## 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:

*J. Lu, C. Aydin, N. D. Browning, B. C. Gates**
**Imaging Gold Atom Catalytic Sites in Zeolite NaY**

*F. Liao, Z. Zeng, C. Eley, Q. Lu, X. Hong,* S. C. E. Tsang**
**Electronic Modulation of a Cu–ZnO Catalyst by Heterojunction Establishment for Selective Hydrogenation of Carbon Dioxide to Methanol**

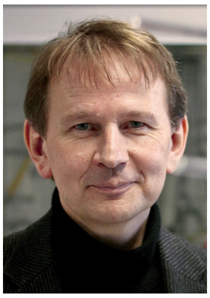
*N. Metanis, D. Hilvert**
**Strategic Use of Nonnative Diselenide Bridges to Steer Oxidative Protein Folding**

*B. Esser, J. M. Schnorr, T. M. Swager**
**Selective Detection of Ethylene Gas Using Carbon-Nanotube-Based Devices for the Determination of Fruit Ripeness**

## Editorial

*"... The Molecular Frontiers Foundation seeks to increase the interest of young people in science by recognizing that creative inquisitiveness is a skill that can be honed and rewarded ..."*
Read more in the Editorial by Bengt Nordén.

## Author Profile



*"When I was eighteen I wanted to be a biology and chemistry teacher.*
*The biggest challenge facing scientists is the development of technologies and methods to secure a sustainable future for our children ..."*
This and more about Matthias Beller can be found on page 5284.

## Obituaries

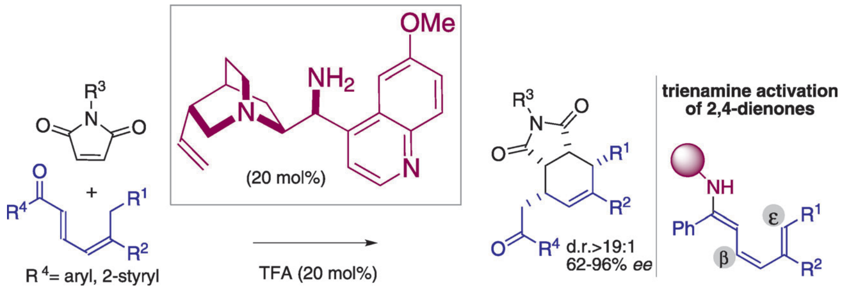
## Books

# Highlights

## Organocatalysis

E. Arceo, P. Melchiorre* ___ **5290–5292**

Extending the Aminocatalytic HOMO-Raising Activation Strategy: Where Is the Limit?



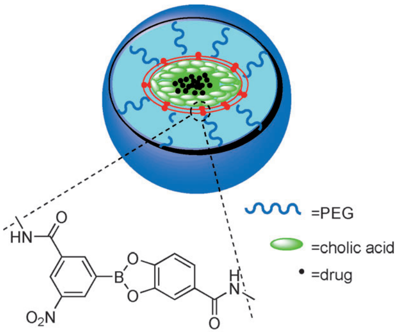
**Increasingly remote stereocenters** are being targeted in asymmetric aminocatalysis. Application of the HOMO-raising activation concept to δ,δ-disubstituted 2,4-dienones confirms the powerful potential of the trienamine strategy. A cinchona-based primary amine catalyst enables the extension of this activation mode to a highly selective asymmetric Diels–Alder reaction of enones with electron-deficient dienophiles (see scheme; TFA: trifluoroacetic acid).

## Nanotechnology

W. Chen, Y. Cheng,
B. Wang* ___ **5293–5295**

Dual-Responsive Boronate Crosslinked Micelles for Targeted Drug Delivery

**Controlled trigger finger**: A novel class of micelles for targeted drug delivery was developed. The strategy relies on boronic acid–diol interactions as a way of accessing crosslinked micelles having improved stability (see scheme) and quick payload release in response to low pH environments or diol addition.

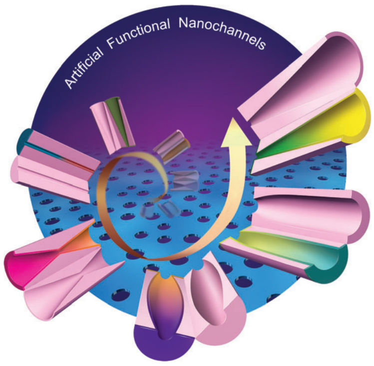


# Minireviews

## Nanochannels

X. Hou, H. Zhang, L. Jiang* **5296–5307**

Building Bio-Inspired Artificial Functional Nanochannels: From Symmetric to Asymmetric Modification



**Research on symmetric** and asymmetric modifications of single nanochannels for building bio-inspired, artificial, functional nanochannels is a diverse field. By using track-etched polymer nanochannels with different shapes as an example, the feasibility and the design strategies for building such nanochannels by applying symmetric and asymmetric modifications is demonstrated. These modification techniques may also be extended to other materials.

**For the USA and Canada:**
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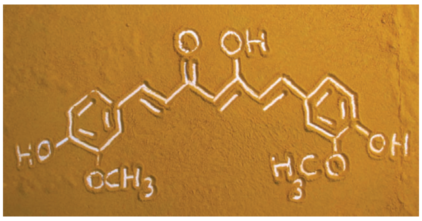
## Reviews

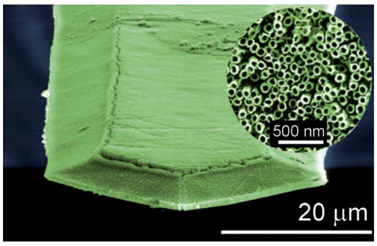


**The spice of life**: The main ingredient of the condiment and dye, turmeric, is "golden" curcumin (see structure). Recently, the beneficial health properties of curcuminoids have been increasingly discussed, since they induce endogenous antioxidant defense mechanisms in organisms, have anti-inflammatory effects, and modulate gene expression and epigenetic mechanisms.

### *Natural Products*

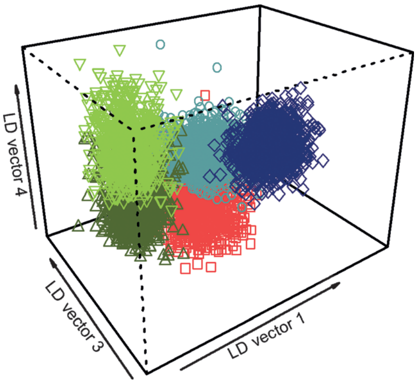
## Communications

**TNT**: Silicon microcantilevers modified with a three-dimensional layer of vertical titanium dioxide nanotubes (see picture) can be used in micromechanical sensors with optical signal detection to detect low levels of explosives such as 2,4,6-trinitrotoluene (TNT) in the gas phase, even in the presence of other volatile impurities such as *n*-heptane and ethanol.



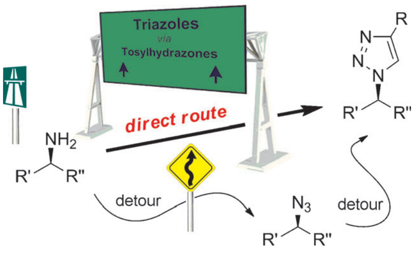
### *Chemical Sensing*

*Frontispiece*



**Better safe than sorry**: A combined analytical procedure consisting of Raman spectroscopy and chemometrics can be used to test for anthrax endospores in environmental samples. Time-consuming enrichment steps are not required and low levels of anthrax endospores in household substances like baking powder can be detected within 3 h and discriminated against other nonpathogenic *Bacillus* species with typing accuracies of up to 99%.

### *Spectroscopic Analysis*



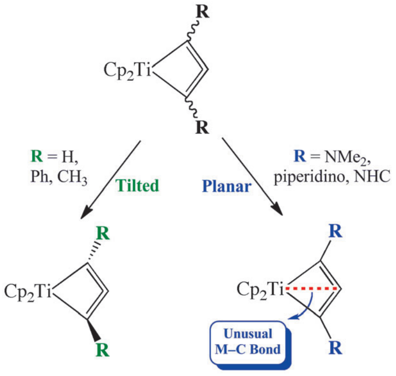
**Triple-T trick!** Traceless tosylhydrazone-based triazole formation is readily achieved by reacting primary amines with functional α,α-dichlorotosylhydrozones under ambient conditions. This fast and efficient alternative affords exclusively 1,4-substituted triazole "click products" with complete retention of configuration. Primary amines, inherent to many natural products, can be modified in this way without protecting group manipulations.

### *Metal-Free Click Reaction*

## Metallacycloallenes

S. Roy, E. D. Jemmis,* A. Schulz,*
T. Beweries, U. Rosenthal* **5347 – 5350**

Theoretical Evidence of the Stabilization of an Unusual Four-Membered Metallacycloallene by a Transition-Metal Fragment



**Connect five**: Theoretical studies reveal that a Group 4 metal can significantly stabilize an unusual four-membered metallacycloallene. The role of the substituents R that donate two electrons to the complex is decisive. The systems contain an unprecedented crucial M–C bond in the $MC_3$ ring (see scheme; Cp = cyclopentadienyl, NHC = N-heterocyclic carbene).

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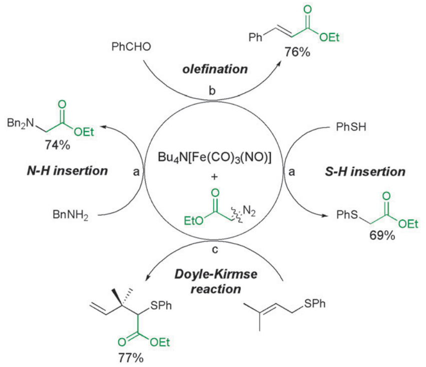
## Iron Carbene Catalysis

M. S. Holzwarth, I. Alt,
B. Plietker* **5351 – 5354**

Catalytic Activation of Diazo Compounds Using Electron-Rich, Defined Iron Complexes for Carbene-Transfer Reactions

**Carbene transfer**: The electron-rich iron complex $Bu_4N[Fe(CO)_3(NO)]$ efficiently catalyzes different carbene-transfer reactions. Various diazo compounds can be used. The high stability of the employed iron complexes is demonstrated by the generation of the diazo reagent in situ and a sequential iron-catalyzed allylic sulfenylation/Doyle–Kirmse reaction.



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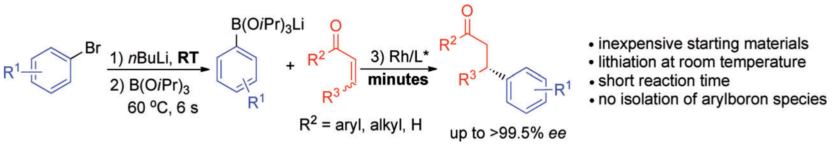
## Continuous Asymmetric Synthesis

W. Shu, S. L. Buchwald* **5355 – 5358**

Enantioselective β-Arylation of Ketones Enabled by Lithiation/Borylation/1,4-Addition Sequence Under Flow Conditions



**The first multistep asymmetric catalysis** in flow has been realized using a lithiation/borylation/rhodium-catalyzed 1,4-addition sequence. The three-step sequence starts from readily available and inexpensive aryl bromides, affording β-arylated ketones in good yields with high levels of enantioselectivity.

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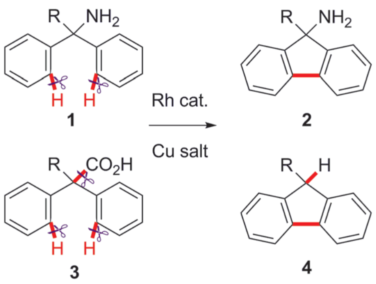
## C–H Activation

K. Morimoto, M. Itoh, K. Hirano,
T. Satoh,* Y. Shibata, K. Tanaka,
M. Miura* **5359 – 5362**

Synthesis of Fluorene Derivatives through Rhodium-Catalyzed Dehydrogenative Cyclization

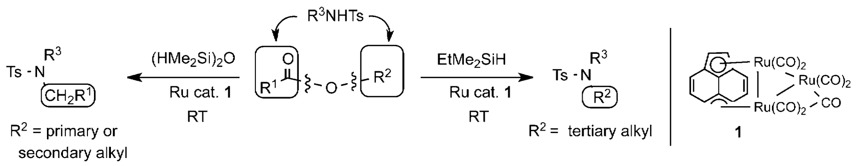


**Doubling up**: Two C–H bond activations took place efficiently upon treatment of **1** with a rhodium catalyst to form dehydrogenative cyclization products **2**. Furthermore, **3** undergoes similar cyclization and subsequent decarboxylation through the cleavage of two C–H bonds and one C–C bond. Both reactions provide straightforward routes to the fluorene framework.

## Synthetic Methods

T. Nishikata,
H. Nagashima* ——— 5363 – 5366

N Alkylation of Tosylamides Using Esters as Primary and Tertiary Alkyl Sources: Mediated by Hydrosilanes Activated by a Ruthenium Catalyst



**Select your group**: Either a primary or tertiary alkyl group can be selectively introduced onto the nitrogen atom of tosylamides in a ruthenium-catalyzed reaction employing hydrosilanes through a judicious choice in the esters that serve as the alkyl source (see scheme; Ts = 4-toluenesulfonyl). These N-alkylation reactions are useful for construction of naturally occurring azacyclic skeletons.

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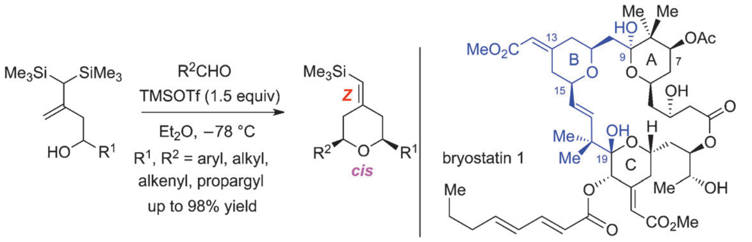
## Synthetic Methods

J. Lu, Z.-L. Song,* Y.-B. Zhang, Z. Gan,
H.-Z. Li ——— 5367 – 5370

Prins Cyclization of Bis(silyl) Homoallylic Alcohols to Form 2,6-*cis*-Tetrahydropyrans Containing a Geometrically Defined Exocyclic Vinylsilane: Efficient Synthesis of Ring B of the Bryostatins



**Prins Charming**: Prins cyclization of a bis(silyl) homoallylic alcohol with an aldehyde shows excellent *cis* and *Z* selectivity to form tetrahydropyrans containing a geometrically defined exocyclic vinylsilane. This reaction was used as the key step in the synthesis of ring B of the bryostatins.

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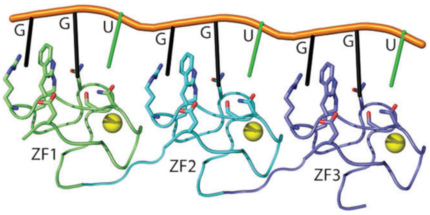
## Protein Design

M. R. O'Connell, M. Vandevenne,
C. D. Nguyen, J. M. Matthews,
R. Gamsjaeger, D. J. Segal,
J. P. Mackay* ——— 5371 – 5375

Modular Assembly of RanBP2-Type Zinc Finger Domains to Target Single-Stranded RNA



**Fingering RNA**: To study the function of the variety of RNA species that have been discovered recently, sequence-specific RNA-binding molecules with tunable specificity are required. Here, the use of zinc fingers (ZFs) from the splicing factors ZRANB2 and RBM5 as potential modules for the assembly of sequence-specific RNA-binding molecules is demonstrated.

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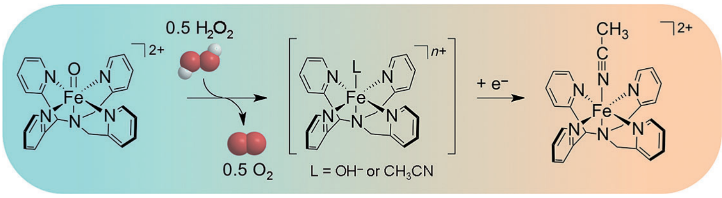
## Bioinorganic Chemistry

J. J. Braymer, K. P. O'Neill, J.-U. Rohde,*
M. H. Lim* ——— 5376 – 5380

The Reaction of a High-Valent Nonheme Oxoiron(IV) Intermediate with Hydrogen Peroxide

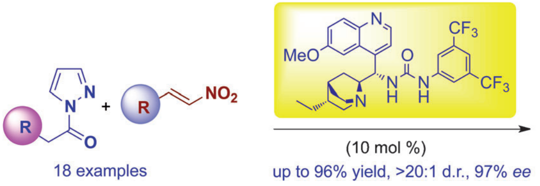


**An $Fe^{IV}$=O group meets with $H_2O_2$!** Reaction of high-valent iron with the reactive oxygen species (ROS) hydrogen peroxide ($H_2O_2$) is in general reserved for heme centers. Employing a biomimetic metal complex, the direct reaction of a mononuclear nonheme oxoiron(IV) species with $H_2O_2$ was observed and studied mechanistically, offering a new perspective for the chemistry between ROS and high-valent oxometal complexes.

### Organocatalysis

B. Tan, G. Hernández-Torres,
C. F. Barbas, III* ________ **5381 – 5385**

Rationally Designed Amide Donors for Organocatalytic Asymmetric Michael Reactions



**Amide nucleophiles on demand**: Rationally designed pyrazoleamides function as Michael donors in urea-catalyzed asymmetric Michael reactions with excellent chemical and optical yields (see scheme). The pyrazoleamide group performs as an ester equivalent, a directing group, an activating group, and functions as a good leaving group in further transformations of the product.

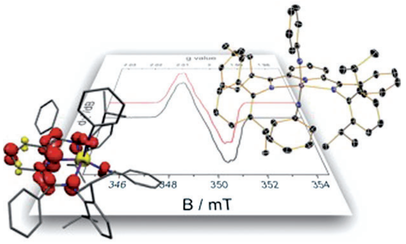
---

### Nitrogen Fixation

C. Milsmann, Z. R. Turner, S. P. Semproni,
P. J. Chirik* ____________ **5386 – 5390**

Azo N=N Bond Cleavage with a Redox-Active Vanadium Compound Involving Metal–Ligand Cooperativity

**Coop mode**: The reaction of azobenzene with a redox-active bis(imino)pyridine vanadium dinitrogen complex resulted in N=N bond cleavage and formation of the bis(imido) derivative (see picture). Similar reactivity was observed with $O_2$ and $S_8$ to yield the analogous terminal bis(oxides) and bis(sulfides), respectively. Studies of the electronic structure of the vanadium products show that bond cleavage involves reducing equivalents from the metal and the ligands.



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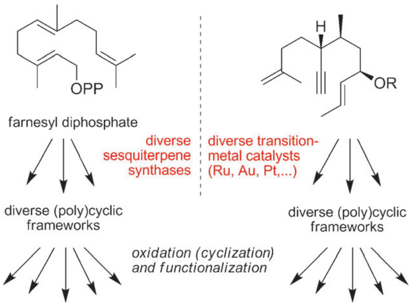
### Natural Product Synthesis

G. Valot, J. Garcia, V. Duplan, C. Serba,
S. Barluenga,
N. Winssinger* __________ **5391 – 5394**

Diversity-Oriented Synthesis of Diverse Polycyclic Scaffolds Inspired by the Logic of Sesquiterpene Lactones Biosynthesis

**Natural selection**: An acyclic chain containing an ene-yne-ene motif, in analogy to farnesyl diphosphate, was cyclized to obtain six distinct scaffolds using different transition-metal catalysts (see scheme). Notably, the guaianolide framework was accessed through enynene metathesis enabling the synthesis of three natural products.



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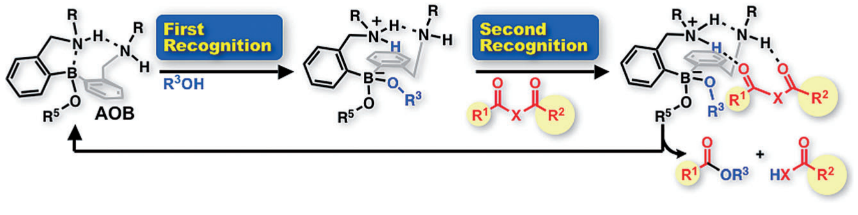
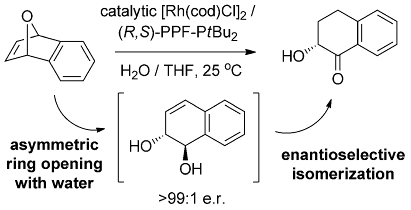
### Homogeneous Catalysis

S. Oishi, S. Saito* __________ **5395 – 5399**

Double Molecular Recognition with Aminoorganoboron Complexes: Selective Alcoholysis of β-Dicarbonyl Derivatives



**Double duty**: Aminoorganoboron (AOB) complexes recognize alcohol and β-dicarbonyl units, and thereby facilitate chemo- and site-selective alcoholysis of the latter (see scheme). The complex activates both reaction partners. This strategy enables C–C, C–N, and C–O bond cleavage in addition/elimination reactions under near neutral pH conditions and provides a new method for functional group conversions.

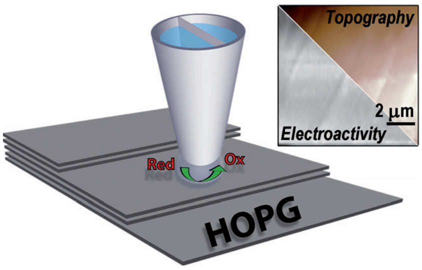


**Water-induced asymmetric ring opening**: Enantio-enriched 2-hydroxy-1-tetralones are formed from oxabicyclic alkenes through a novel Rh$^{\mathrm{I}}$-catalyzed domino reaction. The proposed mechanism involves water-induced asymmetric ring opening to generate chiral *trans*-1,2-diol intermediates and subsequent enantioselective isomerization (see scheme).

## Domino Reactions

G. C. Tsui, M. Lautens* ___ **5400 – 5404**

Rhodium(I)-Catalyzed Domino Asymmetric Ring Opening/ Enantioselective Isomerization of Oxabicyclic Alkenes with Water



**After all, it's active**: High-resolution scanning electrochemical cell microscopy (SECCM) demonstrates that electron transfer at the basal plane of highly oriented pyrolytic graphite (HOPG) is fast. This finding requires radical revision of the current textbook model for HOPG electrochemistry.

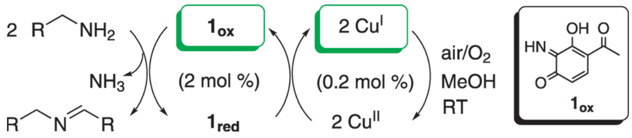
## Electrochemical Imaging

VIP

S. C. S. Lai, A. N. Patel, K. McKelvey, P. R. Unwin* ___ **5405 – 5408**

Definitive Evidence for Fast Electron Transfer at Pristine Basal Plane Graphite from High-Resolution Electrochemical Imaging

**Inside Cover**

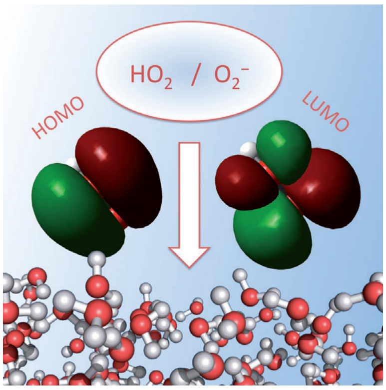


**Acting together**: Low catalytic amounts of Cu$^{\mathrm{I}}$ and topaquinone-like catalyst $\mathbf{1}_{\mathrm{ox}}$ (see scheme) are sufficient to activate the α-C–H bond of primary amines, which are converted into alkylated imines under ambient conditions. This atom-economical process tolerates the presence of various reactive functional groups and allows selective cross-coupling of two amines.

## Homogeneous Catalysis

M. Largeron,* M.-B. Fleury _ **5409 – 5412**

A Biologically Inspired Cu$^{\mathrm{I}}$/Topaquinone-Like Co-Catalytic System for the Highly Atom-Economical Aerobic Oxidation of Primary Amines to Imines



**A fish out of water**: The chemical properties at the air–water interface of the atmospherically important free radicals $HO_2^{\bullet}$ and $O_2^{\bullet-}$ were investigated by means of computer simulations. Acidity, HOMO–LUMO gap, and redox potentials differ from both the bulk and also the gas phase. These findings are significant for $HO_2^{\bullet}$ chemistry and aerosol and cloud chemistry.

## Atmospheric Chemistry

M. T. C. Martins-Costa, J. M. Anglada, J. S. Francisco, M. F. Ruiz-Lopez* ___ **5413 – 5417**

Reactivity of Atmospherically Relevant Small Radicals at the Air–Water Interface

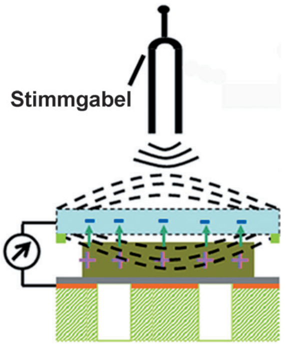
**Back Cover**

## Surface Chemistry

R. Que, Q. Shao, Q. Li, M. Shao,* S. Cai, S. Wang,* S.-T. Lee* ______ 5418 – 5422

Flexible Nanogenerators Based on Graphene Oxide Films for Acoustic Energy Harvesting

**Graphene oxide films** were fabricated as low-cost and flexible nanogenerators to convert acoustic energy into electricity with a conversion efficiency of 12.1 % (see picture). The generated current sensitively depended on the pH value of the suspensions for graphene oxide (GO) film production.



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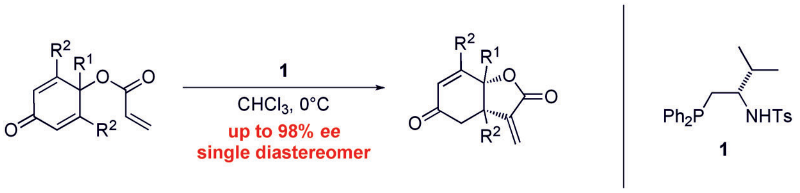
## Asymmetric Catalysis

S. Takizawa, T. M.-N. Nguyen, A. Grossmann, D. Enders, H. Sasai* ______ 5423 – 5426

Enantioselective Synthesis of α-Alkylidene-γ-Butyrolactones: Intramolecular Rauhut–Currier Reaction Promoted by Acid/Base Organocatalysts



**Teaming up**: The title reaction has been developed to deliver the product α-alkylidene-γ-butyrolactones as single diastereomers with up to 98 % *ee* (see scheme; Ts = 4-toluenesulfonyl). The enantioselective process is catalyzed by **1**, which contains both Lewis base and Brønsted acid moieties.

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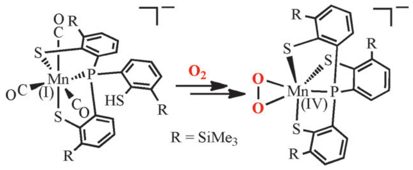
## Oxygen Activation

C.-M. Lee,* C.-H. Chuo, C.-H. Chen, C.-C. Hu, M.-H. Chiang,* Y.-J. Tseng, C.-H. Hu, G.-H. Lee ______ 5427 – 5430

Structural and Spectroscopic Characterization of a Monomeric Side-On Manganese(IV) Peroxo Complex

**Gotcha**: The binding and activation of oxygen by a manganese complex is reported. A $PS_3$ coordination sphere built around a manganese(I) center facilitates the isolation of a monomeric manganese(IV) peroxo complex that is stable at ambient temperature (see picture). The activation of molecular oxygen is proposed via a manganese(II) intermediate with an empty site for the binding of the substrate.



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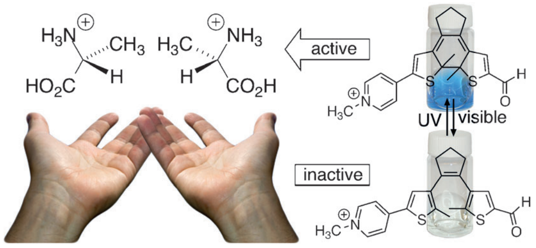
## Photoresponsive Molecules

D. Wilson, N. R. Branda* ___ 5431 – 5434

Turning “On” and “Off” a Pyridoxal 5′-Phosphate Mimic Using Light

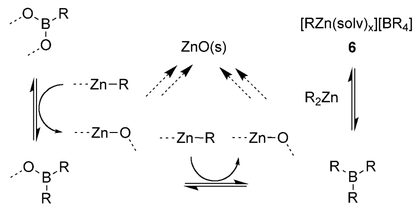


**Light is used** to toggle a photoresponsive mimic of the cofactor pyridoxal phosphate between two isomers, where only one of them can catalyze the racemization of an amino acid. The system is based on creating and breaking electronic communication between the two catalyst components, i.e., an aldehyde and a pyridinium cation.

### Transmetallation Reactions

R. B. Bedford,* N. J. Gower, M. F. Haddow, J. N. Harvey, J. Nunn, R. A. Okopie, R. F. Sankey **5435 – 5438**

Exploiting Boron–Zinc Transmetallation for the Arylation of Benzyl Halides: What are the Reactive Species?



**One step *Beyond***: The transmetallation reactions of ArB(OH)$_2$ and Ar$_3$B$_3$O$_3$ with Et$_2$Zn are far more complicated than previously supposed, with solvent-dependent equilibria between ArB(OY)$_2$ at one side and [RZn(solv)$_3$][BR$_4$] at the other (see picture). While the role of the highly reactive organozinc cation has not been implicated before, its importance for the activation of an otherwise sluggish class of electrophiles is shown.

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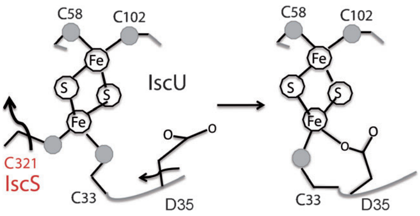
### Biogenesis

E. N. Marinoni, J. S. de Oliveira, Y. Nicolet, E. C. Raulfs, P. Amara, D. R. Dean, J. C. Fontecilla-Camps* **5439 – 5442**

(IscS-IscU)$_2$ Complex Structures Provide Insights into Fe$_2$S$_2$ Biogenesis and Transfer



**The center of attention**: IscS cysteine desulfurases and IscU scaffolds are involved in biological iron–sulfur cluster assembly. The X-ray structure of an anaerobically produced, mutated (Fe$_2$S$_2$-(IscS-IscU$^{D35A}$))$_2$ complex reveals a cluster coordinated by three IscU cysteines and the IscS active cysteine (see picture). In air-exposed crystals the cluster is oxidized to an Fe$_2$S–S center; D35 is essential for complex dissociation.

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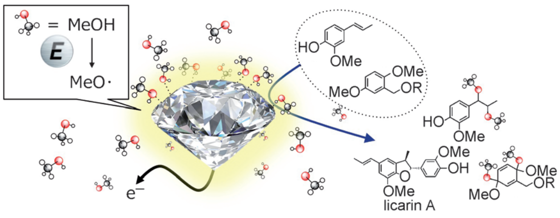
### Electrosynthesis

T. Sumi, T. Saitoh, K. Natsui, T. Yamamoto, M. Atobe, Y. Einaga,* S. Nishiyama* **5443 – 5446**

Anodic Oxidation on a Boron-Doped Diamond Electrode Mediated by Methoxy Radicals



**Direct evidence**: The existence of methoxy radical species formed during an anodic oxidation in MeOH on a boron-doped diamond (BDD) electrode was confirmed by ESR spectroscopy. Effective production of a neolignan, licarin A, was accomplished by the BDD-mediated anodic oxidation protocol (see picture).

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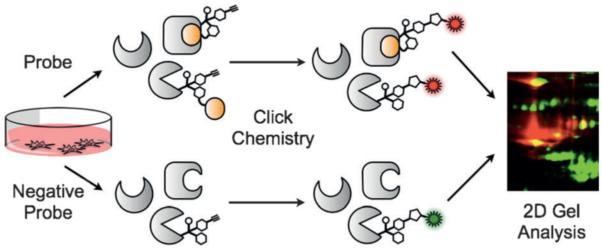
### Target Identification in Live Cells

J. Park, S. Oh, S. B. Park* **5447 – 5451**

Discovery and Target Identification of an Antiproliferative Agent in Live Cells Using Fluorescence Difference in Two-Dimensional Gel Electrophoresis

**Front Cover**

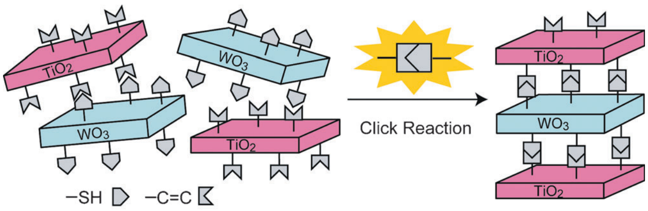


**Target acquired**: Fluorescence difference in two-dimensional gel electrophoresis (FITGE) was developed to observe the interactions between proteins and small molecules in an intact cellular environment. FITGE proved effective over conventional methods by successfully identifying the protein target of an anti-proliferative compound in live cells through the differentiation between specific and extensive non-specific binding of photo-affinity probes.

## Click Chemistry

D. Mochizuki,* K. Kumagai,
M. M. Maitani, Y. Wada ___ **5452–5455**

Alternate Layered Nanostructures of Metal Oxides by a Click Reaction

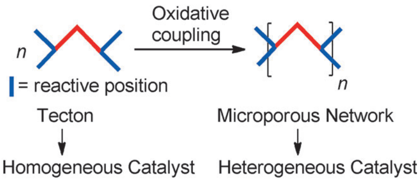


**Layer cake**: Layered titanium and tungsten oxides modified by alkene and thiol groups, respectively, are exfoliated with organic solvent to form nanosheets, which are alternately stacked by a click reaction (see picture). The material enhances the photocatalytic decomposition of methylene blue.

## Organocatalysis

D. S. Kundu, J. Schmidt, C. Bleschke,
A. Thomas,* S. Blechert* ___ **5456–5459**

A Microporous Binol-Derived Phosphoric Acid

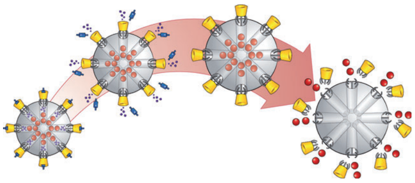


**No slow down**: A microporous recyclable heterogeneous catalyst made from a 1,1′-binaphthalene-2,2′-diol (binol)-derived phosphoric acid chloride is as active as the corresponding homogeneous catalyst when using the same mass of both in different reactions. Reaction rates, yields, and enantioselectivities are comparable.

## Nanotechnology

C. Wang, Z. Li, D. Cao, Y.-L. Zhao,
J. W. Gaines, O. A. Bozdemir,
M. W. Ambrogio, M. Frasconi, Y. Y. Botros,
J. I. Zink,* J. F. Stoddart* ___ **5460–5465**

Stimulated Release of Size-Selected Cargos in Succession from Mesoporous Silica Nanoparticles

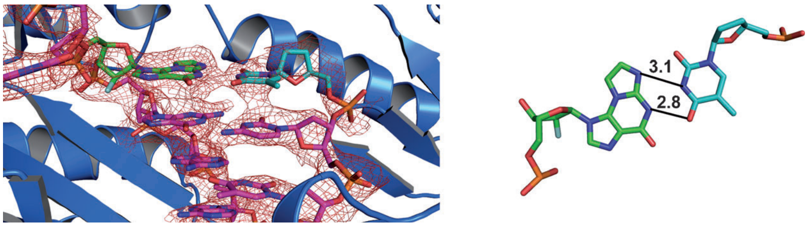


**Two birds with one stone**: Covalent attachment of β-cyclodextrin rings (yellow; see figure) to mesoporous silica nanoparticles (MSNs) results in a dual-cargo release system into which differently sized cargos (blue and red spheres) can be loaded and then released in sequence when triggered by two different stimuli. The smaller molecules are released by lowering the pH value and the larger ones released after cleavage of the cyclodextrins from the MSN surface.

## DNA Damage

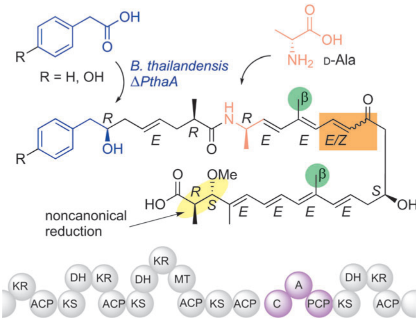
L. Zhao, P. P. Christov, I. D. Kozekov,
M. G. Pence, P. S. Pallan, C. J. Rizzo,
M. Egli, F. P. Guengerich* ___ **5466–5469**

Replication of $N^2$,3-Ethenoguanine by DNA Polymerases



**Damaged goods**: The unstable DNA adduct $N^2$,3-ethenoguanine, a product of both exposure to the carcinogen vinyl chloride and of oxidative stress, was built into an oligonucleotide, using an isostere strategy to stabilize the glycosidic bond. This modification was then used to examine the cause of mutations by DNA polymerases, in terms of both the biochemistry of the lesion and a structure of the lesion within a polymerase (see scheme).

**Decoded before decay**: Cryptic and highly unstable polyketide metabolites, thailandamides A and B, were isolated from *Burkholderia thailandensis*, and their absolute configurations fully elucidated using a combination of chemical degradation, bioinformatics, NMR spectroscopy, precursor-directed biosynthesis, and analysis of pathway intermediates (see scheme).



### Polyketides

K. Ishida, T. Lincke,
C. Hertweck* ____________ **5470 – 5474**

Assembly and Absolute Configuration of Short-Lived Polyketides from *Burkholderia thailandensis*

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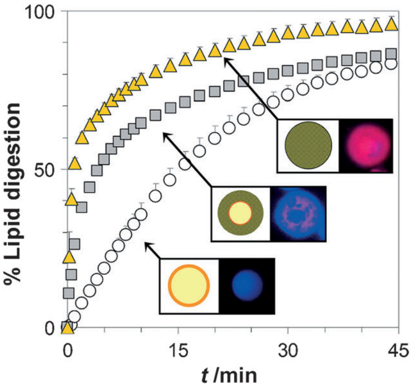
**Easily digested**: $SiO_2$–lipid hybrid microparticles with specific nanostructured interiors were generated from submicrometer-sized emulsion templates based on mesoporous and non-porous silica nanoparticles. These functional lipid-based microparticles can be used to mimic the pharmaceutical food effect and enhance drug absorption by controlling the enzymatic digestion of lipid colloids (see scheme; ○ oil solution, △ lipid–nanoparticle hybrid, □ lipid encapsulated in hybrid).



### Hybrid Nanomaterials

A. Tan, A. Martin, T.-H. Nguyen, B. J. Boyd,
C. A. Prestidge* ____________ **5475 – 5479**

Hybrid Nanomaterials that Mimic the Food Effect: Controlling Enzymatic Digestion for Enhanced Oral Drug Absorption

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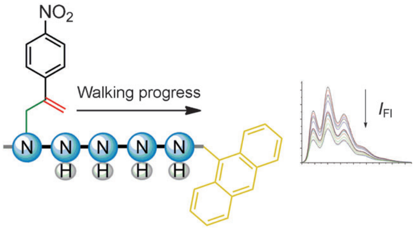

**Charge of the light brigade**: A molecule is able to walk back and forth upon a five-foothold pentaethylenimine track without external intervention. The 1D random walk is highly processive (mean step number 530) and exchange takes place between adjacent amine groups in a stepwise fashion. The walker performs a simple task whilst walking: quenching of the fluorescence of an anthracene group sited at one end of the track.

### Molecular Walkers

A. G. Campaña, A. Carlone, K. Chen,
D. T. F. Dryden, D. A. Leigh,*
U. Lewandowska,
K. M. Mullen ____________ **5480 – 5483**

A Small Molecule that Walks Non-Directionally Along a Track Without External Intervention

**Inside Back Cover**

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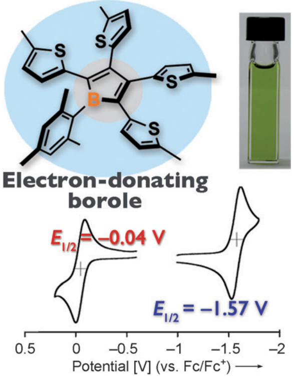


**Green borole debuts**: A heteroaryl-substituted borole with peripheral thienyl groups has a significantly high-lying HOMO in addition to a low-lying LUMO, and thus unusual photophysical and electrochemical properties. These results highlight the highly electron-donating character of the borole ring.

### Boron Heterocycles

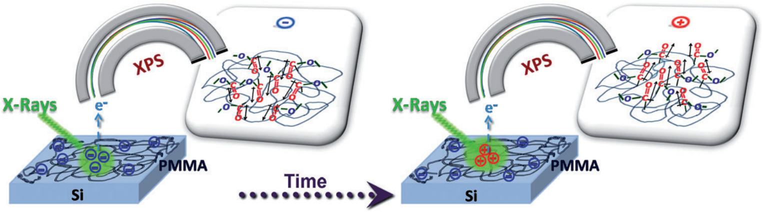
T. Araki, A. Fukazawa,
S. Yamaguchi* ____________ **5484 – 5487**

Electron-Donating Tetrathienyl-Substituted Borole

## Surface Charges

E. Yilmaz, H. Sezen,
S. Suzer* ______________ 5488 – 5492

Probing the Charge Build-Up and Dissipation on Thin PMMA Film Surfaces at the Molecular Level by XPS

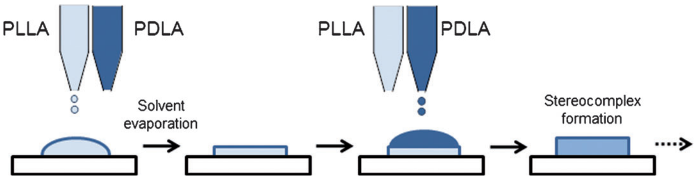


**What's the charge?** X-ray photoelectron spectroscopy was used to determine the charge state and dynamics of charge build-up and decay on a thin poly(methyl methacrylate) film. The film is initially negatively charged to around −2 V and becomes progressively positively charged during the course of the XPS analysis.

## Printing of Stereocomplexes

T. Akagi, T. Fujiwara,
M. Akashi* ______________ 5493 – 5496

Rapid Fabrication of Polylactide Stereocomplex Using Layer-by-Layer Deposition by Inkjet Printing

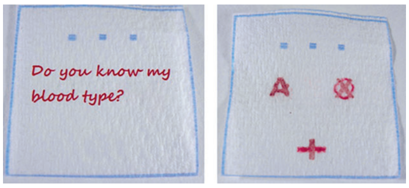


**Jet set**: Layer-by-layer alternate stepwise deposition of poly(L-lactide) (PLLA) and poly(D-lactide) (PDLA) is used to fabricate a polylactide (PLA) stereocomplex on a substrate (see picture). Multiple inkjet passes improve the crystal structure of the PLA composite without intermediate rinsing steps.

## Diagnostics

M. Li, J. Tian, M. Al-Tamimi,
W. Shen* ______________ 5497 – 5501

Paper-Based Blood Typing Device That Reports Patient's Blood Type "in Writing"



**A response in writing**: A low-cost bioactive paper device is designed to perform ABO and RhD blood typing tests, and the paper reports the results in writing. This idea was inspired by the vision of the British author, J. K. Rowling, through her novel "Harry Potter and the Chamber of Secrets" in which a piece of paper could be interrogated for information and unambiguous answers were received from the paper in writing.

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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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## Service

## Angewandte Corrigendum

The authors of this Communication would like to correct their description of work done by Qing Lin's group (page 4467, left column). This group attached norbornenes to proteins using reactive esters and irradiated for 1 min in the presence of tetrazoles to achieve a photo-click reaction.[8g]

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[8] g) Z. Yu, R. K. Lim, Q. Lin, *Chem. Eur. J.* **2010**, *16*, 13325

A Genetically Encoded Norbornene Amino Acid for the Mild and Selective Modification of Proteins in a Copper-Free Click Reaction

E. Kaya, M. Vrabel, C. Deiml, S. Prill,
V. S. Fluxa, T. Carell* — **4466–4469**

*Angew. Chem. Int. Ed.* **2012**, *51*

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