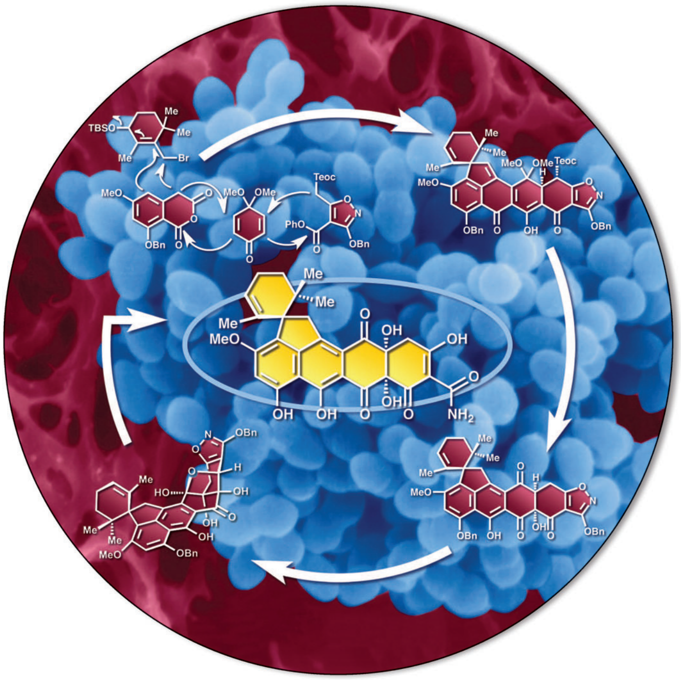
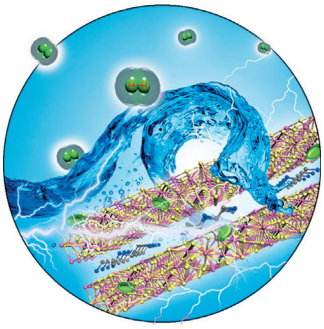
The potent and complex antibiotic …

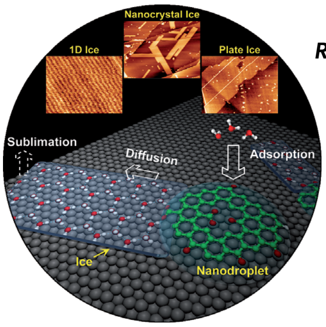


… viridicatumtoxin B is a member of the tetracycline family and exhibits impressive activity against a variety of Gram-positive bacterial strains, including methicillin-resistant *Staphylococcus aureus* (MRSA) and *Enterococcus faecalis* (shown in the background). In their Communication on page 8736 ff.„ K. C. Nicolaou et al. describe the total synthesis and structural revision of viridicatumtoxin B, thus paving the way for future molecular design, chemical syntheses, and biological investigations.



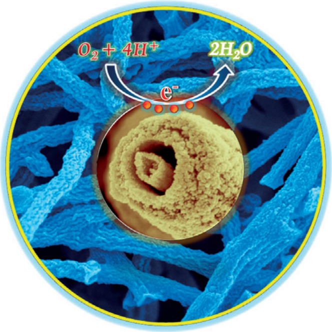
Electrocatalysis

In their Communication on page 8546 ff., S. H. Yu et al. report a Ni/NiO/$CoSe_2$ catalyst that is currently the best Pt-free electrocatalyst for the hydrogen evolution reaction in acidic medium.



Room-Temperature Ice

Nano-sized graphene oxide flakes on graphite induce room-temperature ice growth on the substrate. In their Communication on page 8708 ff., K. P. Loh et al. show that crystal nucleation and growth can be studied in real time.



Hollow Nanostructures

X. W. Lou, Y. Xie, et al. describe in their Communication on page 8579 ff. the fabrication of complex hollow tube-in-tube nanostructures, which are promising materials for electrocatalysts and electrodes.

How to contact us:

Editorial Office:
E-mail: angewandte@wiley-vch.de
Fax: (+49) 6201–606-331
Telephone: (+49) 6201–606-315

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Courier Services:
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Service

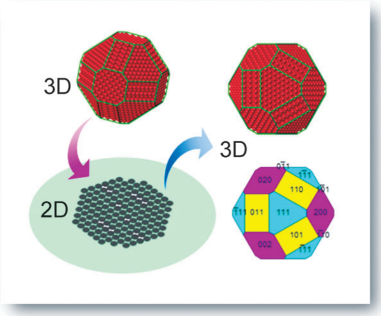
Author Profile

"In a spare hour, I read outside chemistry.
If I could be any age I would be young again. …"
This and more about George A. Olah can be found on page 8500.

Books

Highlights

Electon Tomography



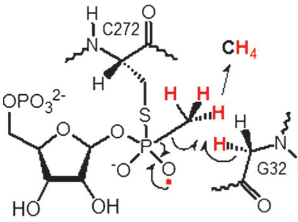
No matter how you slice it: New insight into nanostructured materials is provided by a novel imaging technique, which reproduces the real three-dimensional (3D) fine structure of nanomaterials at the atomic level from two-dimensional (2D) projections (see scheme).

Radical Enzymes

W. Buckel* __________ **8507–8509**

Bacterial Methanogenesis Proceeds by a Radical Mechanism

The thiyl radical of cysteine 272 (C272) in the C-P lyase adds to 5-phosphoribose-1-methylphosphonate to give a covalently bound thiophosphonate radical. Reaction with glycine 32 (G32) of the enzyme yields methane, a glycyl radical, and thiophosphate (see scheme). Intramolecular attack of the 2-OH group leads to 5-phosphoribose-1,2-cyclic-phosphate, whereas the glycyl radical oxidizes the liberated SH group back to the thiyl radical.

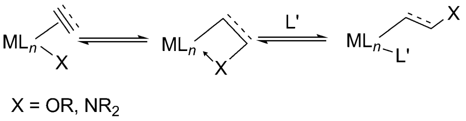


Minireviews

Organometallic Reactions

P. S. Hanley, J. F. Hartwig* _ **8510–8525**

Migratory Insertion of Alkenes into Metal–Oxygen and Metal–Nitrogen Bonds



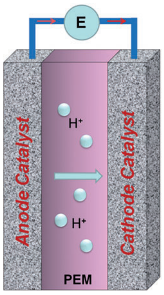
In the middle of things: Recent work has shown that the insertions of unactivated alkenes into the metal–oxygen and metal–nitrogen bonds of metal alkoxo and metal amido complexes can occur as rapidly or more rapidly than insertions into metal–alkyl bonds. Studies on catalytic and stoichiometric reactions occurring through this increasingly common class of organometallic reactions are reviewed.

Reviews

Oxygen Reduction Reaction

S. Guo, S. Zhang, S. Sun* _ **8526–8544**

Tuning Nanoparticle Catalysis for the Oxygen Reduction Reaction



Efforts in searching for efficient nanoparticle catalysts for the oxygen reduction reaction (ORR) in fuel cells have led to various nanoparticle (NP) systems with precise control of size, shape, composition, and structure. Whereas the traditional Pt-based catalysts are still under heavy investigation, recent studies have led to the emergence of non-Pt systems. This Review highlights the recent efforts in developing Pt- and non-Pt-based NPs into advanced nanocatalysts for the ORR.

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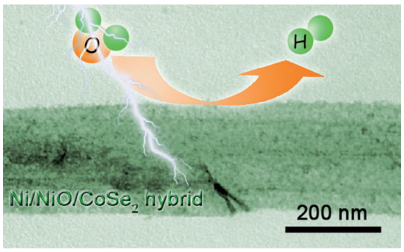
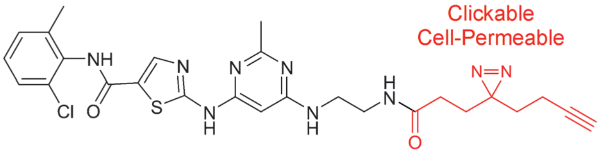
Communications

Not noble but effective: A novel Ni/NiO/$CoSe_2$ hybrid material has been synthesized as an efficient catalyst for the hydrogen evolution reaction (HER; see picture). This new catalyst has a cathodic onset potential at −0.03 V, a Tafel slope of 39 mV per decade, and represents currently the best Pt-free electrocatalyst for the HER in acidic medium.

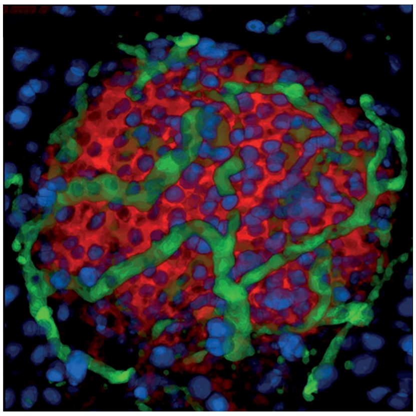


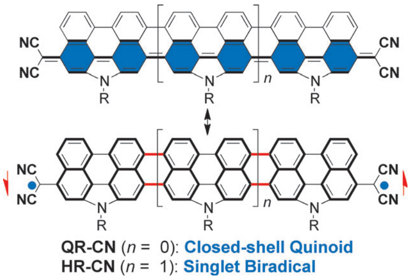
Frontispiece



Less is more: A minimalist "clickable" photo-crosslinker (see scheme) was incorporated with numerous small-molecule kinase inhibitors. The resulting probes were used for both in vitro (cell lysates) and in situ (live cells) proteome profiling, for large-scale identification of their potential cellular kinase targets and shows improved outcomes over previous probes.

Lighting up the pancreas: A pancreatic beta cell selective probe **PiY** (red, see picture) was developed which stains Langerhans islets in live animals without toxicity or side effects. Through tail-vein injection, **PiY** allowed for a comparison of the islets between healthy and diabetic mice. **PiY** also facilitated the isolation of healthy Langerhans islets by using a fluorescence-guided surgical procedure.



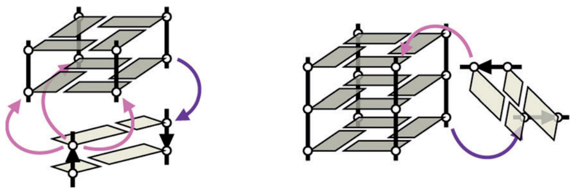


Biradicaloids based on quinoidal rylenes! Soluble and stable tetracyanoquaterrylenequinodimethane (QR-CN) and tetracyanohexarylenequinodimethane (HR-CN) were synthesized. QR-CN has a closed-shell quinoidal structure in the ground state, whereas HR-CN has a singlet biradical ground state. Both compounds showed very strong one-photon and two-photon absorption in the NIR range.

DNA Structures

K. W. Lim, A. T. Phan* ______ 8566 – 8569

Structural Basis of DNA Quadruplex–Duplex Junction Formation

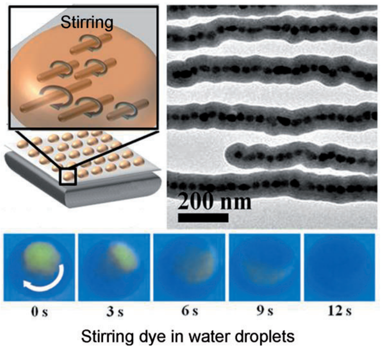


Coaxial and orthogonal orientations of the helices (left and right illustration, respectively) in a quadruplex–duplex junction were realized by incorporating a duplex hairpin across the diverse geometries of a quadruplex. The modularity of the approach was validated through the simultaneous attachment of multiple duplex stems onto a G-quadruplex scaffold to generate a G-junction.

Nano Stir Bars

W. H. Chong, L. K. Chin, R. L. S. Tan,
H. Wang, A. Q. Liu,
H. Chen* ______ 8570 – 8573

Stirring in Suspension: Nanometer-Sized Magnetic Stir Bars

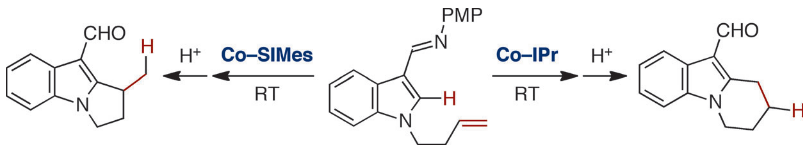


Stirred, not shaken: Single-line chains of 40 nm Fe_3O_4 nanoparticles can be used as the world's smallest magnetic stir bars. Their synthesis is facile and scalable. They can be introduced into picoliter emulsion droplets and turned effectively using a commercial magnetic stir plate. Because of their small size, they can resist sedimentation under gravitational and magnetic forces, thus allowing them to remain suspended and stir all parts of the solution.

C–H Bond Functionalization

Z. Ding, N. Yoshikai* ______ 8574 – 8578

Cobalt-Catalyzed Intramolecular Olefin Hydroarylation Leading to Dihydropyrroloindoles and Tetrahydropyridoindoles

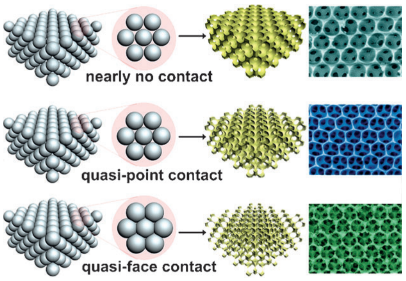


Regiodivergent catalysis: Cobalt N-heterocyclic carbene (NHC) catalysts promote intramolecular olefin hydroarylation of indoles bearing an *N*-homoallyl or bis(homoallyl) tether and a C3 aldimine directing group to afford dihydropyrroloindoles and tetrahydropyridoindoles under mild conditions. The course of the cyclization is dependent on the tether, but can be controlled by the NHC ligand.

Solar Water Splitting

M. Zhou, H. B. Wu, J. Bao, L. Liang,
X. W. Lou,* Y. Xie* ______ 8579 – 8583

Ordered Macroporous $BiVO_4$ Architectures with Controllable Dual Porosity for Efficient Solar Water Splitting

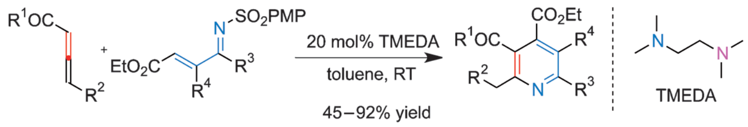


Holes in holes: By using a modified colloidal crystal templating method, periodically ordered macroporous architectures with controllable dual porosity are fabricated (see picture). Taking $BiVO_4$ as an example, these unique structures provide a platform for a better understanding of the correlation between material geometrical features and charge migration for the photoelectrochemical water splitting process.

Heterocycles

Z. Shi, T. P. Loh* ______ 8584 – 8587

Organocatalytic Synthesis of Highly Functionalized Pyridines at Room Temperature

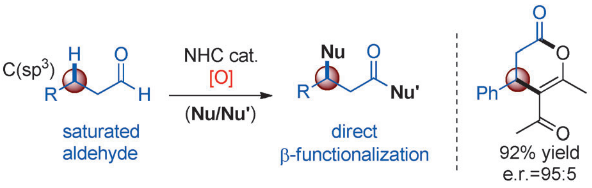


Amines by all means: A unique aza-Rauhut–Currier/cyclization/desulfonation cascade reaction between allenoates and *N*-sulfonyl-1-aza-1,3-dienes, catalyzed by the readily available diamine TMEDA, has been developed. This strategy provides facile access to a broad range of valuable highly functionalized pyridines in good yields under very mild reaction conditions.

Organocatalysis

J. Mo, L. Shen, Y. R. Chi* __ 8588 – 8591

Direct β-Activation of Saturated Aldehydes to Formal Michael Acceptors through Oxidative NHC Catalysis

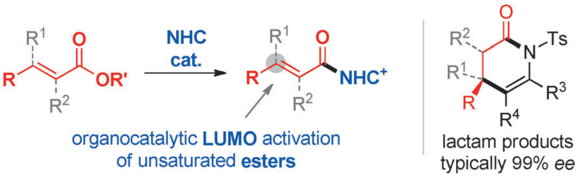


Without detours: Oxidative catalysis mediated by N-heterocyclic carbenes (NHCs) enables the direct β-carbon functionalization of saturated aldehydes (see scheme). The reaction proceeds through two sequential oxidative steps to generate α,β-unsaturated triazolium ester equivalents as formal Michael acceptors, which react with 1,3-diketones and β-ketone esters in an enantioselective manner.

Asymmetric Organocatalysis

J. Cheng, Z. Huang,
Y. R. Chi* ______ 8592 – 8596

NHC Organocatalytic Formal LUMO Activation of α,β-Unsaturated Esters for Reaction with Enamides



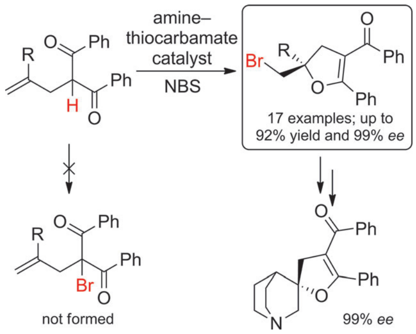
An effective wake-up call: Stable α,β-unsaturated esters were activated by the addition of a chiral N-heterocyclic carbene (NHC) organocatalyst, and the resulting reactive Michael acceptor intermediates reacted with enamide nucleophiles to furnish optically pure products (see scheme; Ts = *p*-toluenesulfonyl). These products can be converted readily into bioactive δ-lactams, piperidines, and their derivatives.

Asymmetric Catalysis

Y. Zhao, X. Jiang,
Y.-Y. Yeung* ______ 8597 – 8601

Catalytic, Enantioselective, and Highly Chemoselective Bromocyclization of Olefinic Dicarbonyl Compounds

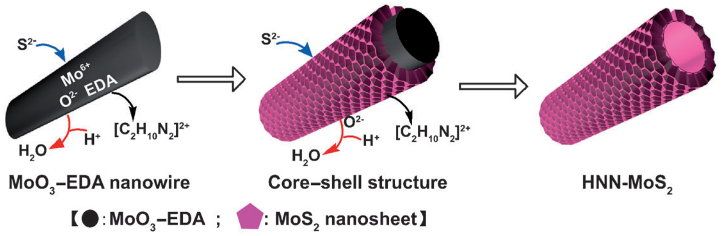
Overriding preferences: An amine–thiocarbamate catalyst can mediate the facile, efficient, and highly enantioselective bromocyclization of olefinic 1,3-dicarbonyl compounds. In the presence of the bifunctional catalyst, the bromination occurs chemoselectively at the olefinic moiety rather than at the carbon atom in the α-position to the carbonyl units.



Nanostructures

S. Zhuo, Y. Xu, W. Zhao, J. Zhang, B. Zhang* ——— **8602 – 8606**

Hierarchical Nanosheet-Based MoS_2 Nanotubes Fabricated by an Anion-Exchange Reaction of MoO_3–Amine Hybrid Nanowires

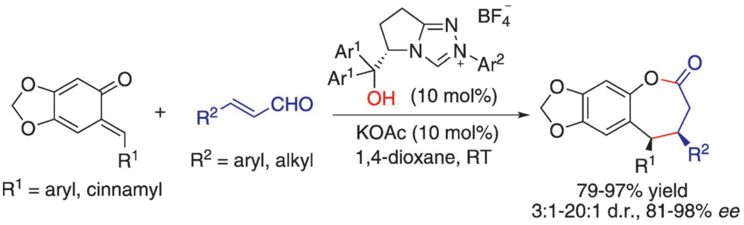


Moving onward and outward: MoO_3–ethylenediamine (EDA) inorganic–organic hybrid nanowires were successfully transformed into hierarchical nanosheet-based MoS_2 nanotubes (HNN-MoS_2) by anion exchange with S^{2-} anions at elevated temperature (see picture). The resulting nanotubes were highly active catalysts for photoelectrochemical hydrogen evolution by water splitting.

Organocatalysis

H. Lv, W.-Q. Jia, L.-H. Sun, S. Ye* ——— **8607 – 8610**

N-Heterocyclic Carbene Catalyzed [4+3] Annulation of Enals and *o*-Quinone Methides: Highly Enantioselective Synthesis of Benzo-ε-Lactones

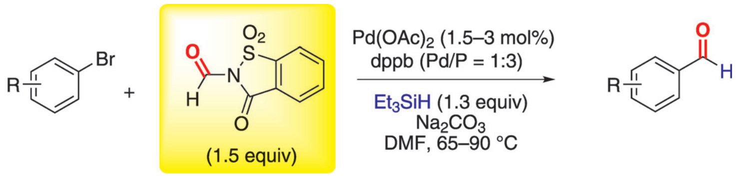


Enantioselectivity through H bonding: An unprecedented [4+3] annulation of enals with *o*-quinone methides catalyzed by N-heterocyclic carbenes (NHCs) to give benzo-ε-lactones is described. High to excellent enantioselectivity was achieved by using a chiral triazolium NHC having a free OH group, which participates in a hydrogen-bonding interaction with the substrate.

Carbonylation

T. Ueda, H. Konishi, K. Manabe* ——— **8611 – 8615**

Palladium-Catalyzed Reductive Carbonylation of Aryl Halides with *N*-Formylsaccharin as a CO Source

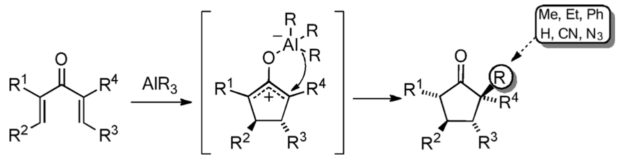


Easy peasy: The title reaction employs *N*-formylsaccharin, which is an easily accessible crystalline compound, as an effective CO source. The reactions proceed with a small excess of the CO source at moderate temperatures and were successfully applied to a wide range of aryl bromides. DMF = *N*,*N*-dimethylformamide, dppb = 1,4-bis-(diphenylphosphino)butane.

Nazarov Reaction

Y. Kwon, R. McDonald, F. G. West* ——— **8616 – 8619**

Organoaluminum-Mediated Interrupted Nazarov Reaction



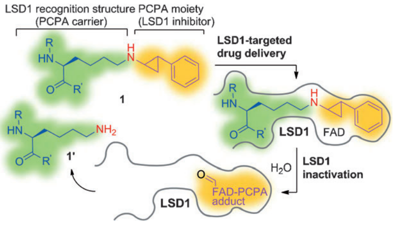
InternAl delivery: Organoaluminum reagents activate 1,4-dien-3-ones for Nazarov electrocyclization (see scheme), then transfer a substituent to the resulting cyclopentenyl cation with moderate to complete regioselectivity and diastereoselectivity.

Drug Design

D. Ogasawara, Y. Itoh, H. Tsumoto, T. Kakizawa, K. Mino, K. Fukuhara, H. Nakagawa, M. Hasegawa, R. Sasaki, T. Mizukami,* N. Miyata,* T. Suzuki* **8620 – 8624**

Lysine-Specific Demethylase 1-Selective Inactivators: Protein-Targeted Drug Delivery Mechanism

Drug drop off: Given that lysine-specific demethylase 1 (LSD1) could be potently and selectively inactivated by delivering phenylcyclopropylamine (PCPA), a weak and nonselective LSD1 inhibitor, directly to the enzyme's active site, a novel series of LSD1 inactivators (**1**) were designed. Biological and mechanistic studies indicate that **1** inhibits LSD1 potently and selectively.

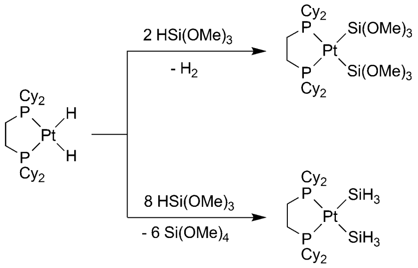


Silyl Complexes

C. Mitzenheim, T. Braun* **8625 – 8628**

Si–Si and Si–O Bond Activation at Platinum: Stepwise Formation of a SiH_3 Complex

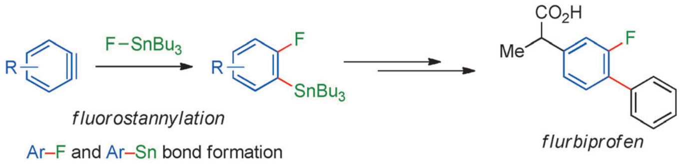
The more, the better: Treatment of $[Pt(H)_2(dcpe)]$ (dcpe = 1,2-bis(dicyclohexylphosphino)ethane) with stoichiometric amounts of silane leads to the bis(silyl) complex $[Pt\{Si(OMe)_3\}_2(dcpe)]$, whereas the use of an excess silane results in hydrodealkoxylations by repetitive Si–O bond activation and the formation of SiH_3 ligands (see scheme; Cy = cyclohexyl).



Fluorostannylation

H. Yoshida,* R. Yoshida, K. Takaki **8629 – 8632**

Synchronous Ar–F and Ar–Sn Bond Formation through Fluorostannylation of Arynes

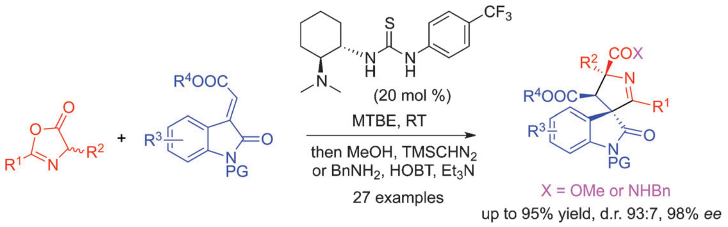


An aryne insertion into the F–Sn bond of tributyltin fluoride leads to the synchronous formation of Ar–F and Ar–Sn bonds to afford diverse 2-fluoroarylstannanes straightforwardly. The formal total synthesis of flurbiprofen by using a fluorostannylation product is also reported.

1,3-Dipolar Cycloaddition

W. Sun, G. Zhu, C. Wu, G. Li, L. Hong,* R. Wang* **8633 – 8637**

Organocatalytic Diastereo- and Enantioselective 1,3-Dipolar Cycloaddition of Azlactones and Methyleneindolinones

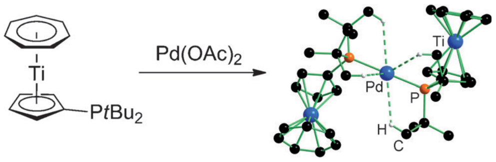


A simple route to complexity: An organocatalytic 1,3-dipolar cycloaddition between azlactones and methyleneindolinones provided spirooxindoles with high enantioselectivity (see scheme). This transformation takes advantage of the nucleophilic C4 and electrophilic C2 atoms in the azlactone substrate. Bn = benzyl, HOBt = 1-hydroxy-1*H*-benzotriazole, MTBE = methyl *tert*-butyl ether, PG = protecting group, TMS = trimethylsilyl.

C–C Coupling

A. C. Tagne Kuate, S. Sameni, M. Freytag, P. G. Jones, M. Tamm* **8638 – 8642**

Phosphane-Functionalized Cycloheptatrienyl–Cyclopentadienyl Titanium Sandwich Complexes: Phosphorus Ligands with an Integrated Reducing Agent for Palladium(0) Catalyst Generation



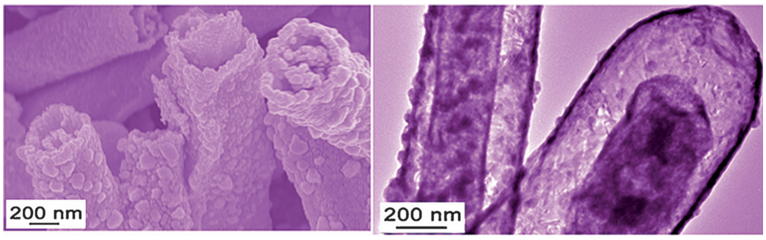
A picture of (non)innocence: Non-innocent and bulky phosphanes bearing a reducing cycloheptatrienyl–cyclopentadienyl titanium moiety swiftly convert Pd^{II} into Pd^0 species at room temperature (see scheme). The resulting complex catalyzes the Suzuki–Miyaura coupling with fast conversion even of sterically hindered aryl bromides.

Hollow Nanostructures

G. Q. Zhang, B. Y. Xia, C. Xiao, L. Yu, X. Wang, Y. Xie,* X. W. Lou* **8643 – 8647**

General Formation of Complex Tubular Nanostructures of Metal Oxides for the Oxygen Reduction Reaction and Lithium-Ion Batteries

Back Cover

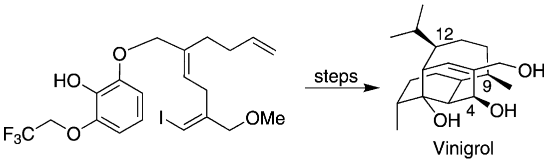


Tube in a tube: A general strategy for the fabrication of novel complex tube-in-tube nanostructures for many metal oxides has been developed. The method involves coating carbon nanofibers with a layer of metal glycolate followed by calcination in air. The unique complex tubular structures of metal oxides are shown to exhibit promising properties for the title applications.

Natural Products Synthesis

Q. Yang, J. T. Njardarson,* C. Draghici, F. Li **8648 – 8651**

Total Synthesis of Vinigrol

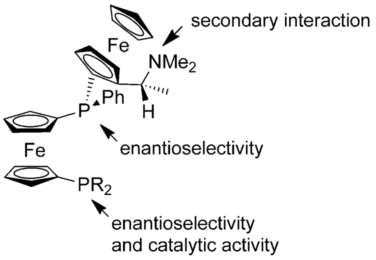


Carbocyclic cage fight: The substrate-controlled total synthesis of vinigrol features a strategic oxidative dearomatization/Diels–Alder cycloaddition reaction and a subsequent palladium-catalyzed cyclization cascade to construct the carbocyclic core. The C4, C9, and C12 stereocenters were installed using either reduction or oxidation reactions, and the diterpenoid core was unraveled by a ring fragmentation reaction.

Ligand Design

W. Chen,* F. Spindler, B. Pugin, U. Nettekoven **8652 – 8656**

ChenPhos: Highly Modular P-Stereogenic C_1-Symmetric Diphosphine Ligands for the Efficient Asymmetric Hydrogenation of α-Substituted Cinnamic Acids



ChenPhos

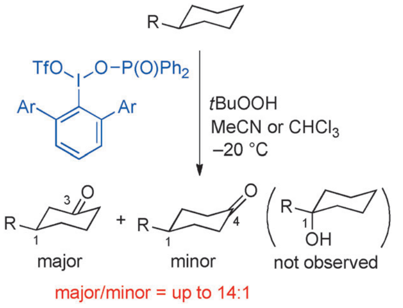
These cats are purrfectionists: The ChenPhos ligands (see structure) showed dramatically higher catalytic activity in the title reaction than their C_2-symmetric predecessor with two dimethylaminoethyl-substituted ferrocenyl(phenyl)phosphanyl groups. The ready accessibility, extreme air stability, and high enantioselectivity, activity, and productivity of these ligands make them very promising for a wide range of practical applications.

Radical C–H Oxidation

S. A. Moteki, A. Usui, T. Zhang,
C. R. Solorio Alvarado,
K. Maruoka* ______________ **8657 – 8660**

Site-Selective Oxidation of Unactivated C_{sp^3}–H Bonds with Hypervalent Iodine(III) Reagents

By design: The site-selective oxidation of unactivated secondary C_{sp^3}–H bonds was accomplished with hypervalent iodine(III) reagents and *tert*-butyl hydroperoxide (see scheme). The preparation and derivatization of the hypervalent iodine(III) reagent are simple, thus allowing the rational design of these reagents to optimize the site selectivity of the oxidation.

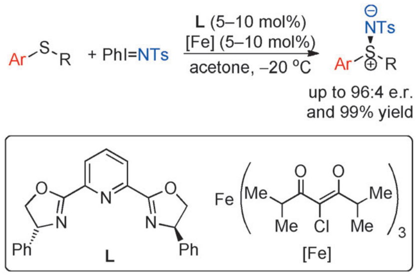


Sulfimides

J. Wang, M. Frings,
C. Bolm* ______________ **8661 – 8665**

Enantioselective Nitrene Transfer to Sulfides Catalyzed by a Chiral Iron Complex

Iron works: Enantioselective nitrene transfer to sulfide was accomplished by a chiral iron(III)/PyBOX catalyst (see scheme). Various sulfimides were thus obtained in high enantioselectivities and yields. Applications of this protocol to the syntheses of enantioenriched sulfoximines and an epoxide were also demonstrated.

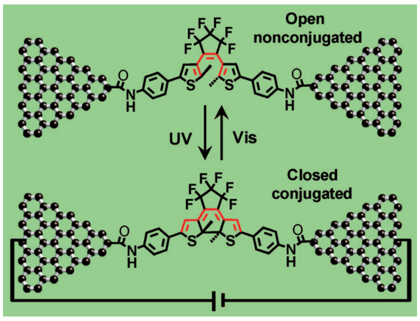


Optoelectronics

C. Jia, J. Wang, C. Yao, Y. Cao, Y.-W. Zhong,
Z.-R. Liu, Z.-F. Liu,*
X.-F. Guo* ______________ **8666 – 8670**

Conductance Switching and Mechanisms in Single-Molecule Junctions

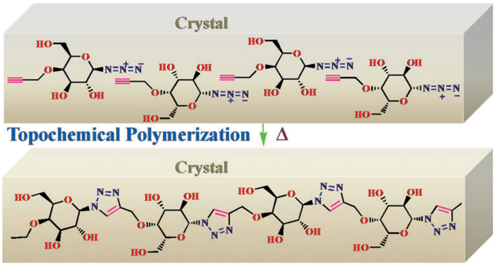
A molecular switch: The conductance of a new molecular device based on graphene–molecule junctions was reproducibly switched between open and closed states under irradiation of external light (see picture). Three photochromic diarylethene derivatives with different substituents were used as key elements of the molecular devices.



Non-Natural Polysaccharides

A. Pathigoolla,
K. M. Sureshan* ______________ **8671 – 8675**

A Crystal-to-Crystal Synthesis of Triazolyl-Linked Polysaccharide

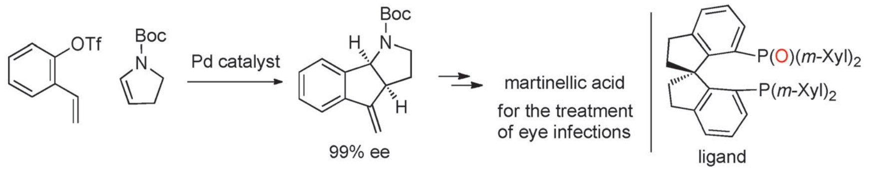


Crystal sweets: Polysaccharide synthesis is hampered by many factors. These problems can be circumvented by the crystal-to-crystal azide–alkyne cycloaddition polymerization of an unprotected monosaccharide, which gives a crystalline glycopolymer regiospecifically in quantitative yield.

Heck Reaction

J. Hu, H. Hirao, Y. Li,
J. Zhou* ________ **8676 – 8680**

Palladium-Catalyzed Asymmetric Intermolecular Cyclization

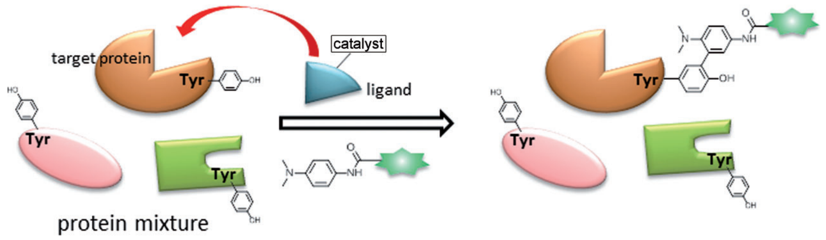


Domino cyclization: Alkylpalladium intermediates in an asymmetric Heck reaction were intercepted by a second alkene to give tricyclic products with high enantioselectivity (see scheme; Boc = *tert*-butoxycarbonyl). The method was applied to the asymmetric synthesis of a precursor of (−)-martinellic acid, a folk eye medicine in South America.

Protein Modification

S. Sato, H. Nakamura* ____ **8681 – 8684**

Ligand-Directed Selective Protein Modification Based on Local Single-Electron-Transfer Catalysis



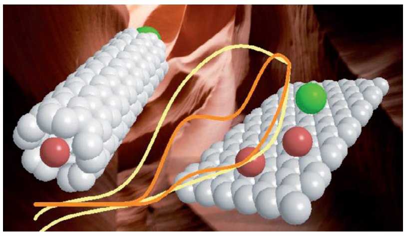
A photocatalyst ([Ru(bpy)$_3$]$^{2+}$) bound to a protein ligand was essential for the title method. Local single-electron transfer from the catalyst resulted in the formation of tyrosyl radicals. *N*′-Acetyl-*N*,*N*-dimethyl-1,4-phenylenediamine was used as the tyrosyl radical trapping agent and used in a radical addition to afford selective modification of the target protein.

Graphene

C. H. A. Wong, C. K. Chua, B. Khezri,
R. D. Webster, M. Pumera* **8685 – 8688**

Graphene Oxide Nanoribbons from the Oxidative Opening of Carbon Nanotubes Retain Electrochemically Active Metallic Impurities

Metallic impurities: Graphene oxide nanoribbons (GONRs) are commonly synthesized using carbon nanotubes (CNTs) as a precursor (see picture). The CNTs contain significant amounts of metallic impurities even after purification. These impurities persist after oxidative opening of the CNTS to GONRs and heavily influence the electrochemical behavior of the resulting material.



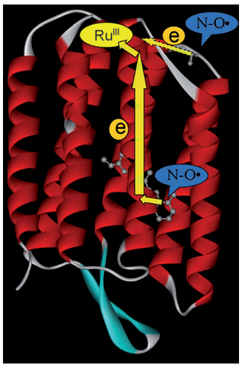
Inside Cover

Electron Transfer

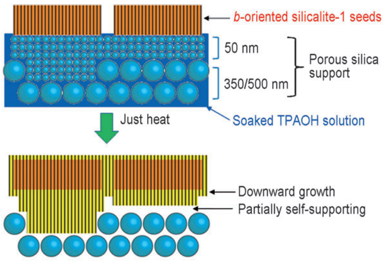
T. Eliash, A. Barbon,* M. Brustolon,
M. Sheves, I. Bilkis,
L. Weiner* ________ **8689 – 8692**

Nitroxyl Radicals for Studying Electron Transfer

Electron-transfer (ET) rates are measured by use of time-resolved EPR spectroscopy, involving photooxidation of nitroxyl radicals by a ruthenium bipyridyl complex. This permits acquisition of the fundamental characteristics of ET in solution. The method was used on two spin-labeled derivatives of bacteriorhodopsin, and is applicable to proteins, nucleic acids, and biological membranes.

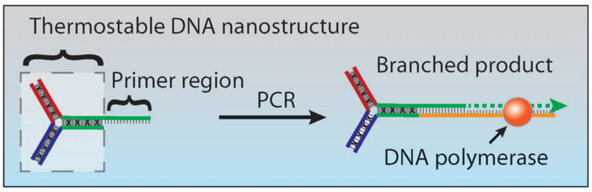


Mesoporous Materials



Zeolite membranes: A promising method is reported for the fabrication of oriented silica MFI zeolite films (see picture; TPAOH = tetrapropylammonium hydroxide). The films synthesized by using this method exhibit an outstanding performance for the separation of *p*- and *o*-xylene.

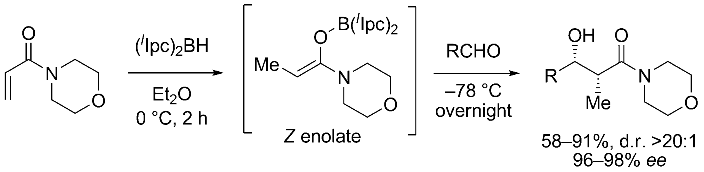
DNA Nanostructures




PCR-generated DNA hydrogel

Chemical cross-linking was used to prepare DNA nanostructures with enhanced thermal stability. These thermostable DNA nanostructures were then utilized as modular primers in the polymerase chain reaction (PCR; see picture), thus enabling the production of multifunctionalized and branched PCR products for multiplexed detection and hydrogel formation.

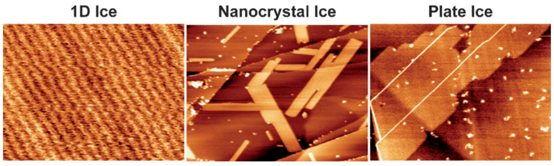
Reductive Aldol Reaction



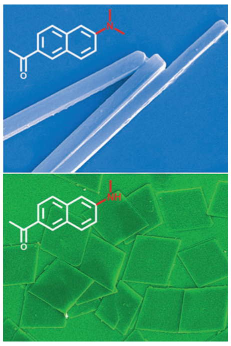
Cutting costs, cutting corners: In an inexpensive and straightforward synthesis of *syn*-propionamide aldols, formation of the *Z* enolborinate by the hydroboration of 4-acryloylmorpholine with diisopinocampheylborane ($(Ipc)_2BH$) was followed by aldol reactions with achiral and chiral aldehydes to provide *syn*-α-methyl-β-hydroxymorpholinecarboxamides with excellent enantio- and diastereoselectivity (see scheme; R = alkyl, alkenyl, aryl, heteroaryl).

Self-Assembly

Inside Back Cover



Ice to see you: The Stenocara beetle in the Namib Desert collects drinking droplets from the morning mist using its waxy wings, which are tailored with sub-millimeter hydrophilic humps. Superhydrophilic graphene oxide nanoflakes are biomimetic analogues of these humps and can seed ice nucleation on hydrophobic graphite. Various ice solids can thus be grown at ambient conditions (see images).

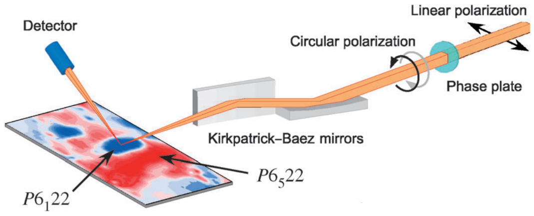


Exploring the stacks: Two different but related naphthalene compounds were shown to form different nanostructures (see picture) depending on the π–π stacking and hydrogen bonding of the molecules. These nanostructures had unique photonic confinement and light-propagation characteristics, which show potential for nanophotonic circuits.

Organic Nanophotonics

W. Yao, Y. Yan, L. Xue, C. Zhang, G. Li, Q. D. Zheng, Y. S. Zhao,* H. Jiang,* J. N. Yao* ______ **8713 – 8717**

Controlling the Structures and Photonic Properties of Organic Nanomaterials by Molecular Design

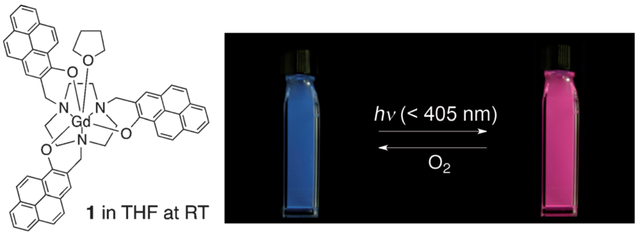


Imaging of chirality domains: Resonant circularly polarized X-ray diffraction distinguishes crystalline enantiomers (see picture). Control of the penetration depth and microfocusing of X-rays leads to a new visualization technique of the three-dimensional chirality-domain morphology, providing support to the increasing demand for the improvement of inorganic chiral crystal engineering.

Chirality

H. Ohsumi,* A. Tokuda, S. Takeshita, M. Takata, M. Suzuki, N. Kawamura, Y. Kousaka, J. Akimitsu, T. Arima ______ **8718 – 8721**

Three-Dimensional Near-Surface Imaging of Chirality Domains with Circularly Polarized X-rays



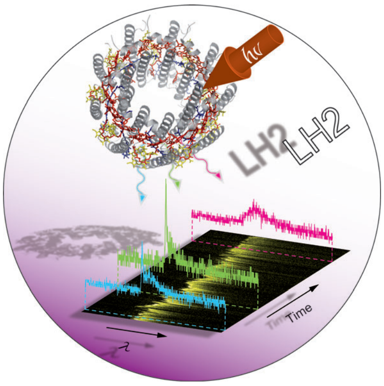
From blue to red: The structure and luminescence properties of the gadolinium(III) complex **1** were investigated. Reversible switching of the luminescence of **1** in THF at room temperature by alternating light irradiation and O_2 exposure is presented, during which the emission color changes as shown in the picture. Light-induced phosphorescence of **1** plays a key role in this behavior.

Photochromism

H. Nakai,* K. Kitagawa, H. Nakamori, T. Tokunaga, T. Matsumoto, K. Nozaki, S. Ogo ______ **8722 – 8725**

Reversible Switching of the Luminescence of a Photoresponsive Gadolinium(III) Complex

Sequences of high resolution low-temperature emission spectra from individual light-harvesting 2 (LH2) complexes from *Rhodopseudomonas acidophila* reveal a much larger variety of the emission profiles than previously observed. The results provide direct evidence for substantial variations in electron–phonon coupling and concomitantly of exciton (de)localization within single pigment-protein complexes.



Excitons in Photosynthesis

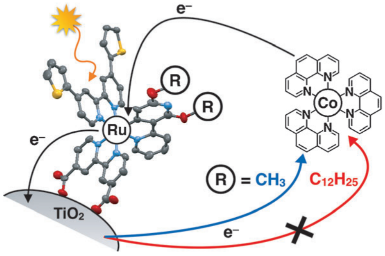
R. Kunz, K. Timpmann, J. Southall, R. J. Cogdell, A. Freiberg, J. Köhler* ______ **8726 – 8730**

Fluctuations in the Electron–Phonon Coupling of a Single Chromoprotein

Dye-Sensitized Solar Cells

L. E. Polander, A. Yella, B. F. E. Curchod, N. Ashari Astani, J. Teuscher, R. Scopelliti, P. Gao, S. Mathew, J.-E. Moser, I. Tavernelli, U. Rothlisberger, M. Grätzel, M. K. Nazeeruddin, J. Frey* **8731 – 8735**

Towards Compatibility between Ruthenium Sensitizers and Cobalt Electrolytes in Dye-Sensitized Solar Cells

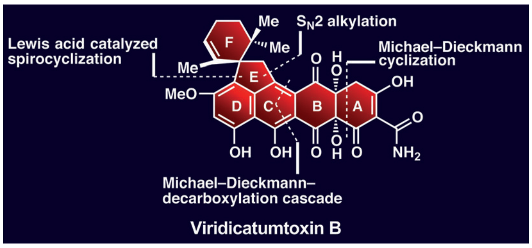


Ruthenium and Co: Ruthenium(II) complexes remain prime candidates for dye-sensitized solar applications; however, current ruthenium sensitizers are not compatible with cobalt(II/III) electrolytes. Herein, the effect of surface insulation on device efficiency is studied by comparing two cyclometalated tris-heteroleptic ruthenium(II) complexes. This approach demonstrates a general principle that leads to unprecedented efficiency for a ruthenium(II) sensitizer used in combination with a cobalt electrolyte.

Total Synthesis

K. C. Nicolaou,* C. Nilewski, C. R. H. Hale, H. A. Ioannidou, A. ElMarrouni, L. G. Koch ___ **8736 – 8741**

Total Synthesis and Structural Revision of Viridicatumtoxin B



Front Cover

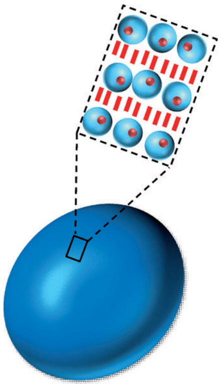
Will the real viridicatumtoxin B please stand up: The total synthesis of viridicatumtoxin B resulted in its structural revision and opens the way for analogue construction and biological evaluation of this complex tetracycline-like antibiotic. The highly convergent strategy employed allows for swift construction of the entire carbocyclic framework of the molecule.

Self-Assembly

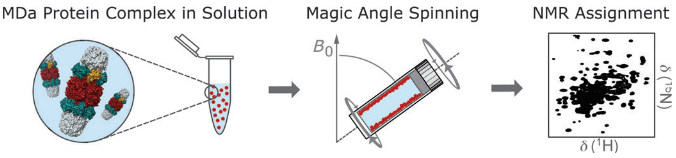
J. Düring, A. Hölzer, U. Kolb, R. Branscheid, F. Gröhn* ___ **8742 – 8745**

Supramolecular Organic–Inorganic Hybrid Assemblies with Tunable Particle Size: Interplay of Three Noncovalent Interactions

Gold or CdS nanoparticles and ionic dye molecules can form supramolecular assemblies with a defined size between 100 to 300 nm when using a macro-ion as template and connector. The picture shows the arangement of gold, dendrimer, and dye in the hybrid assembly (blue sphere: dendritic macro-ion, red spheres: gold, red bars: ionic dye).



Protein NMR Spectroscopy



Bigger is better: Sequential backbone assignments are obtained by NMR spectroscopy for a 1 MDa proteasome complex. The method relies on immobilization of a soluble protein complex by magic-angle spinning. Deuteration and proton detection of exchangeable sites and paramagnetic relaxation enhancement enables exploration of structural and dynamic properties of supramolecular assemblies at atomic resolution.

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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This article is accompanied by a cover picture (front or back cover, and inside or outside).

Angewandte Corrigendum

In this Commumnication, the authors have accidentally omitted an important reference in their description of the state of the art in cyclobutanone functionalizations. The report by J. Rodriguez, Y. Coquerel, and co-workers, entitled "Enantioselective Organocatalytic Michael Addition of Cyclobutanones to Nitroalkenes"[1] should be referenced in the first paragraph on page 6718. The authors regret this oversight and thank Professor Rodriguez for bringing this to their attention.

Enantioselective Construction of α-Quaternary Cyclobutanones by Catalytic Asymmetric Allylic Alkylation

C. M. Reeves, C. Eidamshaus, J. Kim,
B. M. Stoltz* **6718–6721**

Angew. Chem. Int. Ed. **2013**, *52*

DOI: 10.1002/anie.201301815

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[1] D. Mailhol, M. del Mar Sanchez Duque, W. Raimondi, D. Bonne, T. Constantieux, Y. Coquerel, J. Rodriguez, *Adv. Synth. Catal.* **2012**, *354*, 3523–3532.