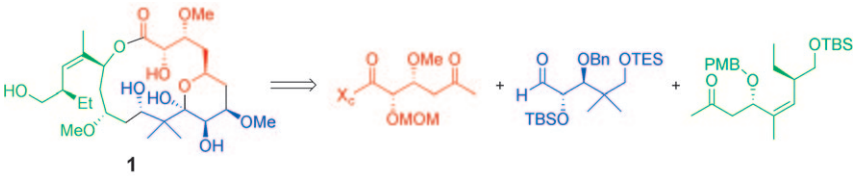
Classics in Spectroscopy — Stefan Berger, Dieter Sicker
reviewed by P. Spiteller _____ **7733**

Highlights

Total Synthesis

P. E. Floreancig* _____ **7736 – 7739**

Highly Convergent Synthesis of Peluroside A



1

When quality and quantity both count: Fragments were coupled through aldol reactions in a highly convergent synthesis of the microtubule-binding agent peluroside A (**1**; see retrosynthetic analysis). The approach is amenable to the preparation of analogues and to the synthesis of suitable quantities of material for biological studies. X_c = benzyloxazolidinone, MOM = methoxymethyl, TBS = *tert*-butyldimethylsilyl, Bn = benzyl, TES = triethylsilyl, PMB = *p*-methoxybenzyl.

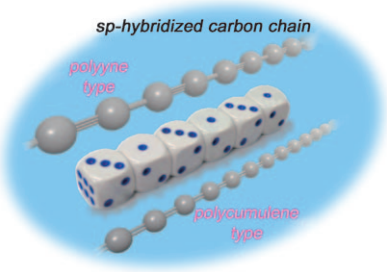
Contents

Polyyne Structures

S. Kim* ——— **7740 – 7743**

Synthesis and Structural Analysis of One-Dimensional sp-Hybridized Carbon Chain Molecules

Revelation: The synthesis and characterization of sp-hybridized carbon chain molecules, such as carbyne and polyyne, have been challenging topics in chemistry. Recent research on the synthesis and X-ray crystallographic analysis of a series of *t*Bu-end-capped polyynes provides empirical evidence for the linear structure of sp-hybridized carbon chains.



Minireviews

Protein Microarrays

D. Weinrich, P. Jonkheijm, C. M. Niemeyer,* H. Waldmann* ——— **7744 – 7751**

Applications of Protein Biochips in Biomedical and Biotechnological Research

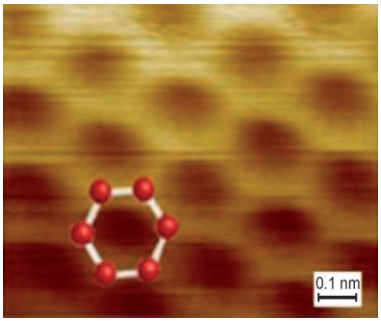
Biochip whys and wherefores: Protein biochips are becoming increasingly accessible. But what are they currently being used for? The integration of these assay and analysis platforms into biomedical and biotechnological research has substantially expanded the repertoire of methods available for proteomics and biomarker research and drug development.

Reviews

Nanomaterials

C. N. R. Rao,* A. K. Sood, K. S. Subrahmanyam, A. Govindaraj ——— **7752 – 7777**

Graphene: The New Two-Dimensional Nanomaterial



Carbon sheets: Graphene is a fascinating new nanomaterial that has attracted the attention of a large body of scientists, and in particular chemists. This Review describes the synthesis, characterization, and structure of graphene, presents its physical properties, and shows its potential areas of use. The picture shows a high-resolution STM image of a graphene monolayer.

For the USA and Canada:
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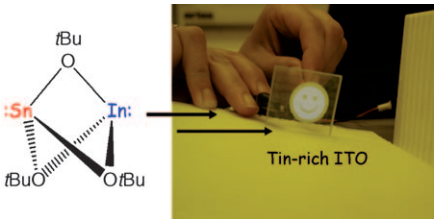
Communications

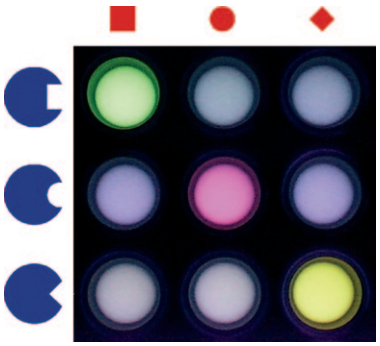


Save energy, smile! Highly conductive tin-rich indium tin oxide (ITO) composites are easily accessible using the molecular precursor $Sn(tBuO)_3In$. The as-prepared transparent and highly conductive thin films on glass substrates are atomically flat and show the best performance to date in ITO-based electroluminescent applications.

Transparent Conducting Oxides

Y. Aksu, M. Driess* ——— **7778 – 7782**

A Low-Temperature Molecular Approach to Highly Conductive Tin-Rich Indium Tin Oxide Thin Films with Durable Electro-Optical Performance

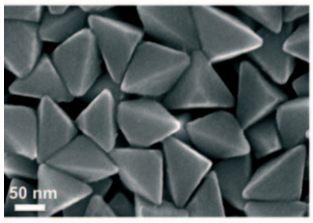


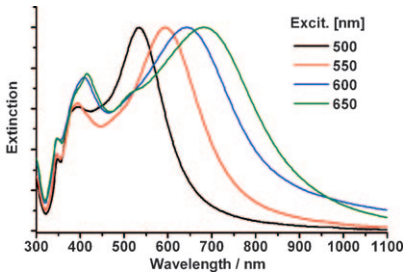
Two highly sensitive ligand–receptor pairs created from a single protein scaffold were fully orthogonal both to the native ligand–receptor pair and to one another. The wild-type receptor and two mutants were activated specifically by their respective ligands (represented by red shapes in the picture) when used to control the expression of green fluorescent protein (top row), mCherry (middle row), and yellow fluorescent protein (bottom row) in yeast.

Biotechnology

M. J. McLachlan, K. Chockalingam, K. C. Lai, H. Zhao* ——— **7783 – 7786**

Directed Evolution of Orthogonal Ligand Specificity in a Single Scaffold





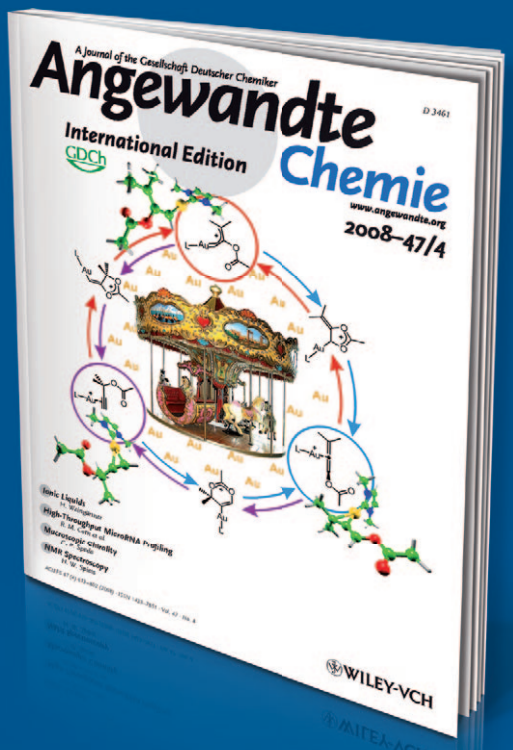
Color-tuned: Monodisperse silver right-triangular bipyramids (see SEM image) were formed by photoinduced synthesis in high yield. The edge length of the bipyramids can be easily controlled by the wavelength of excitation light (see diagram).

Silver Bipyramids

J. Zhang, S. Li, J. Wu, G. C. Schatz,* C. A. Mirkin* ——— **7787 – 7791**

Plasmon-Mediated Synthesis of Silver Triangular Bipyramids

Incredibly versatile



...!

Theme variety on the one hand: Many articles in *Angewandte Chemie* cover the classical themes such as organic synthesis or coordination chemistry. Besides these, current topics like **(bio)nanotechnology, chemical biology, and sustainable chemistry** are well represented. And then there are the „must-see articles", such as those on the detection of anthrax spores*, or the characteristic scent of iron,** or the artificial lily-of-the-valley flavor.***

Section variety on the other: Communications, Reviews, Highlights, Essays, Obituaries, Meeting Reviews, as well as Website and Book Reviews are regularly found in *Angewandte*.

* M. Tamborrini, D.B. Werz, J. Frey, G. Pluschke, P.H. Seeberger, *Angew. Chem. Int. Ed.* 2006, 45, 6581--6582.
** D. Glindemann, A. Dietrich, H.-J. Staerk, P. Kuschk, *Angew. Chem. Int. Ed.* 2006, 45, 7006--7009.
*** L. Doszczak, P. Kraft, H.-P. Weber, R. Bertermann, A. Triller, H. Hatt, R. Tacke, *Angew. Chem. Int. Ed.* 2007, 46, 3367--3371.

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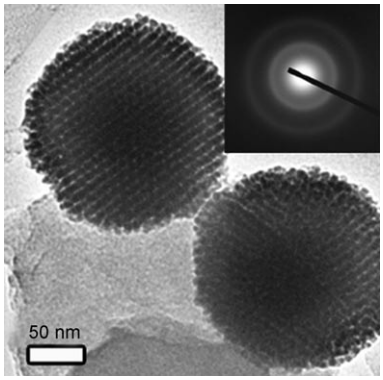
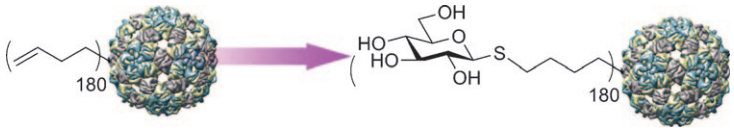


Magnets made to order: Highly ordered multicomponent mesostructured alloys with controllable compositions have been synthesized [see TEM image and electron diffraction patterns (inset)]. The saturation magnetization of the alloys can be controlled by changing the ratio of metal components. New functions that are not found in a single metal system can be realized by alloying, thus opening up a range of new magnetic applications for these materials.

Alloys

Y. Yamauchi,* M. Komatsu, M. Fuziwara, Y. Nemoto, K. Sato, T. Yokoshima, H. Sukegawa, K. Inomata, K. Kuroda* ——— **7792 – 7797**

Ferromagnetic Mesostructured Alloys: Design of Ordered Mesostructured Alloys with Multicomponent Metals from Lyotropic Liquid Crystals



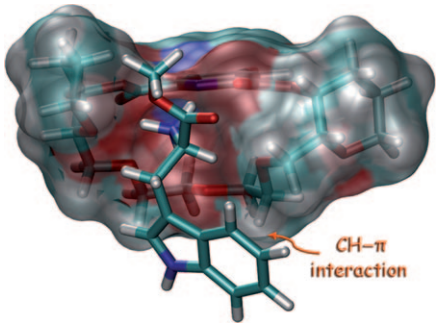
Tagged for thiolation: A novel glycoconjugation strategy utilizes a non-natural olefin-containing amino acid (homoallylglycine, Hag) as a "tag" for modification and a photoinitiated hydroglycothiolation reaction that is selective only for the Hag olefinic "tag". Application of this method to a number of model proteins allowed complete and precise site-selective glycosylation generating glycoconjugates that include, for example, virus-like particles displaying up to 180 glycans at preselected positions (see scheme).

Protein Modification

N. Floyd, B. Vijayakrishnan, J. R. Koeppe, B. G. Davis* ——— **7798 – 7802**

Thiyl Glycosylation of Olefinic Proteins: S-Linked Glycoconjugate Synthesis

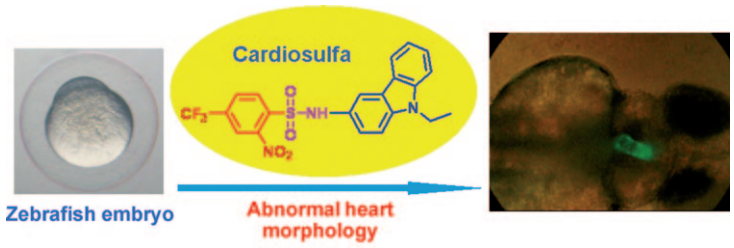
Good things come in small interactions: The high chiral discrimination displayed by a new receptor with ammonium salts of aromatic α-amino acid methyl esters is mainly the result of one of the weakest noncovalent interactions, the CH–π interaction (see picture). The interaction has been identified and quantified, and its contribution to the chiral recognition process has been evaluated.



Noncovalent Interactions

R. Carrillo, M. López-Rodríguez, V. S. Martín, T. Martín* ——— **7803 – 7808**

Quantification of a CH–π Interaction Responsible for Chiral Discrimination and Evaluation of Its Contribution to Enantioselectivity



A change of heart: Cardiosulfa, a small molecule that induces heart deformation during zebrafish development, has been identified by using a forward chemical-genetic approach. Zebrafish embryos exposed to cardiosulfa have a narrow and elongated heart within an enlarged pericardial sac (see picture; heart marked with green fluorescent protein).

Chemical Genetics

S.-K. Ko, H. J. Jin, D.-W. Jung, X. Tian, I. Shin* ——— **7809 – 7812**

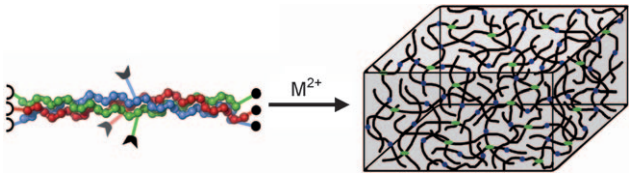
Cardiosulfa, a Small Molecule that Induces Abnormal Heart Development in Zebrafish, and Its Biological Implications

Contents

Cell Encapsulation

M. M. Pires, D. E. Przybyla, J. Chmielewski* ——— **7813 – 7817**

A Metal–Collagen Peptide Framework for Three-Dimensional Cell Culture

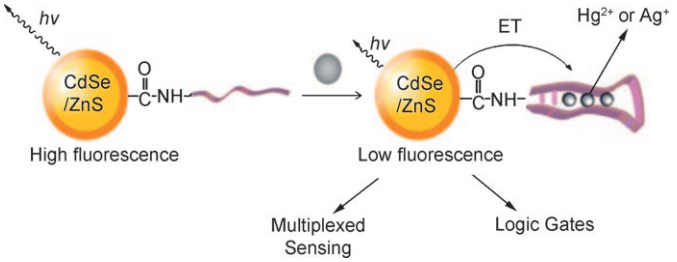


It won't overstay its welcome: Metal ions trigger the rapid assembly of a triple-helical collagen-based peptide with ligands at the ends and center into a fibrous three-dimensional mesh under physiological conditions (see picture). Importantly for applications in regenerative medicine, a mild chelating agent causes rapid disassembly of the mesh. Human endothelial cells were readily encapsulated and cultured within the collagen-peptide network.

Sensors

R. Freeman, T. Finder, I. Willner* ——— **7818 – 7821**

Multiplexed Analysis of Hg^{2+} and Ag^{+} Ions by Nucleic Acid Functionalized CdSe/ZnS Quantum Dots and Their Use for Logic Gate Operations



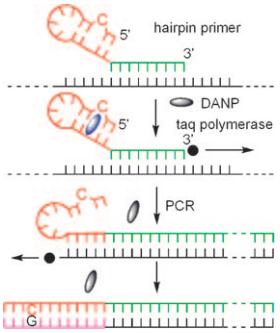
A logical analysis: Nucleic acid functionalized CdSe/ZnS quantum dots are used for the optically selective multiplexed analysis of Hg^{2+} and Ag^{+} and the activation of logic gates in the presence of Ag^{+} and Hg^{2+}, and for the activation of logic gates, by using the ions as inputs.

DNA Sensors

F. Takei, M. Igarashi, M. Hagihara, Y. Oka, Y. Soya, K. Nakatani* ——— **7822 – 7824**

Secondary-Structure-Inducible Ligand Fluorescence Coupled with PCR

Not second fiddle: Hairpin secondary structures at the 5′ end of the PCR primer are transformed into a double-stranded form as the PCR proceeds. A fluorescent molecule (DANP) can bind to the single cytosine bulge (C-bulge) in the hairpin structure and emit characteristic fluorescence. When the PCR primer labeled with a C-bulge hairpin tag is used in the presence of DANP, fluorescence from the DANP-C-bulge complex decreases as the PCR proceeds.

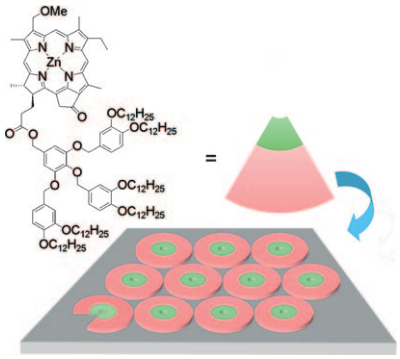


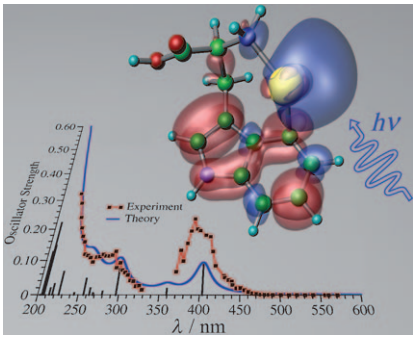
Nanostructures

S. Uemura, S. Sengupta, F. Würthner* ——— **7825 – 7828**

Cyclic Self-Assembled Structures of Chlorophyll Dyes on HOPG by the Dendron Wedge Effect

A molecular cake: Zinc chlorins with different dendron wedges can form linear or circular self-assembled structures with different molecular packing. In particular, zinc chlorins with six alkyl chains in the dendron group self-assemble into hexameric cyclic structures on HOPG (see picture). Such cyclic structures are reminiscent of (bacterio)chlorophyll organization in natural light-harvesting systems.



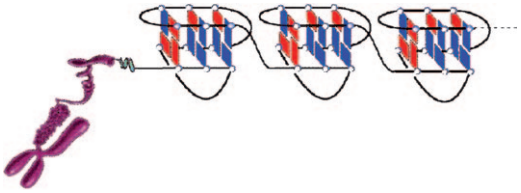


The color of gold: The tryptophan–gold cation was synthesized and its unique optical properties were studied experimentally and by ab initio calculations (see picture). The complex exhibits strong absorption in the visible region owing to charge-transfer excitations, which make gold complexes attractive for bioapplications.

UV/Vis Spectroscopy

R. Antoine,* F. Bertorelle, M. Broyer, I. Compagnon, P. Dugourd, A. Kulesza, R. Mitrić, V. Bonačić-Koutecký ——— **7829 – 7832**

Gas-Phase Synthesis and Intense Visible Absorption of Tryptophan–Gold Cations

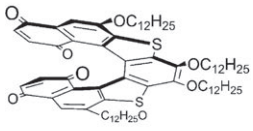


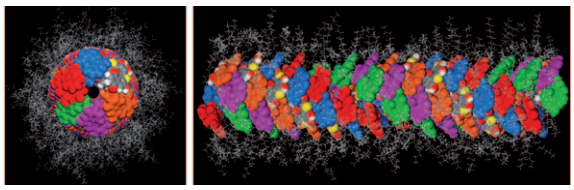
The end of the line: Structural studies demonstrate the consecutive formation of G-quadruplexes in human single-stranded telomeric-overhang DNA. A higher-order DNA G-quadruplex structure was found to protect DNA double-strand ends from being recognized as double-strand breaks and to direct against nuclease hydrolysis, suggesting that the superhelix structure may provide protective "capping" for the telomere ends.

Biological Structures

Y. Xu,* T. Ishizuka, K. Kurabayashi, M. Komiyama* ——— **7833 – 7836**

Consecutive Formation of G-Quadruplexes in Human Telomeric-Overhang DNA: A Protective Capping Structure for Telomere Ends



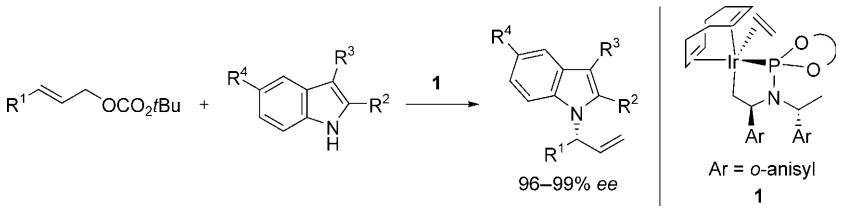


Do the twist: A helicenebisquinone (see formula), both enantiopure and racemic, forms hexagonal columnar phases in which the internal structures of the columns are 13_2 hollow helices comprising six-molecule repeat units (see axial and side views). The enantiopure compound forms a true hexagonal structure; the racemate segregates enantiomers into right and left helical columns that are interlocked and longitudinally displaced for optimal packing.

Self-Assembly

M. A. Shcherbina, X.-b. Zeng, T. Tadjiev, G. Ungar,* S. H. Eichhorn, K. E. S. Phillips, T. J. Katz — **7837 – 7840**

Hollow Six-Stranded Helical Columns of a Helicene



Iridium is blind to C: Highly regio- and enantioselective, iridium-catalyzed N-allylations of indoles, which complement the more common reactivity of indoles as carbon nucleophiles, have been developed (see scheme). These reactions form highly enantioenriched *N*-allylindoles, which are readily transformed into enantioenriched 3-(1*H*-indol-1-yl)-*N*-methyl-3-aryl propan-1-amines, dihydropyrrolo[1,2-*a*]indoles, and indol-1-yl propanoic acids.

Synthetic Methods

L. M. Stanley, J. F. Hartwig* **7841 – 7844**

Iridium-Catalyzed Regio- and Enantioselective N-Allylation of Indoles

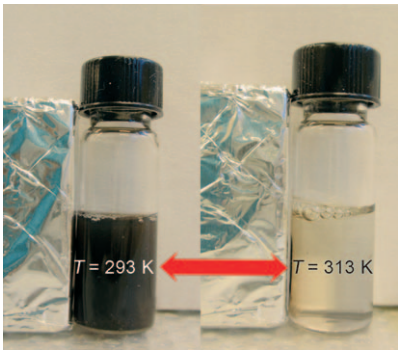
Contents

Smart Nanocrystals

J. Qin,* Y.-S. Jo, M. Muhammed* ——— **7845 – 7849**

Coating Nanocrystals with Amphiphilic Thermosensitive Copolymers

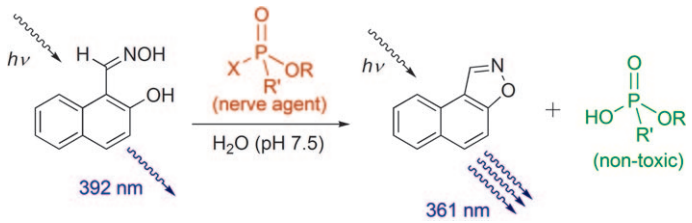
Well-dressed: A new method was developed to produce thermosensitive nanocrystals (NCs) by coating the NCs with an amphiphilic copolymer consisting of poly(maleic anhydride-*alt*-1-octadecene) (PMAO) and poly(*N*-isopropylacrylamide) (PNIPAAm; see photograph of coated Fe_3O_4 NCs at 20 °C and 40 °C). The method is general for all hydrophobic NCs produced by thermolysis.



Nerve Agent Sensors

T. J. Dale, J. Rebek, Jr.* ——— **7850 – 7852**

Hydroxy Oximes as Organophosphorus Nerve Agent Sensors

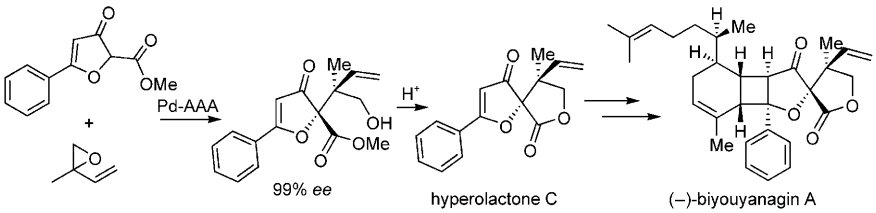


Find and destroy: A series of oximes were constructed to simultaneously detect and detoxify organophosphorus-based nerve agents. They function as optical sensors employing the oxime reactivity and incorporating a β-hydroxyl group to undergo an intramolecular cyclization from the intermediate oxime–organophosphorus species. The generated isoxazole produces an enhanced fluorescent signal that reports on the presence and destruction of the nerve agent.

Natural Products

C. Du, L. Li, Y. Li, Z. X. Xie* **7853 – 7856**

Construction of Two Vicinal Quaternary Carbons by Asymmetric Allylic Alkylation: Total Synthesis of Hyperolactone C and (−)-Biyouyanagin A

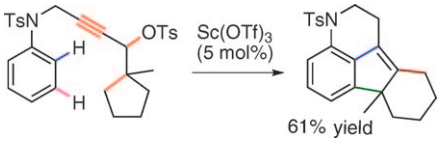


Call on triple A: Palladium-catalyzed asymmetric allylic alkylation (Pd-AAA; see scheme) has enabled a concise and efficient synthesis of hyperolactone C and (−)-biyouyanagin A in only six (20% overall yield) and seven (8% overall yield) steps, respectively. The enantiomers of these natural products were also prepared by exploiting the same methodology.

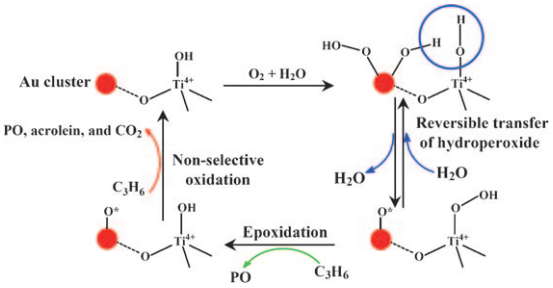
Heterocycles

S. Suárez-Pantiga, D. Palomas, E. Rubio, J. M. González* ——— **7857 – 7861**

Consecutive C–H Functionalization Reactions of Arenes: Synthesis of Carbo- and Heteropolycyclic Skeletons



Doubling the bet: Two C–H bonds become functionalized upon exposure of ω-aryl propargylic tosylates to $Sc(OTf)_3$ (see scheme). The reaction involves a new domino process that can tolerate both electron-withdrawing and -donating substituents on the arene unit. Different carbo- and heterocyclic frameworks can be assembled by using this approach to formally conquer the hydroarylation process.

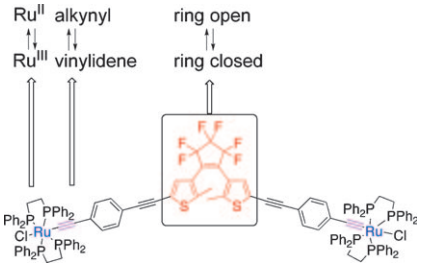


Size matters: Gold clusters (< 2.0 nm), but not gold nanoparticles, deposited on alkaline-treated titanosilicalite-1 allow O_2 and H_2O to react to give hydroperoxides (-OOH). These transfer to neighboring Ti sites to form Ti-OOH (see scheme), which is responsible for propene epoxidation to give propene epoxide (PO).

Heterogeneous Catalysis

J. Huang, T. Akita, J. Faye, T. Fujitani, T. Takei, M. Haruta* ——— **7862 – 7866**

Propene Epoxidation with Dioxygen Catalyzed by Gold Clusters

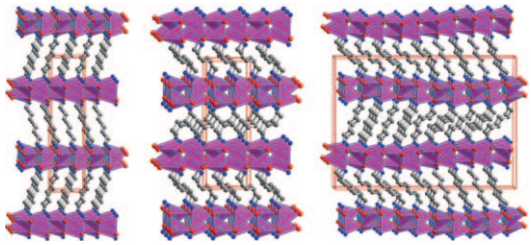


More than on and off: The title complex (see picture) comprises addressable modules that respond independently to protic (alkynyl ligand⇄vinylidene ligand), electrochemical (metal-centered redox: Ru^{II}⇄Ru^{III}), and photochemical (dithienylperfluorocyclopentene ring-opening⇄ring-closing) stimuli. The six states are interconverted along seven pathways, all of which result in distinct changes to cubic nonlinearity.

Molecular Switches

K. A. Green, M. P. Cifuentes, T. C. Corkery, M. Samoc,* M. G. Humphrey* ——— **7867 – 7870**

Switching the Cubic Nonlinear Optical Properties of an Electro-, Halo-, and Photochromic Ruthenium Alkynyl Complex Across Six States

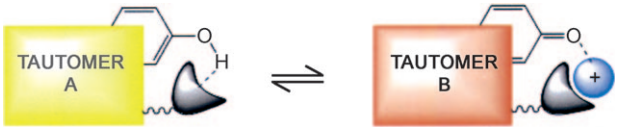


Flexible conductors: A unique type of organic–inorganic hybrid semiconductor crystals have been synthesized that are flexible and have low thermal conductivity. The hybrids consist of ZnTe layers connected by various diamines (see picture for examples; C gray, N blue, Te red, Zn large pale blue spheres).

Organic–Inorganic Hybrid Composites

X. Huang, M. Roushan, T. J. Emge, W. Bi, S. Thiagarajan, J.-H. Cheng, R. Yang, J. Li* ——— **7871 – 7874**

Flexible Hybrid Semiconductors with Low Thermal Conductivity: The Role of Organic Diamines



Good form: Attaching a flexible piperidine unit to 4-(phenyldiazenyl)naphthalen-1-ol allows construction of a tautomeric switch, where directed shift of the tautomeric equilibrium can be achieved through protonation and deprotonation (see picture). The developed molecular switch shows acceptable complexation with small alkali- and alkaline-earth-metal ions and forms a promising base for further development of effective molecular sensors.

Tautomeric Switches

L. Antonov,* V. Deneva, S. Simeonov, V. Kurteva, D. Nedeltcheva, J. Wirz ——— **7875 – 7878**

Exploiting Tautomerism for Switching and Signaling

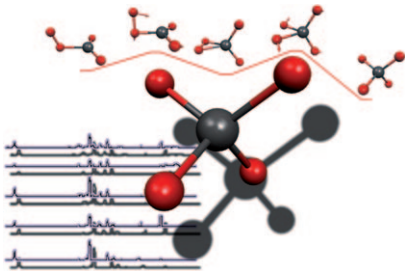
Contents

High Oxidation States

Y. Gong, M. F. Zhou,* M. Kaupp, S. Riedel* ——— **7879 – 7883**

Formation and Characterization of the Iridium Tetroxide Molecule with Iridium in the Oxidation State +VIII

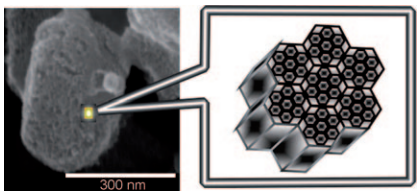
A state of eight: Iridium atoms insert into dioxygen to form iridium dioxide molecules in solid noble-gas matrices. Annealing allows formation of the iridium dioxide superoxide complex $[(\eta^1\text{-}O_2)IrO_2]$, which isomerizes under IR irradiation to the iridium dioxide peroxide complex $[(\eta^2\text{-}O_2)IrO_2]$. These complexes photochemically rearrange to the more stable iridium tetroxide molecule with an iridium oxidation state of +VIII (see scheme; Ir black, O red).



Carbon Nitride Nanoparticles

X. Jin, V. V. Balasubramanian, S. T. Selvan, D. P. Sawant, M. A. Chari, G. Q. Lu, A. Vinu* ——— **7884 – 7887**

Highly Ordered Mesoporous Carbon Nitride Nanoparticles with High Nitrogen Content: A Metal-Free Basic Catalyst

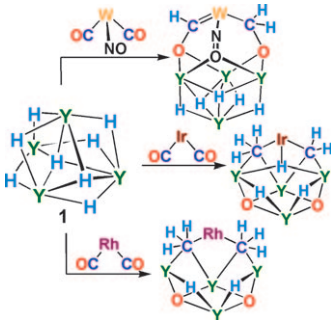


Nitrogen-rich carbon nitride is obtained as ultrasmall, discrete, mesoporous nanoparticles (see picture) by reaction of ethylenediamine with CCl_4 in the nanochannels of a mesoporous silica template. Its high nitrogen content, large surface area, and large pore volume make it a highly active catalyst for transesterification of β-keto esters of aryl, aliphatic, and cyclic primary alcohols.

Rare-Earth Complexes

Y. Takenaka, T. Shima, J. Baldamus, Z. Hou* ——— **7888 – 7891**

Reduction of Transition-Metal-Coordinated Carbon Monoxide by a Rare-Earth Hydride Cluster: Isolation of Well-Defined Heteromultimetallic Oxycarbene, Oxymethyl, Carbene, and Methyl Complexes

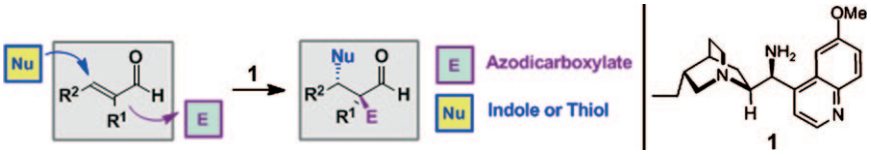


Reduction junction: Tetranuclear yttrium polyhydride complex **1** reduces coordinated CO in transition-metal complexes to give novel heterometallic oxycarbene, oxymethyl, carbene oxo, and methyl oxo complexes (see scheme). The reaction patterns depend on the nature of the transition-metal carbonyl complexes.

Organocatalysis

P. Galzerano, F. Pesciaioli, A. Mazzanti, G. Bartoli, P. Melchiorre* ——— **7892 – 7894**

Asymmetric Organocatalytic Cascade Reactions with α-Substituted α,β-Unsaturated Aldehydes



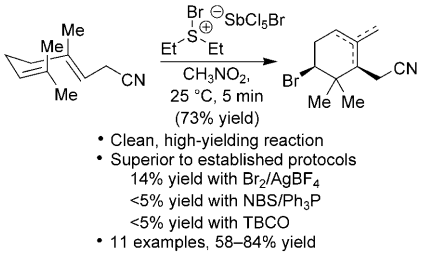
Time to α-branch out! The first highly enantioselective aminocatalytic activation of α-substituted α,β-unsaturated aldehydes is presented. The chiral primary amine **1** selectively activates α-branched enals toward a well-defined iminium ion/enamine reaction sequence for both Friedel–Crafts/amination and sulfa-Michael/amination cascades. The valuable multifunctional products, having two contiguous sterocenters, are isolated in high enantiomeric purity.

Dual activation of C–H bonds has enabled the preparation of polycyclic aromatics from arylindoles and arylbenzofurans in the absence of a directing group, and with using O_2 as the oxidant (see scheme). Synthetically and medicinally important polycyclic aromatics have been easily prepared, and some of the resulting polycyclic heteroaromatics exhibit intense fluorescence.

Cycloaromatization

Z. Shi, S. Ding, Y. Cui, N. Jiao* ——— **7895 – 7898**

A Palladium-Catalyzed Oxidative Cycloaromatization of Biaryls with Alkynes Using Molecular Oxygen as the Oxidant

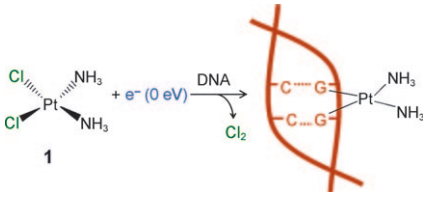


It's all about reactivity: Although bromonium-induced cation–π cyclizations are commonly utilized by nature to fashion six-membered rings from a diverse set of polyene precursors, no general laboratory method exists that can achieve the same breadth of substrate scope. An easily synthesized and handled reagent is described (see scheme) that is capable of directly, broadly, and rapidly effecting such reactions in good yield with a variety of geraniol, farnesol, and nerol derivatives.

Biomimetic Synthesis

S. A. Snyder,* D. S. Treitler ——— **7899 – 7903**

$Et_2SBr{\cdot}SbCl_5Br$: An Effective Reagent for Direct Bromonium-Induced Polyene Cyclizations



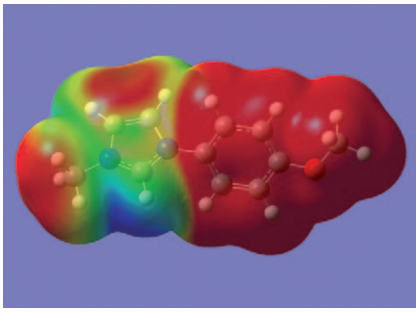
Leaner, meaner cisplatin: Dissociative electron attachment to the anticancer drug cisplatin (**1**) shows intense resonances at very low energies, which result in Pt–Cl bond cleavage. A single low-energy electron can trigger the loss of both chlorine atoms from cisplatin (see scheme), thereby forming $[Pt(NH_3)_2]^-$. This complex is the reactive intermediate to form cisplatin–DNA adducts, which consequently inhibit DNA replication.

Antitumor Agents

J. Kopyra,* C. Koenig-Lehmann, I. Bald, E. Illenberger ——— **7904 – 7907**

A Single Slow Electron Triggers the Loss of Both Chlorine Atoms from the Anticancer Drug Cisplatin: Implications for Chemoradiation Therapy

The combination of aromatic and aliphatic substituents at the imidazolium ring leads to a new generation of imidazolium-based ionic liquids (TAAILs: tunable aryl alkyl ionic liquids; see charge distribution of the methoxyphenyl methyl derivative). Electronic interaction between the aromatic substituent and the imidazolium core allows the properties of these species to be tuned more precisely than is possible for currently available ionic liquids.



Ionic Liquids

S. Ahrens, A. Peritz, T. Strassner* ——— **7908 – 7910**

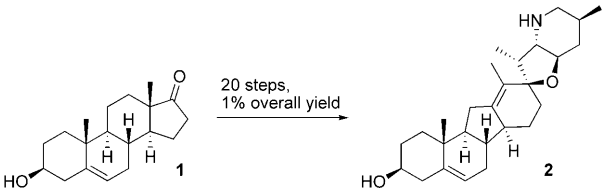
Tunable Aryl Alkyl Ionic Liquids (TAAILs): The Next Generation of Ionic Liquids

Contents

Cyclopamine

A. Giannis,* P. Heretsch, V. Sarli, A. Stößel _____ 7911 – 7914

Synthesis of Cyclopamine Using a Biomimetic and Diastereoselective Approach

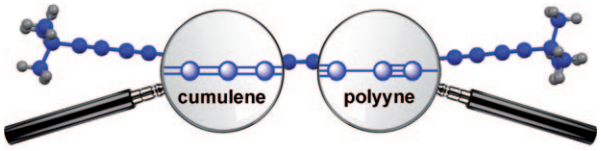


From Homer to hedgehog: Cyclopamine, the first inhibitor of the hedgehog signaling pathway, causes cyclopia in embryos but in adults it is a potent anticancer drug. A concise biomimetic and diastereoselective synthesis of cyclopamine (**2**) starting from commercially available dehydroepiandrosterone (**1**) now also provides access to several analogues.

Carbynes

W. A. Chalifoux, R. McDonald, M. J. Ferguson, R. R. Tykwinski* _____ 7915 – 7919

tert-Butyl-End-Capped Polyynes: Crystallographic Evidence of Reduced Bond-Length Alternation

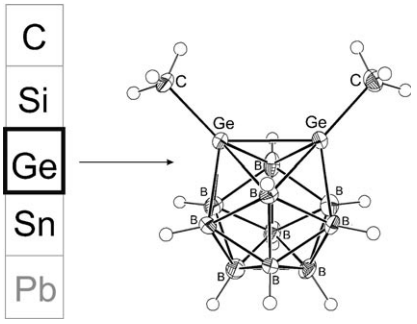


Cumulene or polyyne? The synthesis and X-ray crystallographic analysis of a series of polyynes up to 20 C_{sp} atoms in length and end-capped with *tert*-butyl groups has been achieved. The structural data show a distinct reduction in the bond-length alternation as a function of the polyyne length, but this trend appears to saturate before a cumulenic-like structure is achieved.

Heteroborates

C. Nickl, D. Joosten, K. Eichele, C. Maichle-Mössmer, K. W. Törnroos, L. Wesemann* _____ 7920 – 7923

Synthesis and Characterization of Digerma-*closo*-dodecaborate: A Higher Homologue of Icosahedral *ortho*-Carborane



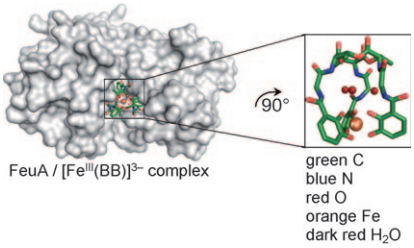
Missing link: Starting from germanium(II) bromide, decaborane, and triethylamine, a dimeric 2,2′-bis(1,2-digerma-*closo*-dodecaborate) was prepared. Reductive cleavage yielded the monomeric dianion $[Ge_2B_{10}H_{10}]^{2-}$. With alkyl halides, neutral disubstituted species were obtained (see example), which were fully characterized by NMR spectroscopy and X-ray crystallography. The gap in the series of Group 14 di-hetero-*closo*-dodecaboranes is now closed.

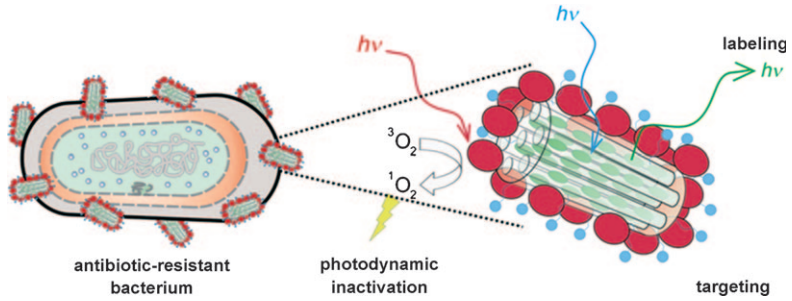
Siderophores

F. Peuckert, M. Miethke, A. G. Albrecht, L.-O. Essen,* M. A. Marahiel* _____ 7924 – 7927

Structural Basis and Stereochemistry of Triscatecholate Siderophore Binding by FeuA

An iron will: The cyclic depsipeptide ferribacillibactin ($[Fe^{III}BB]^{3-}$) is tightly bound by the siderophore binding protein FeuA (see picture). The FeuA/$[Fe^{III}BB]^{3-}$ complex contains a basic triad, which interacts with the triscatecholate unit of the siderophore. H_2O molecules stabilize $[Fe^{III}BB]^{3-}$ in an energetically unfavored conformation. FeuA allows only a Λ configuration at the ferri-triscatecholate metal center and can thus alter the configuration of a Δ species upon binding.



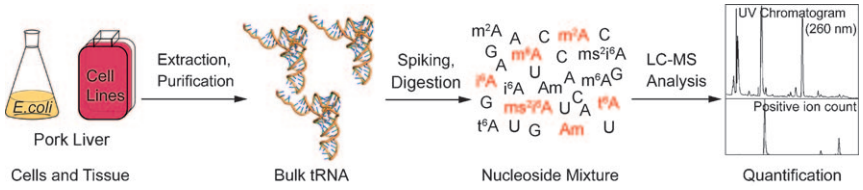


Killing with light: A multifunctional nanosized zeolite L uses amino groups, a luminescent dye, and a $^1O_2$ producer to target, label, and kill pathogenic and antibiotic-resistant bacteria.

Phototherapeutic Agents

C. A. Strassert,* M. Otter, R. Q. Albuquerque, A. Höne, Y. Vida, B. Maier, L. De Cola* ____ **7928 – 7931**

Photoactive Hybrid Nanomaterial for Targeting, Labeling, and Killing Antibiotic-Resistant Bacteria



Modifications make a difference: An isotope-based mass spectrometry method allows the facile and quantitative analysis of modified tRNA nucleosides in various types of cells. This method could be capable of distinguishing between individual cell lines as well as between healthy tissue and cancer cells.

RNA Modifications

T. Brückl, D. Globisch, M. Wagner, M. Müller, T. Carell* ____ **7932 – 7934**

Parallel Isotope-Based Quantification of Modified tRNA Nucleosides

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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