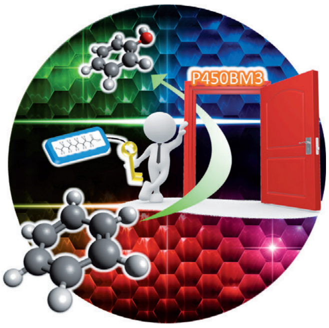
Different chiral building blocks …

… can be obtained through an enantioselective ring-opening reaction of prochiral 3-substituted oxetanes, as described by J. Sun and co-workers in their Communication on page 6685 ff. The proper choice of the chiral phosphoric acid catalyst and the nucleophile resembles the right choice of a good cook and the raw materials required for a variety of delicious meals.

Direct Benzene Hydroxylation

In their Communication on page 6606 ff., Y. Watanabe, O. Shoji et al. show how wild-type P450BM3 can catalyze the direct hydroxylation of benzene to phenol in the presence of perfluorinated carboxylic acids. Products of overoxidation were not found.

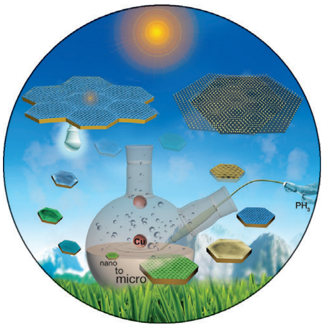


Asymmetric Synthesis

K.-W. Huang, Z. Jiang et al. report in their Communication on page 6666 ff. the direct enantioselective vinylogous aldol reaction of acyclic allyl ketones to isatins. Key to the success of the synthesis is the proper catalyst design.

Nanomaterials

In their Communication on page 6762 ff., N. Pradhan et al. describe the synthesis and characterization of size-tunable 2D Cu_3P platelets, which can be formed in the nano- to micrometer size range by controlling the nucleation density.



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Editorial

"... There is no empirical proof that scientific systems with competitive funding have produced more knowledge, and especially more reliable knowledge than those that are not organized in this way ..."
Read more in the Editorial by Michael Hampe.

Service

Author Profile

"My favorite principle is Occam's razor.
I am waiting for the day when someone will discover real cold fusion ..."
This and more about Tomislav Rovis can be found on page 6572.

News

M. Tobisu

R. G. Cooks

J. Wang

N. Cramer

Books

Modern Tools for the Synthesis of Complex Bioactive Molecules

Janine Cossy, Stellios Arseniyadis

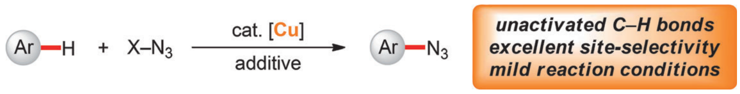
reviewed by M. Breuning ———— **6574**

Highlights

C–H Activation

W. Song, S. I. Kozhushkov,
L. Ackermann* ———— **6576 – 6578**

Site-Selective Catalytic C(sp^2)–H Bond Azidations



Inexpensive copper(I) catalysts allow the direct site-selective azidation (C–N bond formation) of C(sp^2)–H bonds in electron-rich heteroarenes and readily available anilines (see scheme). The reaction occurs under remarkably mild conditions and has a broad substrate scope.

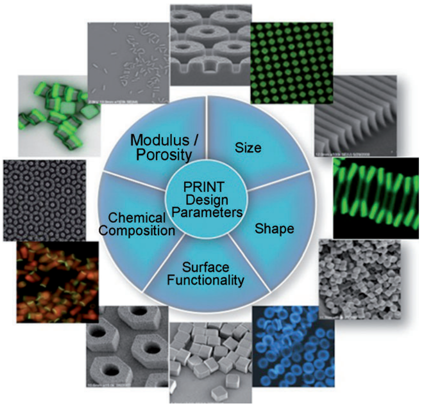
Minireviews

Nanoparticles

J. Xu, D. H. C. Wong, J. D. Byrne, K. Chen, C. Bowerman,
J. M. DeSimone* ———— **6580 – 6589**

Future of the Particle Replication in Nonwetting Templates (PRINT) Technology

Fine print: The title technology is a continuous, roll-to-roll, high-resolution molding technology that allows the design and synthesis of precisely defined micro- and nanoparticles. This technology enables researchers to have unprecedented control over particle size, shape, chemical composition, cargo, modulus, and surface properties. Recent work involving the PRINT technology for application in the biomedical and material sciences is described.



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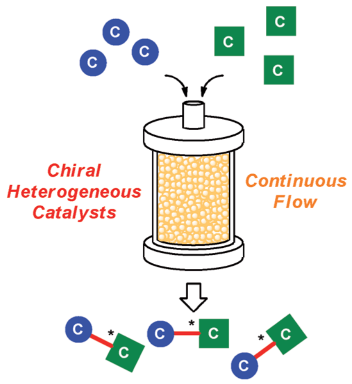
Reviews



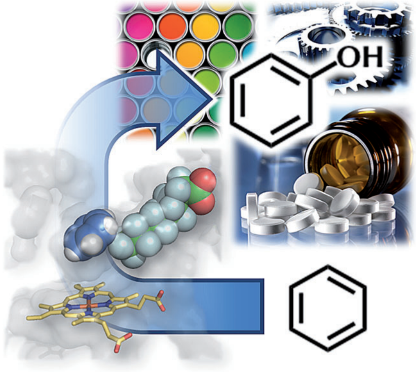
One of the most efficient ways to obtain optically active compounds is by the title reaction, but the efficiency of the catalysts is often lower than that in some other reactions, such as asymmetric hydrogenation. The efficiency of such reactions could be solved by using chiral heterogeneous catalysts in continuous-flow systems, which have several advantages over conventional batch systems.

C–C Bond Formation

T. Tsubogo, T. Ishiwata,
S. Kobayashi* ______ **6590 – 6604**

Asymmetric Carbon–Carbon Bond Formation under Continuous-Flow Conditions with Chiral Heterogeneous Catalysts

Communications



Playing tricks on enzymes: Direct hydroxylation of benzene to phenol was catalyzed by wild-type P450BM3 in the presence of perfluorinated carboxylic acids as decoy molecules. The catalytic turnover rate reached 120 min^{-1} per P450. The selectivity towards phenol production was very high and no overoxidation products were detected.

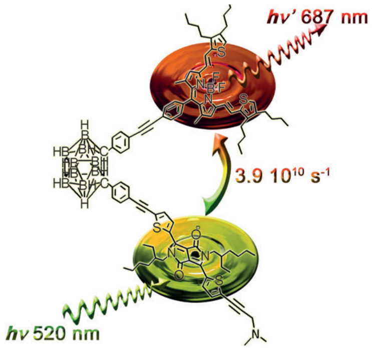
Direct Benzene Hydroxylation

O. Shoji,* T. Kunimatsu, N. Kawakami,
Y. Watanabe* ______ **6606 – 6610**

Highly Selective Hydroxylation of Benzene to Phenol by Wild-type Cytochrome P450BM3 Assisted by Decoy Molecules

Frontispiece

Energy transfer: For large electronic systems in close proximity it is shown that the coulombic mechanism accounts for the rates of electronic energy transfer for both linear and perpendicular geometries across distances from 36 to 16 Å. Replacing the ideal dipole approximation with either a revised extended dipole or atom-localized charges improves agreement between theory and experiment.



Photophysics

VIP

A. Harriman,* M. A. H. Alamiry,
J. P. Hagon, D. Hablot,
R. Ziessel* ______ **6611 – 6615**

Through-Space Electronic Energy Transfer Across Proximal Molecular Dyads

Quenching the thirst for knowledge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2012–124/14

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Chemie in Spanien
Editorial von N. Martín
Pd-NHC-Komplexe für Kreuzkupplungen
Aufsatz von M. G. Organ et al.
Highlights: Hydrogenasen · dimetallische Nanopartikel
ANCEAD 124 (14) 3331–3550 (2012) · ISSN 0044-8249 · Vol. 124 · No. 14

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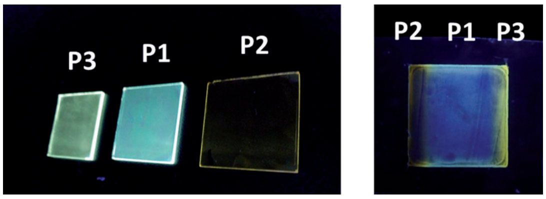
Angewandte Chemie

A Journal of Gesellschaft Deutscher Chemiker

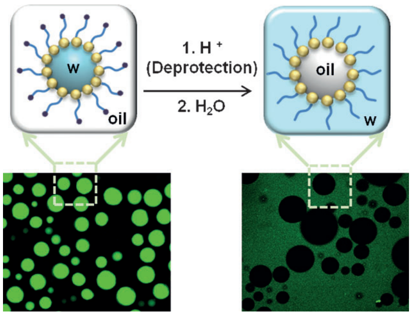


Twice as good: Parallel electrochemical oxidation and reduction of a single parent polymer (**P1**) simultaneously provided two corresponding polymers (**P2** and **P3**), which were easily separated. Upon UV irradiation, the color of the emissions of the **P2** and **P3** films were drastically different to that of **P1** (left). Parallel reactions on a bipolar electrode afforded a multicolored gradient film (right).

Polymer Reactions

S. Inagi,* H. Nagai, I. Tomita,
T. Fuchigami ______ **6616–6619**

Parallel Polymer Reactions of a Polyfluorene Derivative by Electrochemical Oxidation and Reduction

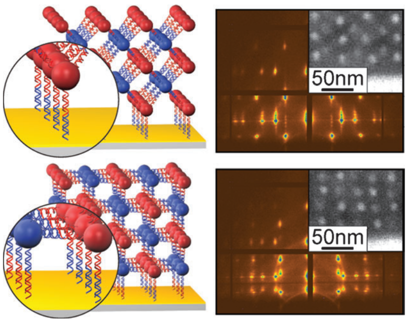


Emulsion inversion, from water-in-oil (w/o) to oil-in-water (o/w), was accomplished by employing tetrahydropyran-containing ligands that undergo facile deprotection, converting the nanoparticles from hydrophobic to hydrophilic. These ligand-tailored nanoparticles were used to prepare w/o emulsions that were disrupted, and inverted, to o/w systems simply by lowering the solution pH. The inversion process could be triggered by light using a photoacid generator.

Nanoparticle Assembly

I. Kosif, M. Cui, T. P. Russell,
T. Emrick* ______ **6620–6623**

Triggered In situ Disruption and Inversion of Nanoparticle-Stabilized Droplets

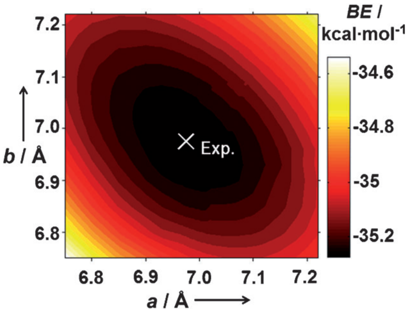


Thin-film DNA–nanoparticle superlattices can be grown one layer at a time using a stepwise assembly process on DNA substrates. A new design rule for these programmable crystals is presented: the superlattice will adopt an orientation that maximizes complementary DNA interactions with a given crystal plane.

DNA-Programmable Assembly

A. J. Senesi, D. J. Eichelsdoerfer,
R. J. Macfarlane, M. R. Jones, E. Auyeung,
B. Lee,* C. A. Mirkin* ______ **6624–6628**

Stepwise Evolution of DNA-Programmable Nanoparticle Superlattices



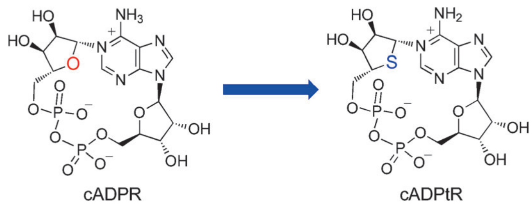
Molecular crystals: The structures and relative energies of glycine polymorphs are determined using dispersion corrections to PBE and PBEh density functionals. The picture shows a potential-energy surface for the *a*-*b* plane of γ-glycine obtained with density functional theory including many-body dispersion interactions.

Polymorphism

N. Marom,* R. A. DiStasio, Jr., V. Atalla,
S. Levchenko, A. M. Reilly,
J. R. Chelikowsky, L. Leiserowitz,
A. Tkatchenko* ______ **6629–6632**

Many-Body Dispersion Interactions in Molecular Crystal Polymorphism

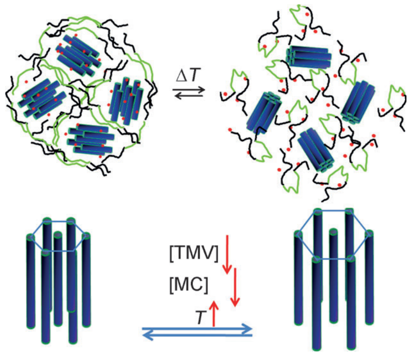
Nucleotide Second Messenger



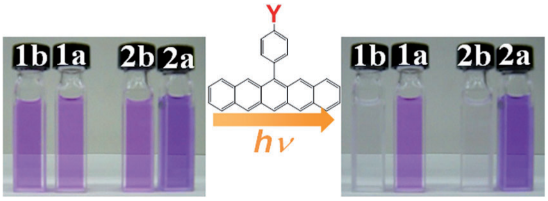
Oh, what a difference an S makes: A thioribose analogue (cADPtR, see scheme) of cyclic ADP-ribose (cADPR) was synthesized that is stable and has structural and electrostatic features similar to those of cADPR. cADPtR is the first stable equivalent of cADPR that is as active as cADPR in various cellular systems, making it useful for investigating Ca^{2+} ion-release signaling pathways.

Stimulus-Responsive Materials

Not too friendly with their neighbors: In the presence of certain polymers, such as methyl cellulose (MC), the rodlike tobacco mosaic virus (TMV) formed a superlattice in which the distance between the virus particles could be controlled within a wide range up to approximately 5 times their diameter. The spacing between the TMV particles in the superlattice showed a unique dependence on temperature and on the concentration of TMV (see picture).



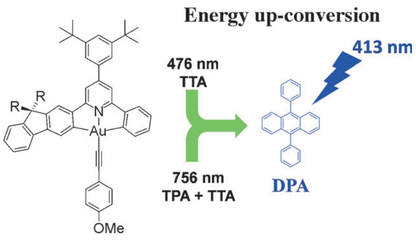
Conducting Materials



A radical solution: The photochemical instability and insolubility in organic solvents of pentacene derivatives prevent their use in molecular electronics. These issues were solved by using pentacene derivatives with stable radicals (Y = radical moiety, **1 a** and **2 a**) that have a lifetime of 2077 min in organic solvents under ambient light. The corresponding non-radical pentacene derivatives (Y = radical precursor, **1 b** and **2 b**) decay on exposure to light.

Luminescence

Photochemistry: A series of emissive gold(III) complexes with fluorene-containing cyclometalating ligands exhibits strong phosphorescence and long-lived excited states with emission quantum yields and lifetimes up to 58 % and 305 μs, respectively. These complexes can sensitize energy up-conversion of 9,10-diphenylanthracene (DPA; see picture) and display rich two-photon absorption properties (TPA; TTA = triplet–triplet annihilation).

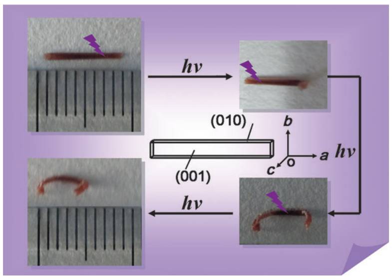


Photomechanical Motion

J. K. Sun, W. Li, C. Chen, C. X. Ren,
D. M. Pan, J. Zhang* ______ 6653 – 6657

Photoinduced Bending of a Large Single Crystal of a 1,2-Bis(4-pyridyl)ethylene-Based Pyridinium Salt Powered by a [2+2] Cycloaddition

Rolled-up crystals: Photoinduced bending of large single crystals has been realized based on a simple organic small molecule (see picture). The bending process is accompanied with high visual fluorescence contrast, which is essential for remote detection of photomechanical work.

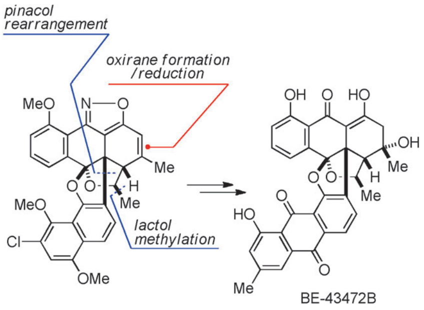


Natural Product Synthesis

Y. Yamashita, Y. Hirano, A. Takada,
H. Takikawa, K. Suzuki* ____ 6658 – 6661

Total Synthesis of the Antibiotic BE-43472B

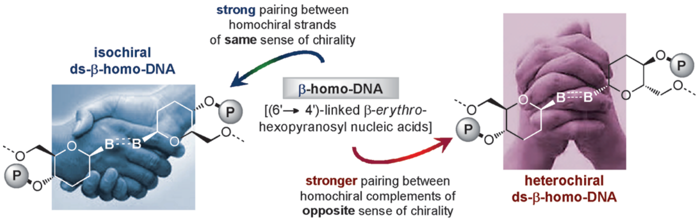
Total control: The antibiotic BE-43472B with a unique bisanthraquinone structure has been synthesized in a completely stereocontrolled manner. The key steps are 1) a pinacol rearrangement to install the angular naphthyl group, 2) a diastereoselective methylation of a lactol derivative, and 3) the late-stage installation of the labile hydroxy group through an epoxide.



Nucleic Acids

D. D'Alonzo,* J. Amato, G. Schepers,
M. Froeyen, A. Van Aerschot,
P. Herdewijn,* A. Guaragna 6662 – 6665

Enantiomeric Selection Properties of β-homoDNA: Enhanced Pairing for Heterochiral Complexes

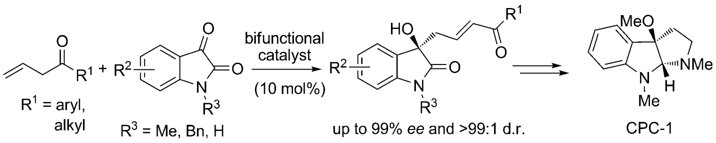


De gustibus: β-homoDNA has the singular property of being able to pair with homochiral complements of opposite chirality, with a greater stability than that observed in the corresponding isochiral complexes. Relevant to etiological investigations on nucleic acid structure, these results suggest the existence of a relationship between carbohydrate structure and stereoselectivity of the hybridization processes of the corresponding nucleic acids.

Asymmetric Synthesis

B. Zhu, W. Zhang, R. Lee, Z. Han, W. Yang,
D. Tan, K.-W. Huang,*
Z. Jiang* ______________ 6666 – 6670

Direct Asymmetric Vinylogous Aldol Reaction of Allyl Ketones with Isatins: Divergent Synthesis of 3-Hydroxy-2-Oxindole Derivatives



6 in 1: The highly enantioselective title reaction is mediated by a bifunctional catalyst and leads to *E*-configured vinylogous aldol products (see scheme). These products are used as common intermediates in the synthesis of six biologically active 3-hydroxy-2-oxindole derivatives (e.g., CPC-1). Computational studies indicated that the observed stereoselectivity is a result of favorable secondary π–π* and H-bonding interactions in the transition state.

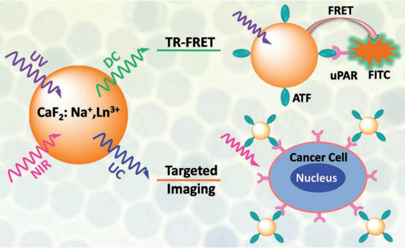
Inside Back Cover

Biosensors

W. Zheng, S. Y. Zhou, Z. Chen, P. Hu, Y. S. Liu, D. T. Tu, H. M. Zhu, R. F. Li, M. D. Huang, X. Y. Chen* — 6671 – 6676

Sub-10 nm Lanthanide-Doped CaF$_2$ Nanoprobes for Time-Resolved Luminescent Biodetection

Small but bright—just right! Codoping with sodium enabled the synthesis of highly emissive and ultrasmall ($<$10 nm) CaF$_2$:Ln^{3+} nanoparticles that were effective as sensitive probes for the detection of soluble uPAR (an important tumor marker) by time-resolved fluorescence resonance energy transfer (FRET; see picture; FITC = fluorescein isothiocyanate). The nanoprobes were also used successfully for uPAR-targeted cancer-cell imaging.



Carbon–Carbon Bond Cleavage

T. Shen, T. Wang, C. Qin, N. Jiao* ———— 6677 – 6680

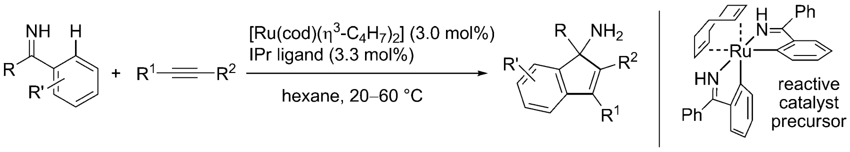
Silver-Catalyzed Nitrogenation of Alkynes: A Direct Approach to Nitriles through C$\equiv$C Bond Cleavage

Three in one blow! A novel direct transformation of alkynes into nitriles by a silver-catalyzed nitrogenation reaction through C$\equiv$C bond cleavage has been developed. This research provides both a new application for alkynes in organic synthesis, and valuable mechanistic insights into nitrogenation chemistry.

Synthetic Methods

J. Zhang, A. Ugrinov, P. Zhao* ———— 6681 – 6684

Ruthenium(II)/N-Heterocyclic Carbene Catalyzed [3+2] Carbocyclization with Aromatic N–H Ketimines and Internal Alkynes



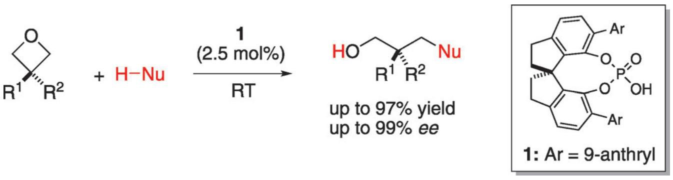
Convenient and highly efficient: Indenamines were synthesized using the title reaction, which occurs at ambient temperature, in the absence of oxidants or other metal salts, and in nonpolar solvents. A proposed mechanism involves imine-directed activation of an aromatic C–H bond, alkyne insertion, and carbocyclization by intramolecular imine insertion into Ru–alkenyl linkages.

Asymmetric Catalysis

Z. Wang, Z. Chen, J. Sun* — 6685 – 6688

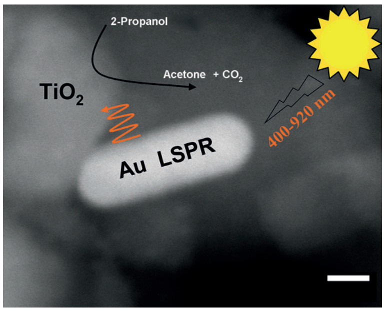
Catalytic Enantioselective Intermolecular Desymmetrization of 3-Substituted Oxetanes

Front Cover



Wring it out: The title reaction proceeds in the presence of chiral Brønsted acid catalysts. This efficient ring-opening process features low catalyst loading, mild reaction conditions, broad functional group compatibility, high enantioselectivity, and the capability to generate chiral quaternary centers. The highly functionalized desymmetrization products are versatile chiral building blocks in organic synthesis.

Broadband visible-light harvesting over TiO_2 is achieved by introducing gold nanorods (Au NRs) as antennas based on localized surface plasmon resonance. Furthermore, surfactant removal is achieved by an $HClO_4$ oxidative method. Not only transversal but also longitudinal plasma of Au NRs can induce photooxidation of 2-propanol, which extends the light harvesting to the near-infrared region. Scale bar: 10 nm.

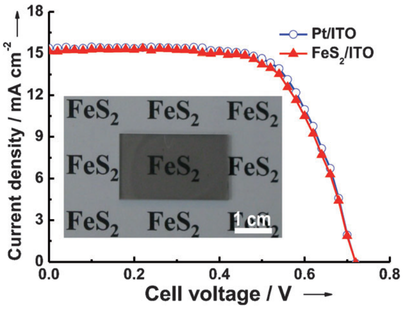


Photocatalysis

L. Q. Liu, S. X. Ouyang,
J. H. Ye* ———— 6689 – 6693

Gold-Nanorod-Photosensitized Titanium Dioxide with Wide-Range Visible-Light Harvesting Based on Localized Surface Plasmon Resonance

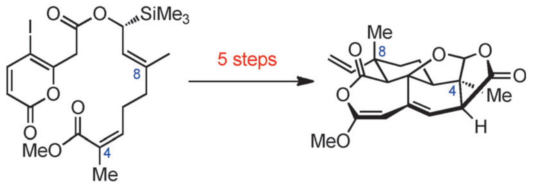
Calligraphic counter electrodes: An important photovoltaic application using FeS_2 nanocrystal (NC) pyrite ink to fabricate a counter electrode as an alternative to Pt in dye-sensitized solar cells is demonstrated. FeS_2 NC ink exhibits excellent electrochemical catalytic activity and remarkable electrochemical stability. ITO = indium-doped tin oxide.



Energy Conversion

Y.-C. Wang, D.-Y. Wang, Y.-T. Jiang,
H.-A. Chen, C.-C. Chen,* K.-C. Ho,
H.-L. Chou, C.-W. Chen* —— 6694 – 6698

FeS_2 Nanocrystal Ink as a Catalytic Electrode for Dye-Sensitized Solar Cells

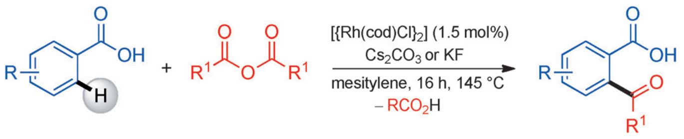


'Dibal'lin' on a budget: The enantioselective total syntheses of transtaganolides A–D are rapidly achieved by a highly diastereoselective Ireland–Claisen/Diels–Alder cascade reaction of an enantioenriched geraniol derivative (see scheme). Based on X-ray diffraction data, the absolute configuration of these metabolites is established and discussed within the context of existing biosynthetic hypotheses.

Natural Product Synthesis

H. M. Nelson, J. R. Gordon, S. C. Virgil,
B. M. Stoltz* ———— 6699 – 6703

Total Syntheses of (−)-Transtaganolide A, (+)-Transtaganolide B, (+)-Transtaganolide C, and (−)-Transtaganolide D and Biosynthetic Implications



New directions: The carboxylic acid functional group directs the *ortho* acylation of benzoic acids with carboxylic anhydrides in the presence of a rhodium catalyst (see scheme; cod = cyclo-1,5-octadiene). The acylation at the *ortho* position is complementary to the *meta* selectivity of Friedel–Crafts reactions. The resulting products can undergo protodecarboxylation to deliver an aryl ketone.

Synthetic Methods

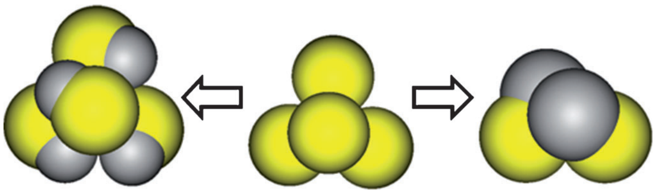
P. Mamone, G. Danoun,
L. J. Gooßen* ———— 6704 – 6708

Rhodium-Catalyzed *ortho* Acylation of Aromatic Carboxylic Acids

Self-Assembly

B. Peng,* F. Smallenburg,* A. Imhof,
M. Dijkstra,
A. van Blaaderen* ________ **6709 – 6712**

Colloidal Clusters by Using Emulsions and Dumbbell-Shaped Particles: Experiments and Simulations

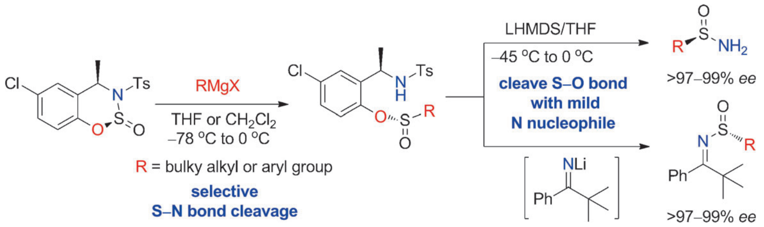


With (dumb)bells on: A variety of colloidal stereoisomers (all the same materials) have been prepared through evaporation of emulsions by using symmetric and asymmetric dumbbell-shaped particles (see figure). The colloid configurations are in good agreement with the results of computer simulations.

Synthetic Methods

Z. S. Han,* M. A. Herbage,
H. P. R. Mangunuru, Y. Xu, L. Zhang,
J. T. Reeves, J. D. Sieber, Z. Li, P. DeCroos,
Y. Zhang, G. Li, N. Li, S. Ma, N. Grinberg,
X. Wang, N. Goyal, D. Krishnamurthy,
B. Lu, J. J. Song, G. Wang,
C. H. Senanayake ________ **6713 – 6717**

Design and Synthesis of Chiral Oxathiozinone Scaffolds: Efficient Synthesis of Hindered Enantiopure Sulfinamides and Sulfinyl Ketimines

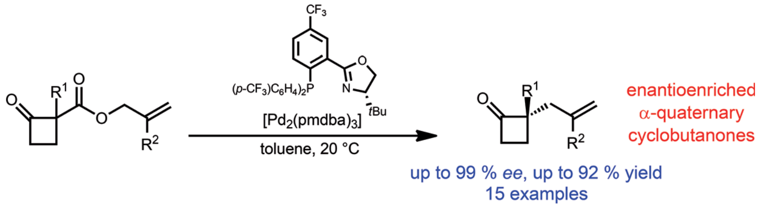


Is that S–O? The title scaffolds have a highly active and properly differentiated S–O bond for the efficient synthesis of enantiopure sulfinamides. The method is practical, green, and has the potential to provide an economical commercial process for the synthesis of bulky sulfinamides.

Asymmetric Catalysis

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

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

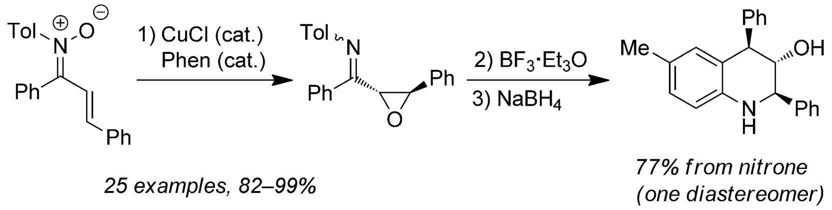


No strain, no gain! The first transition metal-catalyzed enantioselective α-alkylation of cyclobutanones is reported. This method employs palladium catalysis and an electron-deficient PHOX-type ligand to afford all-carbon α-quaternary cyclobutanones in good to excellent yields and enantioselectivities (see scheme).

Nitrone Rearrangement

D.-L. Mo, L. L. Anderson* __ **6722 – 6725**

Copper-Catalyzed Rearrangement of *N*-Aryl Nitrones into Epoxyketimines

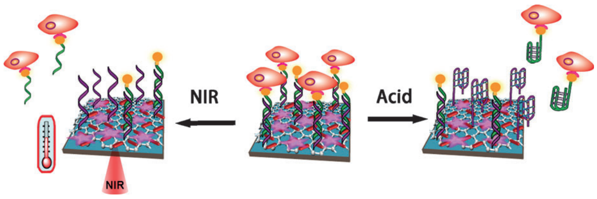


Please pass the oxygen: A new method for the preparation of *trans*-α,β-epoxyketimines has been achieved through a copper-catalyzed rearrangement of (*E*)-α,β-unsaturated nitrones. The scope and tolerance of the method is evaluated and the synthetic utility of the products is demonstrated. The new transformation provides facile access to an unusual, densely functionalized intermediate that can be exploited for further synthetic application.

Cell Adhesion

W. Li, J. Wang, J. Ren,
X. Qu* ______ **6726 – 6730**

Near-Infrared- and pH-Responsive System for Reversible Cell Adhesion using Graphene/Gold Nanorods Functionalized with i-Motif DNA

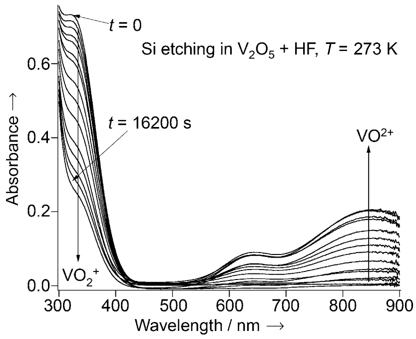


It's a keeper! A dual near-infrared (NIR)- and pH-responsive system for the controlled catch-and-release of cells was achieved using graphene/Au nanorods as a substrate and double-stranded DNA as a switchable linker for cell immobilization (see scheme). This substrate was shown to respond to cycles of NIR light and changes in pH, and released undamaged cells from the surface.

Silicon Etching

K. W. Kolasinski,*
W. B. Barclay ______ **6731 – 6734**

The Stoichiometry of Electroless Silicon Etching in Solutions of V_2O_5 and HF



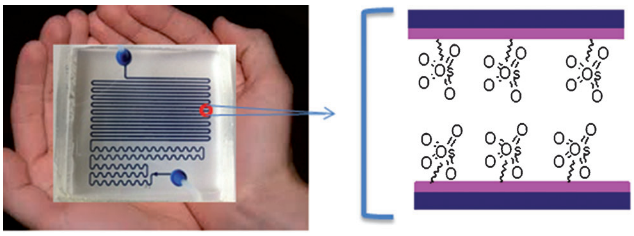
Performance by an oxidant in a leading role: In the electroless etching of silicon to form nanocrystalline porous-silicon thin films, the oxidant extracts one electron from the silicon valence band to initiate etching and then a second from the conduction band to suppress H_2 formation. This discovery overturns the conventional wisdom regarding the role of the oxidant in stain etching, the stoichiometry of which was derived from the UV/Vis spectra shown.

Microreactors

K. C. Basavaraju, S. Sharma, R. A. Maurya,
D.-P. Kim* ______ **6735 – 6738**

Safe Use of a Toxic Compound: Heterogeneous OsO_4 Catalysis in a Nanobrush Polymer Microreactor

Inside Cover

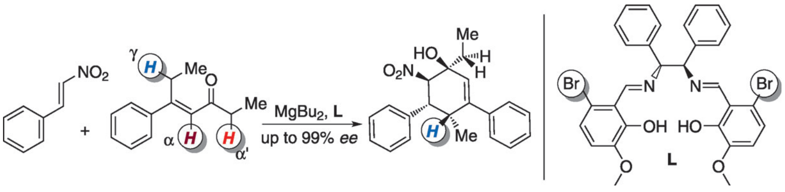


Putting osmium in its place: The immobilization of hazardous OsO_4 on polymer nanobrushes in a microreactor is a safe, effective, and green concept. The method allows reactions to be performed in a time- and chemical-saving manner, with little environmental impact, as compared to spill-over bulk processes.

Synthetic Methods

D. Yang, L. Wang, F. Han, D. Zhao,
B. Zhang, R. Wang* ______ **6739 – 6742**

Direct Site-Specific and Highly Enantioselective γ-Functionalization of Linear α,β-Unsaturated Ketones: Bifunctional Catalytic Strategy

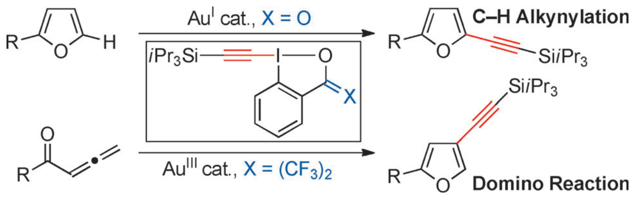


α, β, γ: The title method employs a Mg/**L** catalyst, which is well suited for the selective γ deprotonation and activation of linear α,β-unsaturated ketones for reaction with nitroalkenes. The reaction leads to a series of optically active cyclohexene ring systems bearing multiple functional groups, systems which are not easily accessible using other methodologies.

Gold Catalysis

Y. Li, J. P. Brand, J. Waser* _ **6743 – 6747**

Gold-Catalyzed Regioselective Synthesis of 2- and 3-Alkynyl Furans



Chemical Matching: C2- or C3-alkynylated furans were selectively synthesized by using gold catalysis. Direct C–H alkynylation of furans was achieved with C2 selectivity, and a domino cyclization/alkynylation process starting from allenes gave C3-alkynylated products. The exact matching of the structure of the gold catalyst and an electrophilic hypervalent iodine reagent was essential for success.

Asymmetric Hydrogenation

Y. Li, K. Dong, Z. Wang, K. Ding* ________ **6748 – 6752**

Rhodium(I)-Catalyzed Enantioselective Hydrogenation of Substituted Acrylic Acids with Sterically Similar β,β-Diaryls

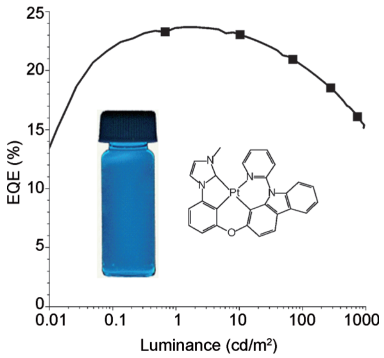
Distinct differentiation: β,β-Disubstituted acrylic acids with sterically similar geminal diaryl groups can be hydrogenated with excellent enantioselectivities in the presence of a Rh^I complex formed in situ with two-component ligands, a chiral secondary phosphine oxide (SPO) and an achiral phosphine (Ph$_3$P). The sense of asymmetric induction was found to be controlled by the substrate configuration, thus allowing access to both enantiomers of the product with the same catalyst.

Blue Organic LEDs

X. Hang, T. Fleetham, E. Turner, J. Brooks, J. Li* ________ **6753 – 6756**

Highly Efficient Blue-Emitting Cyclometalated Platinum(II) Complexes by Judicious Molecular Design

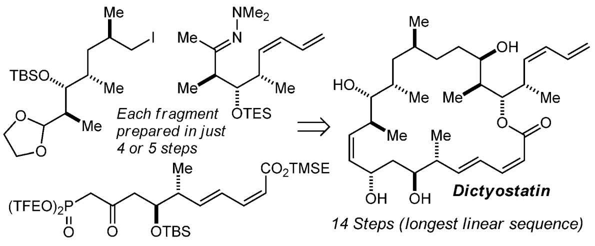
Deep-blue emitters based on cyclometalated platinum(II) complexes were synthesized, characterized, and used in organic light-emitting devices. The complexes with tetradentate ligands exhibited improved photophysical properties over iridium analogues, and one such compound achieved a peak external quantum efficiency (EQE) of 23.7%.



Natural Product Synthesis

S. Ho, C. Bucher, J. L. Leighton* ________ **6757 – 6761**

A Highly Step-Economical Synthesis of Dictyostatin



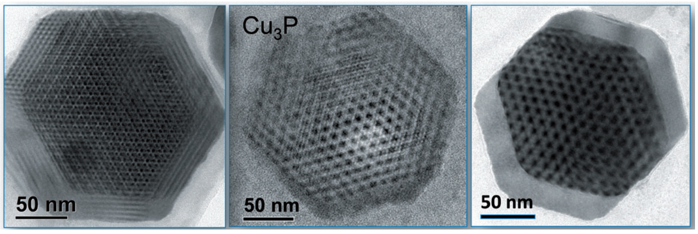
Less is more: An efficient synthesis of the anti-mitotic macrolide dictyostatin proceeds with a longest linear sequence of 14 steps, and allows the rapid production of multi-gram quantities of each of the three fragments from which the natural product is assembled in just four or five steps. The key step is a scalable one-step synthesis of the C(12)–C(14) and C(20)–C(22) stereotriads.

Nanomaterials

G. Manna, R. Bose,
N. Pradhan* ________ 6762 – 6766

Semiconducting and Plasmonic Copper Phosphide Platelets

Back Cover

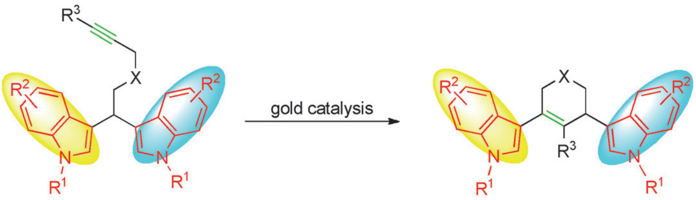


What size plate do you want? Semiconducting and plasmonic copper phosphide platelets with sizes tunable from the nanometer to the micrometer scale have been developed, and their photoresponse and photovoltaic activity studied. The size control was achieved by controlling the nucleation density of materials in the reaction system.

Cyclisation

L. Huang, H.-B. Yang, D.-H. Zhang,
Z. Zhang, X.-Y. Tang, Q. Xu,*
M. Shi* ________ 6767 – 6771

Gold-Catalyzed Intramolecular Regio- and Enantioselective Cycloisomerization of 1,1-Bis(indolyl)-5-alkynes

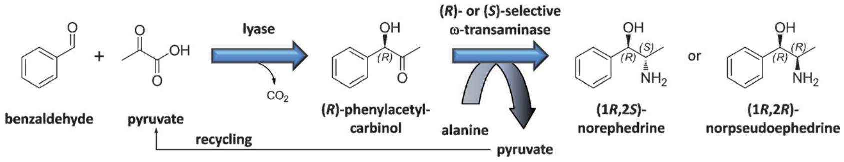


Bis(indole) alkaloids analogues were prepared under mild conditions and in high yields through a gold-catalyzed cycloisomerization of 1,1-bis(indolyl)-5-alkynes (see scheme). The enantioselective version of this reaction gave the corresponding products in moderate to excellent yields (55–90%), moderate to good *ee* values (48–96%), and satisfactory regioselectivities (3.5:1→20:1).

Biocatalysis

T. Sehl, H. C. Hailes, J. M. Ward,
R. Wardenga, E. von Lieres, H. Offermann,
R. Westphal, M. Pohl,
D. Rother* ________ 6772 – 6775

Two Steps in One Pot:
Enzyme Cascade for the Synthesis of Nor(pseudo)ephedrine from Inexpensive Starting Materials

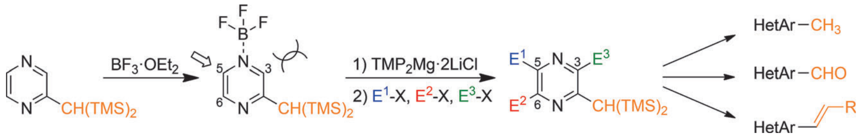


Two steps in one pot: An enzyme cascade consisting of a lyase and an (*R*)- or (*S*)-selective ω-transaminase (TA) provides (1*R*,2*R*)-norpseudoephedrine and (1*R*,2*S*)-norephedrine in only two steps. The intermediate is not isolated in this one-pot reaction and the products are obtained in high enantio- and diastereomeric purity. Moreover, the by-product from the second reaction can be recycled to serve as the substrate for the first reaction.

Frustrated Lewis Pairs

K. Groll, S. M. Manolikakes,
X. M. du Jourdin, M. Jaric, A. Bredihhin,
K. Karaghiosoff, T. Carell,
P. Knochel* ________ 6776 – 6780

Regioselective Metalations of Pyrimidines and Pyrazines by Using Frustrated Lewis Pairs of BF$_3$·OEt$_2$ and Hindered Magnesium– and Zinc–Amide Bases

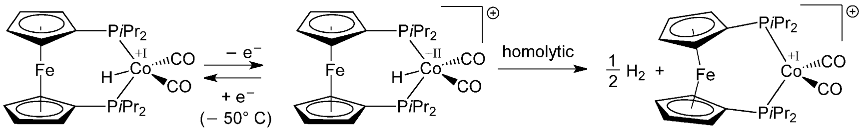


Born of frustration: Using the frustrated Lewis pairs TMP–metal and BF$_3$·OEt$_2$ allows the regioselective metalation of pharmaceutically relevant diazines, such as pyrimidines, purines, and pyrazines. These metalations are often complementary to prior deprotonations performed without BF$_3$·OEt$_2$. Especially attractive is a new sequential regioselective full functionalization of the pyrazine scaffold with a bulky (TMS)$_2$CH substituent.

Hydride Complexes

M. J. Krafft, M. Bubrin, A. Paretzki,
F. Lissner, J. Fiedler, S. Záliš,
W. Kaim* ______ **6781 – 6784**

Identifying Intermediates of Sequential Electron and Hydrogen Loss from a Dicarbonylcobalt Hydride Complex



Step by step: Electron- and hydrogen-transfer steps are documented IR-spectroelectrochemically and structurally for the H_2-producing oxidation of a dicarbonylcobalt hydride complex modified by the sterically protecting 1,1′-bis(diisopropylphosphino)ferrocene. The series complements the mechanism discussed for water-reducing cobalt compounds with less π-accepting ligands.

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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