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:

M. A. Newton, M. Di Michiel, A. Kubacka, A. Iglesias-Juez, M. Fernández-García**
Observing Oxygen Storage and Release at Work under Cycling Redox Conditions: Synergies between Noble Metal and Oxide Promoter

*P. Berrouard, A. Najari, A. Pron, D. Gendron, P.-O. Morin, J.-R. Pouliot, J. Veilleux, M. Leclerc**
Synthesis of 5-Alkyl[3,4-*c*]thienopyrrole-4,6-dione-Based Polymers through Direct Heteroarylation

*J. Zeng, C. Zhu, J. Tao, M. Jin, H. Zhang, Z.-Y. Li, Y. Zhu, Y. Xia**
Controlling the Nucleation and Growth of Silver on Palladium Nanocubes by Manipulating the Reaction Kinetics

*H. Chinen, K. Mawatari, Y. Pihosh, K. Morikawa, Y. Kazoe, T. Tsukahara, T. Kitamori**
Enhancement of Proton Mobility in Extended Nanospace Channels

Editorial

“... In the last 30 years, the chemistry prize was given ten times for a discovery that is reasonably classified as biochemistry or molecular biology ...”
Read more in the Editorial by Roald Hoffmann on page 1734.

Author Profile

“If I could be anyone for a day, I would be Leonardo da Vinci.
My favorite way to spend a holiday is to hike on an alpine ‘via ferrata’ …”
This and more about Manfred Scheer can be found on page 1756.

News

S. Buchholz

A. Thomas

H. Kagan

M. Antonietti

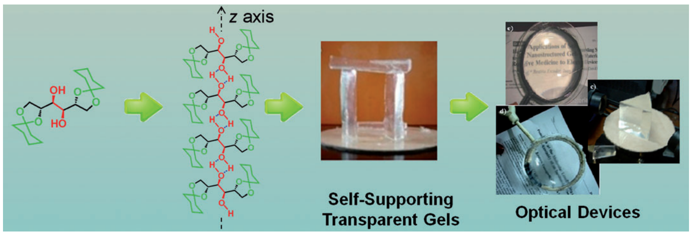
Books

Highlights

Molecular Gels

G. John,* S. R. Jadhav, V. M. Menon, V. T. John ——— **1760 – 1762**

Flexible Optics: Recent Developments in Molecular Gels



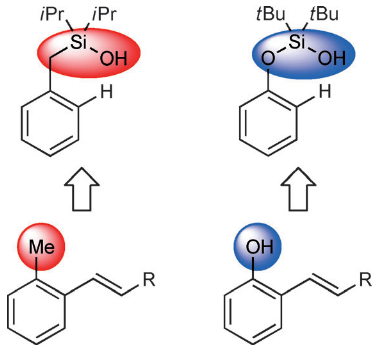
Get smart: Organogels based on sugar ketals have been prepared with a unique combination of properties suitable for the development of flexible optical devices and potential applications as smart materials for the fabrication of microphotonic systems. Key features in the self-assembly of these gelators were conformational restrictions and interaction affinities.

Palladium(II) Catalysis

M. Mewald, J. A. Schiffner, M. Oestreich* ——— **1763 – 1765**

A New Direction in C—H Alkenylation: Silanol as a Helping Hand

Director's cut: Not only conventional alcohols but also silanols can act as directing groups in oxidative palladium(II)-catalyzed C—H alkenylations. The silicon-tethered hydroxy groups are "traceless", thereby facilitating the regioselective C—H activation of toluene derivitives as well as phenols (see scheme).



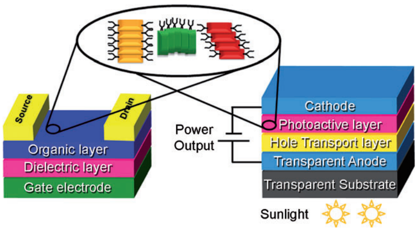
Minireviews

Materials Science

S. S. Babu, S. Prasanthkumar, A. Ajayaghosh* ——— **1766 – 1776**

Self-Assembled Gelators for Organic Electronics

All gelled together: Solvent-assisted gelation of functional organic molecules leading to one-dimensional fibers is an area of great interest. Recent developments in molecular self-assembly-assisted gelation of π systems into soft functional materials and their potential application in organic electronic devices, such as organic field-effect transistors and organic solar cells, are reviewed (see picture).



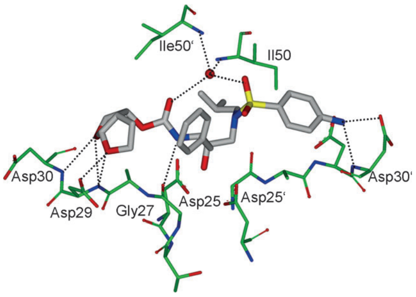
For the USA and Canada: ANGEWANDTE CHEMIE International Edition (ISSN 1433-7851) is published weekly by Wiley-VCH, PO Box 191161, 69451 Weinheim, Germany. Air freight and mailing in the USA by Publications Expediting Inc., 200 Meacham Ave., Elmont, NY 11003. Periodicals postage paid at Jamaica, NY 11431. US POSTMASTER: send address changes to *Angewandte Chemie*, Journal Customer Services, John Wiley & Sons Inc., 350 Main St., Malden, MA 02148-5020. Annual subscription price for institutions: US$ 11.738/10.206 (valid for print and electronic / print or electronic delivery); for individuals who are personal members of a national chemical society prices are available on request. Postage and handling charges included. All prices are subject to local VAT/ sales tax.

Reviews

Backbone Binding

A. K. Ghosh,* D. D. Anderson, I. T. Weber, H. Mitsuya ______ **1778 – 1802**

Enhancing Protein Backbone Binding—A Fruitful Concept for Combating Drug-Resistant HIV



Impeding the evolution of drug resistance: HIV protease inhibitors are critical to antiretroviral treatment regimens. However, the rapid onset of drug resistance limits the effectiveness of most approved inhibitors. The structure-based design of inhibitors targeting atoms in the protein backbone is an attractive strategy for maintaining drug efficacy. This approach limits the enzyme's ability to evolve resistance without sacrificing its catalytic activity.

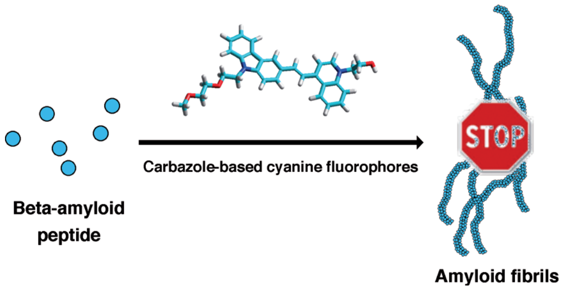
Communications

Alzheimer's Therapeutics

W. Yang, Y. Wong, O. T. W. Ng, L.-P. Bai, D. W. J. Kwong, Y. Ke, Z.-H. Jiang, H.-W. Li,* K. K. L. Yung,* M. S. Wong* ______ **1804 – 1810**

Inhibition of Beta-Amyloid Peptide Aggregation by Multifunctional Carbazole-Based Fluorophores

Frontispiece



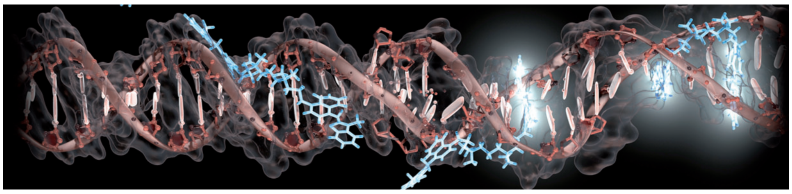
Stopping aggregation: Carbazole-based cyanine fluorophores bind selectively to the A$\beta_{(1-40)}$ peptide and its aggregates which are responsible for causing Alzheimer's disease. One of these fluorophores, SLOH, exerts a strong inhibitory effect on A$\beta_{(1-40)}$ fibrillogenesis (see scheme) and can pass through the blood-brain barrier making it a potential therapeutic agent for Alzheimer's disease.

DNA Intercalation

D. H. Paik, T. T. Perkins* ______ **1811 – 1815**

Dynamics and Multiple Stable Binding Modes of DNA Intercalators Revealed by Single-Molecule Force Spectroscopy

Front Cover



Lights off, but someone is home: Single-molecule force spectroscopy was used to investigate DNA intercalation in the presence and absence of unbound dye (see picture). Force-induced intercalation, traditionally ascribed to dye from solution binding to the DNA, occured approximately two hours after the removal of the free dye. The results show that binding/unbinding and intercalation/deintercalation are distinct processes that occur on very different time scales.

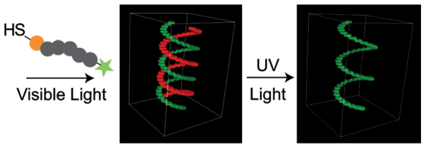
Hydrogels

C. A. DeForest,
K. S. Anseth* ______________ 1816 – 1819

Photoreversible Patterning of Biomolecules within Click-Based Hydrogels

Back Cover

Lighting the way: Biochemical cues have been reversibly patterned into hydrogels with full spatiotemporal control by using two photochemical reactions. The hydrogel is conjugated with a peptide by a thiol-ene photoaddition reaction that is initiated by visible light. Subsequent, selective photocleavage of an *o*-nitrobenzyl ether with UV light enables dynamic presentation of the peptide to cells with control in three dimensions.

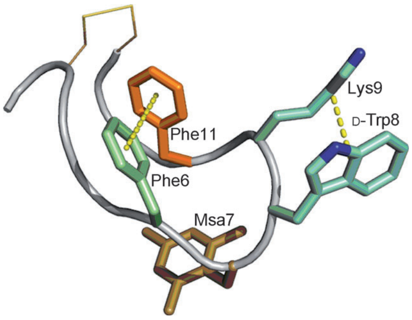


Noncovalent Interactions

P. Martín-Gago, M. Gomez-Caminals,
R. Ramón, X. Verdaguer,
P. Martin-Malpartida, E. Aragón,
J. Fernández-Carneado, B. Ponsati,
P. López-Ruiz, M. A. Cortes, B. Colás,
M. J. Macias,* A. Riera* ____ 1820 – 1825

Fine-tuning the π–π Aromatic Interactions in Peptides: Somatostatin Analogues Containing Mesityl Alanine

Inside Back Cover

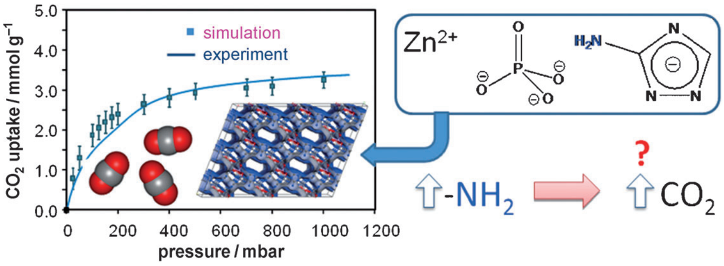


Going through the motions: Somatostatin analogues having greater conformational rigidity than somatostatin have been prepared by substituting Phe residues in the native sequence with mesityl alanine (Msa; see structure). The analogues show high affinity for SSTR receptors, thus showing that fine-tuning of noncovalent interactions between amino acid side chains can modulate peptide affinity and selectivity.

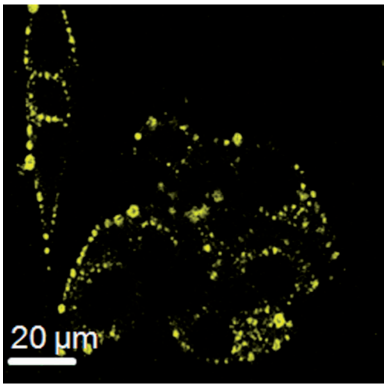
CO_2 Capture Materials

R. Vaidhyanathan, S. S. Iremonger,
G. K. H. Shimizu,* P. G. Boyd, S. Alavi,
T. K. Woo* ______________ 1826 – 1829

Competition and Cooperativity in Carbon Dioxide Sorption by Amine-Functionalized Metal–Organic Frameworks



Molecular insights into the roles of amine functionalization and cooperative CO_2 interactions into enhancing (and diminishing) CO_2 binding by metal-organic frameworks are shown both experimentally and computationally. Contrary to popular thinking, higher amination decreases CO_2 binding in this system. This loss is compensated by cooperativity between CO_2 triads that enhances binding by over 7 kJ mol^{-1}.



Lasting glow: Under femtosecond laser irradiation, graphene oxide nanoparticles (GONs) give strong two-photon luminescence (TPL; see picture). The presence of GONs also induces microbubbling, which causes cell death at an order of magnitude lower laser power than when cells are not labeled. The results show that GONs can be used for TPL-based imaging and photothermal cancer therapy.

Bionanotechnology

J. L. Li, H. C. Bao, X. L. Hou, L. Sun, X. G. Wang,* M. Gu* ______ **1830 – 1834**

Graphene Oxide Nanoparticles as a Nonbleaching Optical Probe for Two-Photon Luminescence Imaging and Cell Therapy

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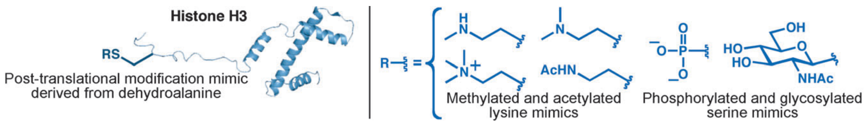

Six for the price of one: From a single precursor, dehydroalanine, six distinct post-translational modifications can be site-selectively installed on histone proteins (see figure), including the first site-selective phosphorylation and glycosylation of histones. Direct observation of histone deacetylase activity on a full-length modified histone as well as its interactions with both chromatin reader and writer/eraser proteins are reported.

Protein Modifications

J. M. Chalker, L. Lercher, N. R. Rose, C. J. Schofield, B. G. Davis* **1835 – 1839**

Conversion of Cysteine into Dehydroalanine Enables Access to Synthetic Histones Bearing Diverse Post-Translational Modifications

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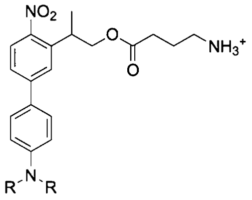
Rattling the cage: The two γ-aminobutyric acid (GABA) derivatives **1** and **2** exhibit efficient and rapid ($<5\times10^{-6}$ s) GABA photorelease upon one-photon excitation combined with two-photon uncaging cross-section at $\lambda = 800$ nm. Compounds **1** and **2** were successfully used for two-photon GABA release in intact brain tissue, thus offering attractive perspectives in chemical neurosciences.



$\varepsilon_{397nm} = 7500\ \mathrm{M^{-1}\ cm^{-1}}$

1: R = carboxymethyl
2: R = 2-(2-methoxyethoxy)ethyl

Caged Compounds

L. Donato, A. Mourot, C. M. Davenport, C. Herbivo, D. Warther, J. Léonard, F. Bolze, J.-F. Nicoud, R. H. Kramer, M. Goeldner,* A. Specht* __ **1840 – 1843**

Water-Soluble, Donor–Acceptor Biphenyl Derivatives in the 2-(*o*-Nitrophenyl)propyl Series: Highly Efficient Two-Photon Uncaging of the Neurotransmitter γ-Aminobutyric Acid at $\lambda = 800$ nm

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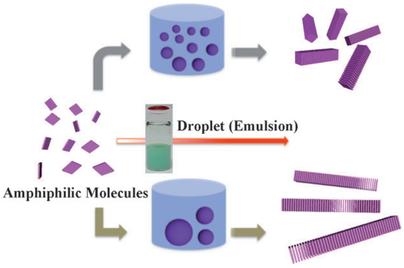


Self-assembly in a droplet: A supramolecular system that governs self-assembly events over hierarchies from the nano- to the micrometer range has been developed by combining a bottom-up strategy based on molecular programming with top-down droplet microscience. Discrete 1D tubular structures were created by exploiting the compartment effect of the droplet, induced during dynamic shrinking under non-equilibrium conditions (see picture).

Supramolecular Chemistry

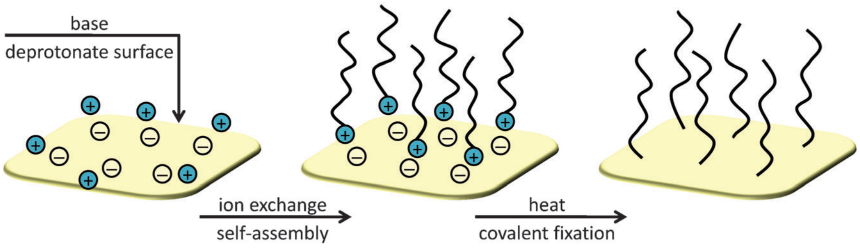
M. Numata,* D. Kinoshita, N. Taniguchi, H. Tamiaki, A. Ohta ______ **1844 – 1848**

Self-Assembly of Amphiphilic Molecules in Droplet Compartments: An Approach Toward Discrete Submicrometer-Sized One-Dimensional Structures

Surface Modification

M. Foston, C. Hubbell, D.-Y. Park, F. Cook, Y. Tezuka, H. W. Beckham* **1849 – 1852**

Surface Modification by Electrostatic Self-Assembly Followed by Covalent Fixation

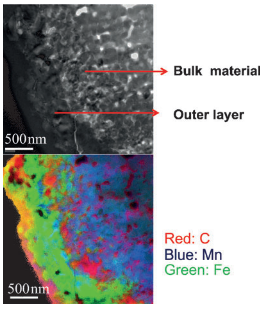


Sticks and bonds: Surface-modifying agents can be functionalized with ionic groups that enable high exhaustion from a processing bath through electrostatic self-assembly. Using cyclic oniums as the ionic functional groups, thermally induced ring-opening converts the ionic bonds to covalent bonds, thus lending permanency to the modification of the surface.

Lithium Batteries

S.-M. Oh, S.-T. Myung, J. B. Park, B. Scrosati,* K. Amine, Y.-K. Sun* **1853 – 1856**

Double-Structured $LiMn_{0.85}Fe_{0.15}PO_4$ Coordinated with $LiFePO_4$ for Rechargeable Lithium Batteries

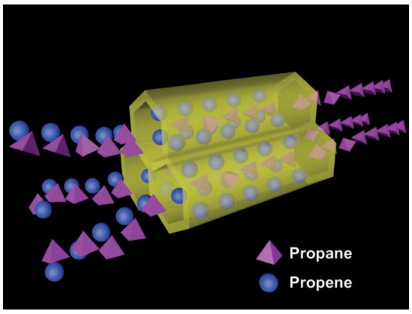


A new coat: $LiMn_{1-x}Fe_xPO_4$ materials with a $LiFePO_4$ outer layer of varying thickness and a $LiMn_{0.85}Fe_{0.15}PO_4$ bulk were prepared. The physical characteristics such as tap density, porosity, and spherical morphology were fine-tuned. The double-structured micron-sized $LiMn_{0.85}Fe_{0.15}PO_4/LiFePO_4$ material (see picture) shows properties which make this material an ideal candidate for rechargeable lithium batteries.

Metal-Organic Frameworks

Y.-S. Bae, C. Y. Lee, K. C. Kim, O. K. Farha, P. Nickias, J. T. Hupp,* S. T. Nguyen,* R. Q. Snurr* **1857 – 1860**

High Propene/Propane Selectivity in Isostructural Metal–Organic Frameworks with High Densities of Open Metal Sites



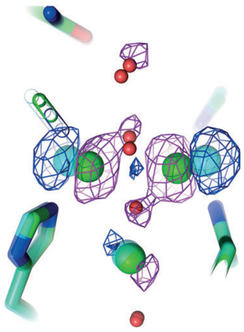
Two go in, one comes out: A series of isostructural M-MOF-74 materials (M = Co, Mn, and Mg) with high densities of open metal sites have been examined for the selective adsorption of propene over propane. Co-MOF-74 exhibits the highest thermodynamic C_3H_6/C_3H_8 selectivity (ca. 45) reported for any MOF to date.

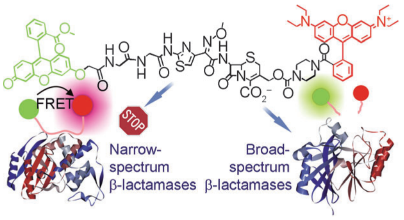
Multicopper Oxidases

H. Komori, R. Sugiyama, K. Kataoka, Y. Higuchi, T. Sakurai* **1861 – 1864**

An O-Centered Structure of the Trinuclear Copper Center in the Cys500Ser/Glu506Gln Mutant of CueO and Structural Changes in Low to High X-Ray Dose Conditions

Right on CueO: The O-centered structure of the trinuclear copper center in a multicopper oxidase (CueO) was shown to be an intermediate of the four-electron reduction of dioxygen (see picture). This structure was determined by in situ data collection of X-ray diffractions and copper K-edge spectra at low to high X-ray dose conditions.





Identification of bacteria: A methoxyimino cephalosporin derivative containing a pair of fluorescence resonance energy transfer (FRET) fluorophores was synthesized. This probe displays selective cleavage toward different types of β-lactamases, thereby providing a rapid assay to distinguish bacterial cells that are either sensitive or resistant to broad-spectrum β-lactam antibiotics (see picture).

β-Lactam Antibiotics

J. X. Zhang, Y. Shen, S. L. May,
D. C. Nelson, S. W. Li* ____ **1865 – 1868**

Ratiometric Fluorescence Detection of Pathogenic Bacteria Resistant to Broad-Spectrum β-Lactam Antibiotics

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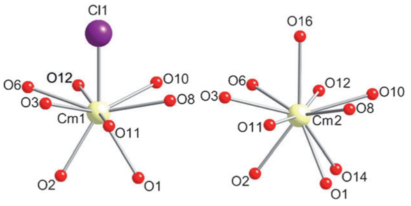

The two faces of curium: The first curium borate has been prepared showing a complex structure with coordination environments for Cm^{III} that are found in both Pu^{III} and Am^{III} borates (see picture). Time-resolved laser-induced photoluminescence studies as well as X-ray diffraction experiments show two distinct Cm^{III} sites with different coordination environments.

Actinides

M. J. Polinski, S. Wang, E. V. Alekseev,
W. Depmeier, G. Liu, R. G. Haire,
T. E. Albrecht-Schmitt* ____ **1869 – 1872**

Curium(III) Borate Shows Coordination Environments of Both Plutonium(III) and Americium(III) Borates

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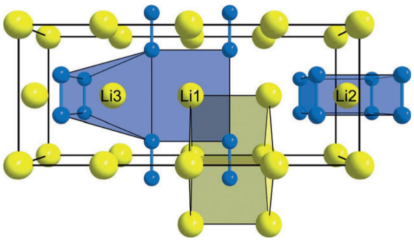
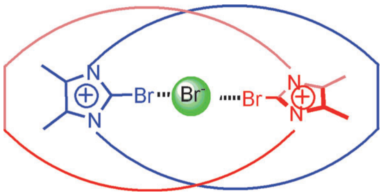


Diazenide surprise: The synthesis of an alkali diazenide, Li_2N_2, is presented. Lithium diazenide adopts an unprecedented structure type for compounds with A_2B_2 composition (see picture). Spectroscopic analysis shows a significant feature at 1328 cm^{-1} which is assigned to the stretching vibration of the $[N_2]^{2-}$ ion. Electronic structure calculations underline the metallic character and confirm the 50% occupation of the antibonding π states in $[N_2]^{2-}$.

Lithium Diazenide

S. B. Schneider, R. Frankovsky,
W. Schnick* ____ **1873 – 1875**

High-Pressure Synthesis and Characterization of the Alkali Diazenide Li_2N_2



The anion-templated synthesis of a halogen-bonding catenane, which recognizes chloride and bromide ions solely by halogen bonding, is described. The catenane's ability to optically sense halide anions using fluorescence spectroscopy is demonstrated.

Halogen Bonding

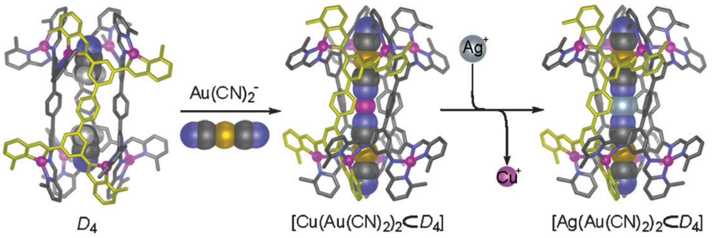
A. Caballero, F. Zapata, N. G. White,
P. J. Costa, V. Félix,
P. D. Beer* ____ **1876 – 1880**

A Halogen-Bonding Catenane for Anion Recognition and Sensing

Host–Guest Systems

W. Meng, J. K. Clegg,
J. R. Nitschke* **1881 – 1884**

Transformative Binding and Release of Gold Guests from a Self-Assembled Cu_8L_4 Tube

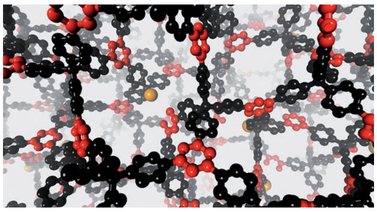


Totally tubular: A linear $M_8L_4^{8+}$ receptor, which binds tightly and selectively to the dicyanoaurate anion, was assembled from simple organic subcomponents and copper(I) ions. The guest complex is not bound unchanged, but instead is transformed into a longer linear complex where two dicyanogold units are bridged by a central cation of copper/silver (see scheme). This complex optimally fills the cavity of the receptor but is not observed in the absence of the host.

Covalent Organic Frameworks

D. N. Bunck, W. R. Dichtel* **1885 – 1889**

Internal Functionalization of Three-Dimensional Covalent Organic Frameworks

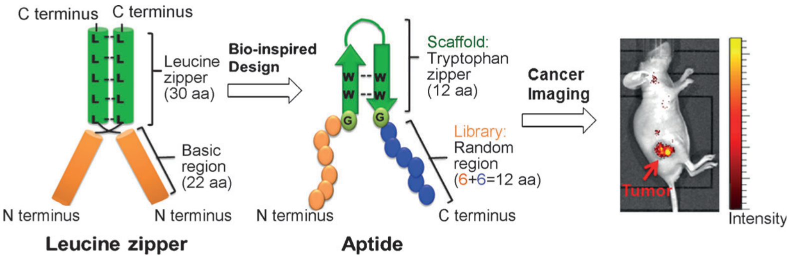


Thinking inside the COF: Internally functionalized, boroxine-linked, three-dimensional, covalent organic frameworks (COFs) can be synthesized by co-crystallizing a truncated, trifunctional monomer with the parent tetrafunctional building block. The functionalized COFs possess accessible functional groups and a distinct interior microenvironment. In the picture the orange sphere corresponds to an alkyl chain or an allyl group in the pore interior.

Peptide Design

S. Kim, D. Kim, H. H. Jung, I.-H. Lee,
J. I. Kim, J.-Y. Suh, S. Jon* **1890 – 1894**

Bio-Inspired Design and Potential Biomedical Applications of a Novel Class of High-Affinity Peptides



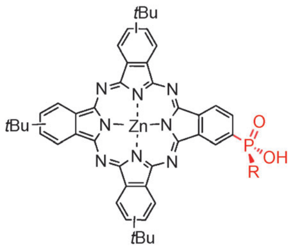
Two arms to hold: Inspired by the structure of basic leucine-zipper proteins, high-affinity peptides, named aptides, were designed that contain a stabilizing scaffold (tryptophan zipper) and two target-binding regions (orange and blue in picture). A fluorescently labeled aptide that binds to a tumor-specific protein was used for fluorescence imaging in vivo.

Photosensitizers

I. López-Duarte, M. Wang,
R. Humphry-Baker, M. Ince,
M. V. Martínez-Díaz, M. K. Nazeeruddin,*
T. Torres,* M. Grätzel* ______ 1895 – 1898

Molecular Engineering of Zinc Phthalocyanines with Phosphinic Acid Anchoring Groups

Inside Cover



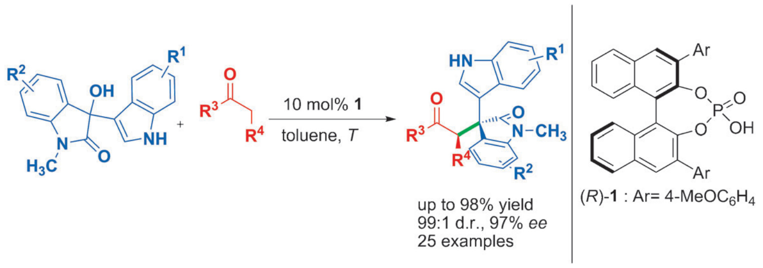
R = Ph or *n*-octyl

Anchors away! Two zinc phthalocyanine photosensitizers with different phosphinic acid anchor groups were synthesized (see scheme). Solar cells sensitized with these compounds have a short-circuit photocurrent density of $7.6\pm0.2\,\mathrm{mA\,cm^{-2}}$, an open-circuit voltage of 559 ± 30 mV, and a fill factor of 0.76 ± 0.03, which corresponds to an overall conversion efficiency of 3.24% under 1 sun.

Organocatalysis

L. Song, Q.-X. Guo,* X.-C. Li, J. Tian,
Y.-G. Peng* ______ 1899 – 1902

The Direct Asymmetric α Alkylation of Ketones by Brønsted Acid Catalysis



up to 98% yield
99:1 d.r., 97% *ee*
25 examples

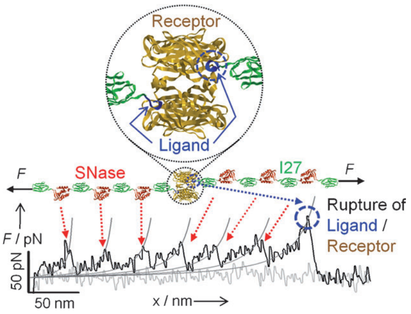
(*R*)-**1** : Ar= 4-MeOC$_6$H$_4$

Being direct: A Brønsted acid catalyzed α alkylation of ketones is described. The phosphoric acid **1** promotes this reaction to afford the desired products with high yields, high diastereoselectivities, and good to excellent enantioselectivites.

Protein-Based Force Probe

M. Kim, C.-C. Wang, F. Benedetti,
P. E. Marszalek* ______ 1903 – 1906

A Nanoscale Force Probe for Gauging Intermolecular Interactions

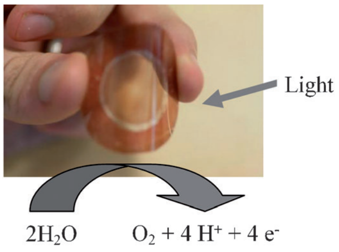


Into low force regime: A universal molecular force probe for measuring by AFM the strength of receptor–ligand and protein–protein complexes was developed. The protein-based force probe has the sensitivity on the order of piconewtons and provides a single-molecule fingerprint for identifying mechanical rupture events of individual complexes (see picture).

Water Splitting

J. Chen,* P. Wagner, L. Tong,
G. G. Wallace, D. L. Officer,
G. F. Swiegers* ______ 1907 – 1910

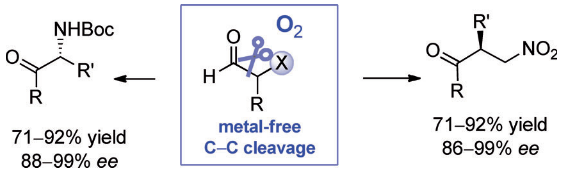
A Porphyrin-Doped Polymer Catalyzes Selective, Light-Assisted Water Oxidation in Seawater



$2H_2O \rightarrow O_2 + 4\,H^+ + 4\,e^-$

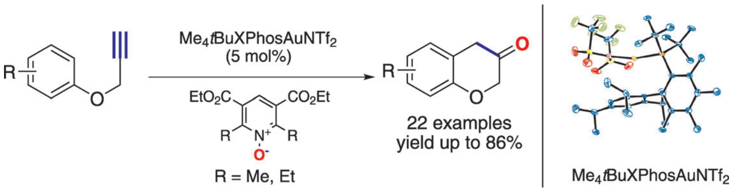
A flexible polymer for selective seawater splitting: Incorporation of a monomeric Mn-porphyrin that is normally catalytically inactive, into a flexible poly(terthiophene) film yields a remarkable light-assisted water oxidation catalyst with an apparent overpotential for water oxidation of a mere 0.09 V. The catalyst generates exclusively O_2 and no Cl_2 in seawater at 0.9 V versus Ag/AgCl.

C–C Cleavage



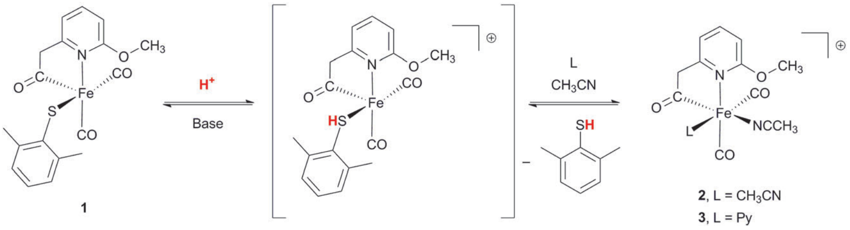
Giving the metal the boot: The title reaction provides facile access to functionalized chiral ketones from chiral α,α′-disubstituted aldehydes in the presence of molecular oxygen (see scheme). The C–C bond-cleavage approach offers an alternative or better method relative to the typical bond-forming strategies used in synthesizing chiral ketones.

Homogeneous Catalysis



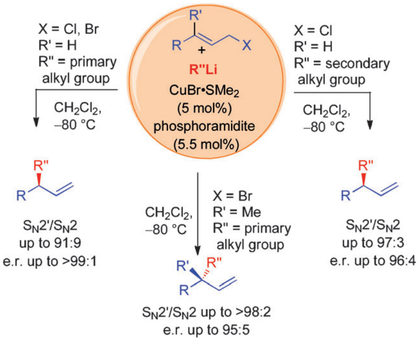
The two-step: Chroman-3-ones are important intermediates for organic synthesis and medicinal chemistry. However, their syntheses require multiple steps and are not efficient. By using gold-catalyzed alkyne oxidation, this versatile heterocycle can be prepared in only two steps from readily available phenols and with mostly high efficiencies (see scheme).

Biomimetic Chemistry



What is the channel? The thiolate ligand in the five-coordinate model complex **1** of [Fe]-hydrogenase is preferentially and reversibly protonated, even in the presence of an acyl ligand. The results suggest that the Cys176 thiolate ligand in [Fe]-hydrogenase can serve as the internal base to accept the proton after heterolytic splitting of H_2.

Asymmetric Catalysis

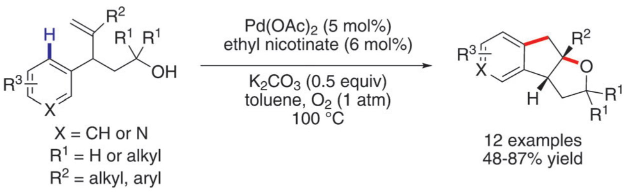


An efficient and highly enantioselective copper-catalyzed allylic alkylation of disubstituted allyl halides with primary and secondary organolithium reagents using phosphoramidite ligands is reported. The use of trisubstituted allyl bromides allows, for the first time, the enantioselective synthesis of all-carbon quaternary stereogenic centers with these reactive organometallic reagents.

C–H Functionalization

R. Zhu, S. L. Buchwald* ____ **1926 – 1929**

Combined Oxypalladation/C–H Functionalization: Palladium(II)-Catalyzed Intramolecular Oxidative Oxyarylation of Hydroxyalkenes

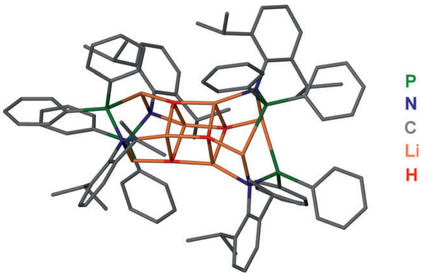


An efficient protocol has been developed for the intramolecular oxidative oxyarylation using a Pd^{II}-catalyzed tandem oxypalladation/C–H functionalization strategy. This methodology allows rapid access to tetrahydro-2*H*-indeno-[2,1-*b*]furan frameworks from simple hydroxyalkenes. The reactivity of this process is orthogonal to that of Pd^0-catalyzed transformations, enabling the divergent modification of a single molecule.

Cluster Compounds

A. Stasch* ____ **1930 – 1933**

A Hydrocarbon-Soluble Lithium Hydride Complex



LiH-ghtweight: The title complex having a central $(LiH)_4$ cube has been prepared and structurally characterized (see picture). The compound is stable towards LiH elimination at room temperature in solution, and can be employed for hydrolithiation reactivity as has been demonstrated by its reaction with benzophenone.

C(sp³)–Si Activation

Y. Liang, W. Geng, J. Wei, Z. Xi* ____ **1934 – 1937**

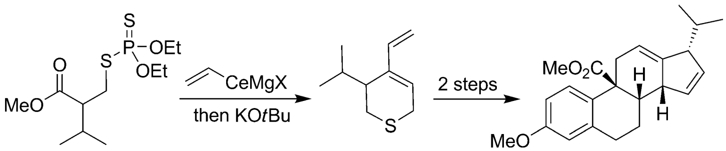
Palladium-Catalyzed Intermolecular Coupling of 2-Silylaryl Bromides with Alkynes: Synthesis of Benzosiloles and Heteroarene-Fused Siloles by Catalytic Cleavage of the C(sp³)–Si Bond

Unusual split: A wide variety of benzosiloles and derivatives are obtained by the Pd-catalyzed intermolecular coupling of 2-silylaryl bromides and alkynes and the accompanying selective cleavage of the C(sp^3)–Si bonds as a key step (see scheme). The product spectrum includes benzosiloles, benzothiophene-fused siloles, ladder-type π-conjugated benzosiloles, and thiophene-bridged 2,5-bis-benzosiloles.

Synthetic Methods

F. Li, D. Calabrese, M. Brichacek, I. Lin, J. T. Njardarson* ____ **1938 – 1941**

Efficient Synthesis of Thiopyrans Using a Sulfur-Enabled Anionic Cascade



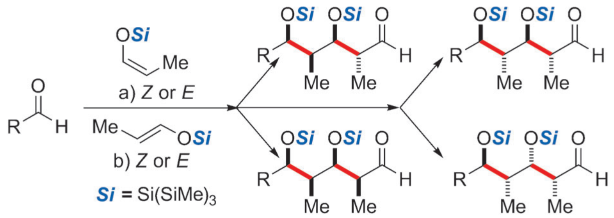
1

The fifth element: An efficient new synthetic method for accessing 3,6-dihydro-2*H*-thiopyrans **1** in one pot has been developed. This method employs an anionic cascade, which is triggered by the addition of a vinyl nucleophile to a carbonyl group followed by S to O thiophosphate migration and an intramolecular thiolate displacement. The scope is demonstrated for a range of ketone and ester substrates.

Synthetic Methods

P. B. Brady, H. Yamamoto* **1942 – 1946**

Rapid and Stereochemically Flexible Synthesis of Polypropionates: Super-Silyl-Governed Aldol Cascades

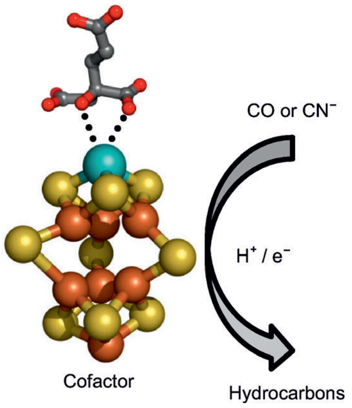


Polypropionates made EZ: The *E*/*Z* geometry of tris(trimethylsilyl)silyl super silyl enol ethers derived from propionaldehyde controls diastereoselectivity in the aldehyde crossed-aldol reaction. These silyl enol ethers can participate in polyaldol cascade reactions, thus allowing the one-pot synthesis of four different dipropionate stereotetrads (see scheme), and polyketides bearing up to five contiguous stereocenters.

Biocatalysis

C. C. Lee, Y. Hu,*
M. W. Ribbe* **1947 – 1949**

ATP-Independent Formation of Hydrocarbons Catalyzed by Isolated Nitrogenase Cofactors

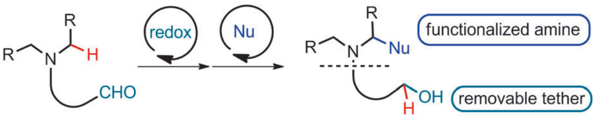


Reduce to produce: Molybdenum- and vanadium-nitrogenase cofactors have been isolated and shown to reduce carbon monoxide and cyanide ions to a mixture of alkanes and alkenes in the presence of a strong reductant, europium(II) diethylenetriaminepentaacetate (see scheme). Various hydrocarbons of up to seven carbon atoms in length are detected as products in these ATP-free reactions.

Redox Reactions

I. D. Jurberg, B. Peng, E. Wöstefeld,
M. Wasserloos,
N. Maulide* **1950 – 1953**

Intramolecular Redox-Triggered C–H Functionalization

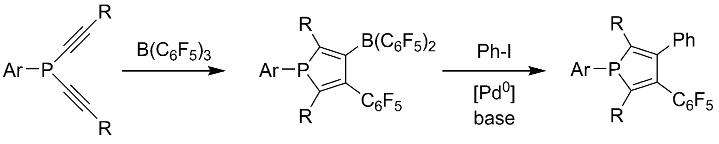


Sacrifice for the team: A one-pot method achieves remote functionalization at the α-position of an amine moiety through the sacrificial reduction of a neighboring group. The process takes advantage of an intramolecular redox reaction, thereby avoiding the need for any external oxidants. This method was applied to a concise five-step total synthesis of indolizidine 167B.

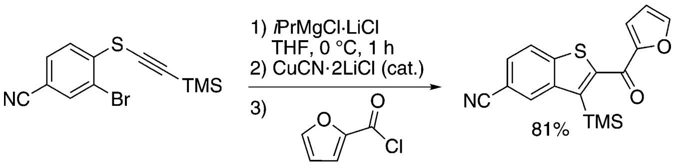
Phosphorus Heterocycles

J. Möbus, Q. Bonnin, K. Ueda, R. Fröhlich,
K. Itami, G. Kehr, G. Erker* **1954 – 1957**

The 1,1-Carboboration of Bis(alkynyl)phosphanes as a Route to Phosphole Compounds



Neat and tidy: $B(C_6F_5)_3$ efficiently converts a series of bis(alkynyl)phosphanes into highly substituted 3-borylphospholes through a twofold 1,1-carboboration reaction sequence. The boron substituted phospholes were also used as substrates in Suzuki–Miyaura type cross-coupling reactions (see scheme).



Highly functional: A copper(I)-catalyzed intramolecular carbomagnesiation under mild conditions transforms readily available alkynyl(aryl)thioethers into magnesiated benzothiophenes. Subsequent reaction with various electrophiles (acid chlorides, allyl bromides, aryl halides) provides polyfunctional benzo[*b*]thiophenes (see scheme). Further modification of the cyclization products affords highly diversified benzothiophene derivatives and new heterocyclic scaffolds.

Heterocycle Synthesis

T. Kunz, P. Knochel* ______ **1958 – 1961**

Synthesis of Functionalized Benzo[*b*]thiophenes by the Intramolecular Copper-Catalyzed Carbomagnesiation of Alkynyl(aryl)thioethers

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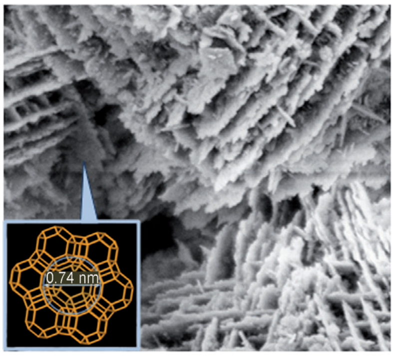
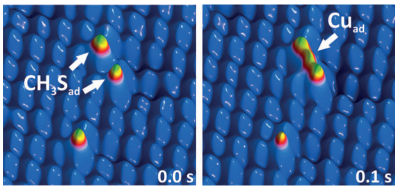


Holey sheets: Nanosheet assemblies of FAU-type zeolite X with intracrystalline mesopores are prepared (see picture). This material is synthesized by soft-templating and combines micro, meso, and macropores in a hierarchically interconnected manner.

Zeolites

A. Inayat, I. Knoke, E. Spiecker, W. Schwieger* ______ **1962 – 1965**

Assemblies of Mesoporous FAU-Type Zeolite Nanosheets



Dynamic trapping: Scanning tunneling microscopy video imaging of methyl thiolates on copper surfaces reveal the formation of defined metastable dimers with fluctuations on subsecond timescales, indicating short-term trapping of copper surface atoms (see picture). This transient stabilization of metal adatoms has important implications for applications of organosulfur species as additives and in nanoscience.

Thiolate Dynamics on Surfaces

Y.-C. Yang, A. Taranovskyy, O. M. Magnussen* ______ **1966 – 1969**

Thiolate-Induced Metal Adatom Trapping at Solid–Liquid Interfaces

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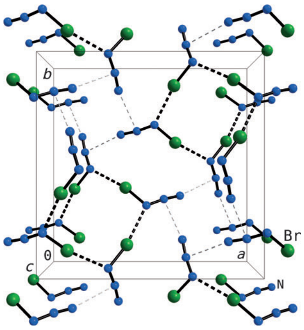

A new twist: The single-crystal structural analysis of BrN_3 is described. In contrast to IN_3, which forms chains, BrN_3 forms a helical structure in the solid state (see picture). Such a structural feature has not been previously observed in covalent p-block azide chemistry.

Halogen Azides

B. Lyhs, D. Bläser, C. Wölper, S. Schulz,* G. Jansen ______ **1970 – 1974**

Solid-State Structure of Bromine Azide

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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Angewandte Corrigendum

Fundamental Research Needs Excellent Scientists and its Own Space

D. Kneißl, H. Schwarz* ____ **12370–12371**

Angew. Chem. Int. Ed. **2011**, *50*

DOI: 10.1002/anie.201108152

Two attentive readers have pointed out to the authors of this Editorial that Michael Faraday is referred to as "Sir Michael" and that reference was made to President Roosevelt with the wrong first name.
It is true that Faraday was offered this title, but—similar to P. M. Dirac—he declined it. Furthermore, the U.S. President that is cited in the text was "F. D. Roosevelt" and not "T. Roosevelt". You live and learn!