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:*

*A. M. Scott, A. B. Ricks, M. T. Colvin, M. R. Wasielewski**
Comparing Spin-Selective Charge Transport through Donor-Bridge–Acceptor Molecules having Different Oligomeric Aromatic Bridges

*D. Figgen, A. Koers, P. Schwerdtfeger**
NWHClI: A Small and Compact Chiral Molecule with Large Parity Violation Effects in the Vibrational Spectrum

C. Costentin, M. Robert, J. Savéant, C. Tard*
Inserting a Hydrogen Bond Relay between Proton Exchanging Sites in Proton–Coupled Electron Transfers

A. M. Nowicka, U. Hasse, G. Sievers, M. Donten, Z. Stojek, S. Fletcher, F. Scholz**
Selective Knock–Out of Active Sites on a Gold Surface

*Q. Liu, G. Li, J. He, J. Liu, P. Li, A. Lei**
Palladium–Catalyzed Aerobic Oxidation and Carbonylation of Arylboronate Esters under Mild Conditions

A. C. Filippou, O. Chernov, K. W. Stumpf, G. Schnakenburg*
Metal–Silicon Triple Bonds: The Molybdenum Silylidyne Complex [Cp(CO)$_2$Mo=SiR]

K. Meister, J. Niesel, U. Schatzschneider, N. Metzler-Nolte,* D. A. Schmidt, M. Havenith**
Metal–Carbonyl Complexes as a Method for Label-Free Live-Cell Imaging by Raman Microspectroscopy

*A. C. M. Ferreon, C. R. Moran, J. C. Ferreon, A. A. Deniz**
Parkinson's–Related Mutation Alters the α–Synuclein Folding Landscape

News

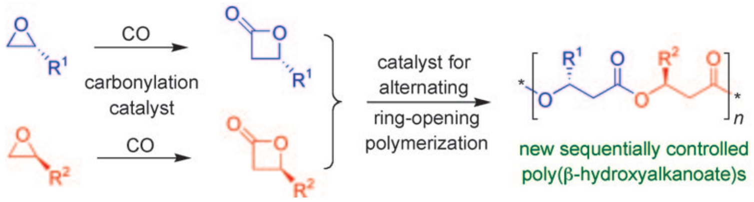

R. Huisgen


D. Guldi


S. Buchwald

Books

Highlights



Smart catalysts for new materials: A syndiospecific yttrium catalyst that operates by a chain-end-control mechanism enabled the highly alternating ring-opening polymerization of a mixture of two different enantiomerically pure 4-substituted β-propiolactones of opposite absolute configuration (see scheme). This strategy offers access to original sequentially controlled poly(β-hydroxyalkanoate)s.

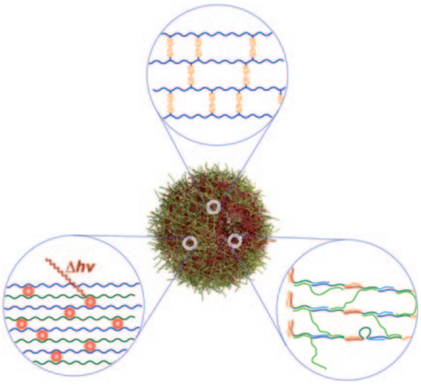
Polymerization Catalysis

Contents

Polymer Carriers

A. P. R. Johnston, G. K. Such,
F. Caruso* **2664 – 2666**

Triggering Release of Encapsulated Cargo



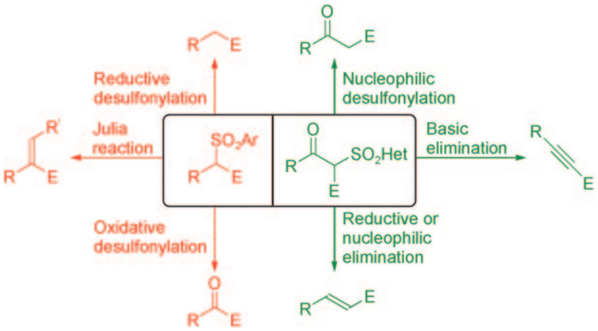
Specific stimuli can be used to trigger the release of cargo encapsulated in polymer carriers in applications ranging from drug delivery to catalysis. Current approaches can be categorized in two classes: application of an external stimulus, such as light, and exploitation of environmental changes, such as chemical and enzymatic degradation (see picture).

Minireviews

Asymmetric Catalysis

M. Nielsen, C. B. Jacobsen, N. Holub,
M. W. Paixão,
K. A. Jørgensen* **2668 – 2679**

Asymmetric Organocatalysis with Sulfones



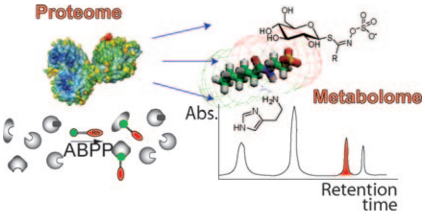
Sulfone groups play a significant role in asymmetric organocatalysis, which has become a powerful tool for the synthesis of optically active compounds. Sulfones have become important substrates in organocatalysis because of their ability to generate both nucleophilic and electrophilic reaction partners, and because they serve as a precursor to many functional groups (see scheme; E = electrophile).

Reviews

Proteomics/Metabolomics

T. Böttcher, M. Pitscheider,
S. A. Sieber* **2680 – 2698**

Natural Products and their Biological Targets: Proteomic and Metabolomic Labeling Strategies



A marked profile: Various methods have been developed in the field of proteomics and metabolomics in recent years to understand the action and function of proteins and small metabolites in organisms. These methods enable the identification of the targets of natural products in complex proteomes, the characterization of protein activity, and the determination of the function of specific metabolites.

For the USA and Canada:
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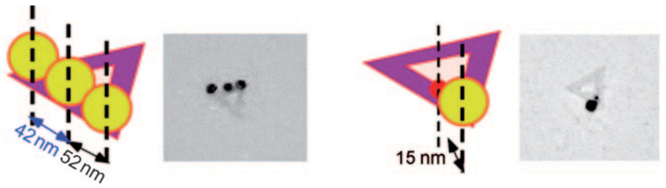
DNA Templates

S. Pal, Z. Deng, B. Ding, H. Yan,*
Y. Liu* ________ **2700 – 2704**

DNA-Origami-Directed Self-Assembly of Discrete Silver-Nanoparticle Architectures

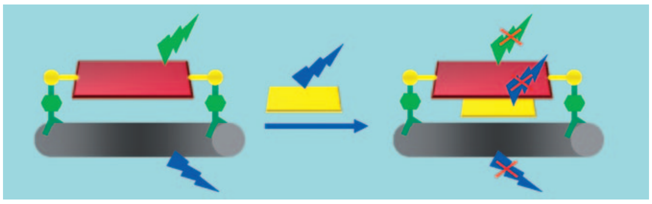


Noble decoration: DNA origami nanostructures (purple) were utilized as spatially addressable templates to organize noble-metal nanoparticles of silver (yellow balls) and gold (red ball) into well-defined discrete architectures (see examples of nanostructure designs and TEM images of the assembled structures).

Molecular Recognition

H. Liu,* Z. Zuo, Y. Guo, Y. Li,
Y. Li* ________ **2705 – 2707**

Supramolecular Interactions at the Inorganic–Organic Interface in Hybrid Nanomaterials

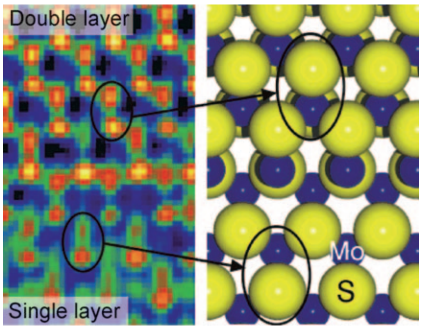


Pickpocket: Perylene can be detected by inorganic–organic nanomaterials comprising ZnO nanorods (gray cylinder) and perylene diimide derivatives (red rectangle). Intercalation of perylene (yellow rectangle) in a molecular pocket at the inorganic–organic interface results in fluorescence quenching of the three components with a detection limit as low as 10^{-12} M.

High-Resolution Microscopy

C. Kisielowski, Q. M. Ramasse,
L. P. Hansen, M. Brorson, A. Carlsson,
A. M. Molenbroek, H. Topsøe,
S. Helveg* ________ **2708 – 2710**

Imaging MoS_2 Nanocatalysts with Single-Atom Sensitivity

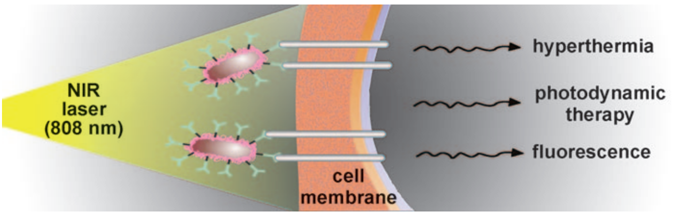


Close up: The atomic arrangement of industrial-style MoS_2 nanocatalysts can be scrutinized by using single-atom-sensitive electron microscopy (see picture). This technique, which provides an excellent agreement between simulation and experiment, allows element detection in compound materials and permits the type and the concentration of the catalytically important edge sites to be estimated.

Nanotechnology

W. S. Kuo,* C. N. Chang, Y. T. Chang,
M. H. Yang, Y. H. Chien S. J. Chen,
C. S. Yeh* ________ **2711 – 2715**

Gold Nanorods in Photodynamic Therapy, as Hyperthermia Agents, and in Near-Infrared Optical Imaging



The best of three worlds: Gold nanorods coated with poly(styrene-*alt*-maleic acid) (see picture; pink), the photosensitizer indocyanine green (black), and antibodies (green “Y”) serve not only as photodynamic therapy and hyperthermia agents to destroy malignant cells, but they also act as optical contrast agents to simultaneously to monitor cells by imaging in the near-IR region.

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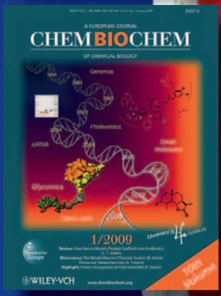

Speakers


Gerhard Ertl
Nobel Prize 2007


Jean-Marie Lehn
Nobel Prize 1987


Roger Y. Tsien
Nobel Prize 2008


Ada Yonath
Nobel Prize 2009


Luisa De Cola


Alan R. Fersht


Marc Fontecave


Michael Grätzel


Michel Orrit


Nicolas Winssinger

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A. R. Fersht, P. Gölitz,
J. T. Hynes, J.-M. Lehn

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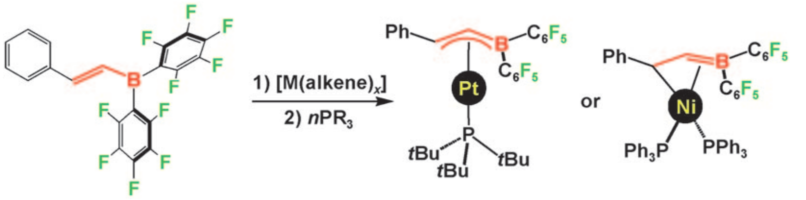
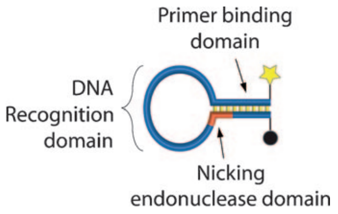


Anyone for pi? The vinylborane PhHC=CH-B$(C_6F_5)_2$ reacts with zero-valent Group 10 transition-metal precursors to form η^3-vinylborane complexes. The platinum tri-*tert*-butylphosphine complex exhibits an η^3-borataallyl-like coordination mode whereas the nickel bis(triphenylphosphine) complex tends towards alkyl/borataalkene coordination.

Vinylborane Complexes

K. B. Kolpin,
D. J. H. Emslie* ______ **2716–2719**

η^3-Vinylborane Complexes of Platinum and Nickel: Borataallyl- and Alkyl/Borataalkene-Like Coordination Modes



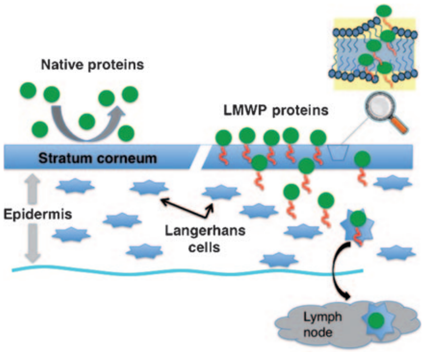
Not bad at all: A simple biological circuit composed of two integrated molecular switches was developed for the detection and amplification of a specific nucleic acid in a biological extract. The nucleic acid is recognized by a molecular beacon, then a DNA polymerase and nicking endonuclease are used to rapidly amplify the signal for sensitive detection of the nucleic acid.

Nanobiotechnology

A. R. Connolly,* M. Trau ______ **2720–2723**

Isothermal Detection of DNA by Beacon-Assisted Detection Amplification

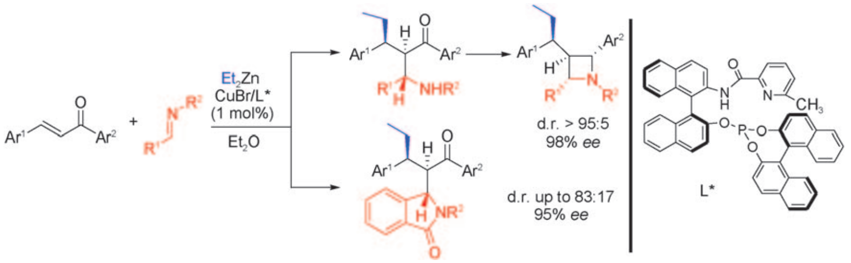
More than skin-deep: Synthetic skin-permeable antigens are constructed by conjugation of the cell-penetrating low-molecular-weight protamine (LMWP) peptide to protein antigens through cleavable disulfide bonds. Such artificial antigens can penetrate the stratum corneum barrier (see picture), thereby sensitizing the skin immune system to elicit robust immune responses.



Drug Delivery

Y. Huang, Y. S. Park, C. Moon, A. E. David,
H. S. Chung, V. C. Yang* ______ **2724–2727**

Synthetic Skin-Permeable Proteins Enabling Needleless Immunization



Michael and Mannich cooperate: A rapid and reliable approach to highly functionalized chiral isoindolindone and azetidine derivatives, possessing multiple contiguous stereogenic centers, has been achieved (see scheme).

Tandem Reactions

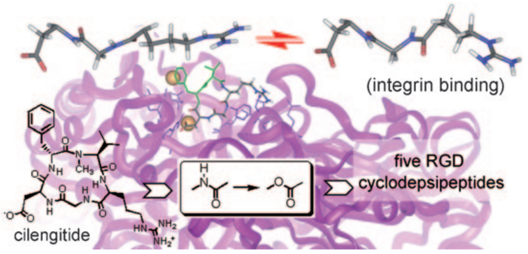
S. Guo, Y. Xie, X. Hu, C. Xia,
H. Huang* ______ **2728–2731**

Diastereo- and Enantioselective Catalytic Tandem Michael Addition/Mannich Reaction: Access to Chiral Isoindolinones and Azetidines with Multiple Stereocenters

Bioorganic Chemistry

T. Cupido,* J. Spengler, J. Ruiz-Rodriguez, J. Adan, F. Mitjans, J. Piulats, F. Albericio* ________ **2732 – 2737**

Amide-to-Ester Substitution Allows Fine-Tuning of the Cyclopeptide Conformational Ensemble

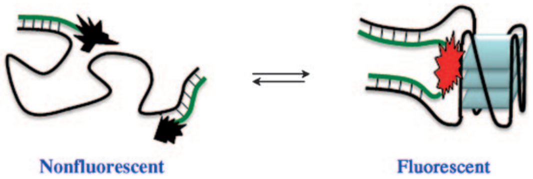


Without affecting the overall 3D structure, amide-to-ester backbone substitution (or ester scan) exerts a pronounced influence on the conformational equilibrium of the RGD cyclopeptide cilengitide and its derivatives (see figure; RGD = Arg-Gly-Asp). The appropriate substitution, which stabilized the receptor-complementary conformations, improved the biological activity of this integrin antagonist.

Quadruplex Sensors

K. Meguellati, G. Koripelly, S. Ladame* ________ **2738 – 2742**

DNA-Templated Synthesis of Trimethine Cyanine Dyes: A Versatile Fluorogenic Reaction for Sensing G-Quadruplex Formation

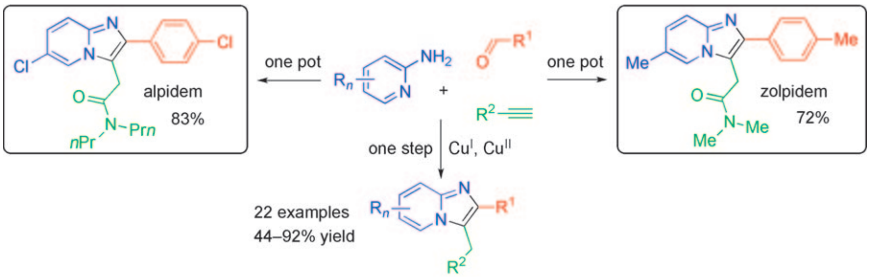


A healthy glow: Fluorogenic peptide nucleic acids (PNAs) functionalized with indoline derivatives are used to specifically sense G-quadruplex formation. Upon hybridization of both PNAs to the single-stranded flanking arms of quadruplex DNA (see scheme), the synthesis of a trimethine cyanine dye is templated. Dye formation can be detected by the appearance of a characteristic fluorescence signal.

Multicomponent Reactions

N. Chernyak, V. Gevorgyan* **2743 – 2746**

General and Efficient Copper-Catalyzed Three-Component Coupling Reaction towards Imidazoheterocycles: One-Pot Synthesis of Alpidem and Zolpidem

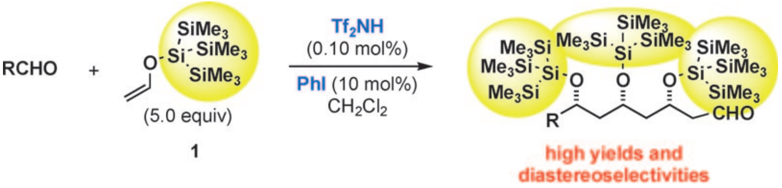


Three is not a crowd: A method for the construction of imidazopyridine, imidazoquinoline, and imidazoisoquinoline frameworks has been developed. The synthetic utility of this method was demonstrated in a highly efficient one-pot synthesis of the drugs alpidem and zolpidem (see scheme).

Cascade Reactions

B. J. Albert, H. Yamamoto* **2747 – 2749**

A Triple-Aldol Cascade Reaction for the Rapid Assembly of Polyketides

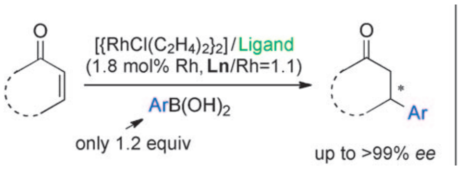


Triple play: The title reaction of **1** with simple aldehydes gives 3,5,7-trisilyloxy aldehydes in high yields and diastereoselectivities with extremely low catalyst loading (see scheme). Iodobenzene facilitates the third aldol reaction by apparently acting as a Lewis base towards the silyl catalyst. Tf = trifluoromethanesulfonyl.

Asymmetric Catalysis

Y. Luo, A. J. Carnell* **2750–2754**

Chemoenzymatic Synthesis and Application of Bicyclo[2.2.2]octadiene Ligands: Increased Efficiency in Rhodium-Catalyzed Asymmetric Conjugate Additions by Electronic Tuning

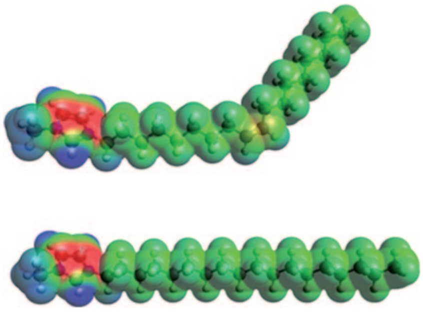


On your bi(cycle)ke! A series of 1,4-dimethyl bicyclic [2.2.2] diene ligands with tunable substitution at the bridge positions was accessed using a lipase resolution and a high yielding six step sequence (see scheme). The bridgehead methyl groups improve efficiency allowing less aryl boronic acid to be used in the title reaction.

Lipidlike Ionic Liquids

S. M. Murray, R. A. O'Brien, K. M. Mattson, C. Ceccarelli, R. E. Sykora, K. N. West,* J. H. Davis, Jr.* **2755–2758**

The Fluid-Mosaic Model, Homeoviscous Adaptation, and Ionic Liquids: Dramatic Lowering of the Melting Point by Side-Chain Unsaturation

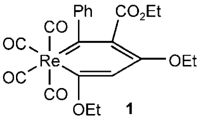


Defying conventional wisdom: Ionic liquids (ILs) with long, unsaturated alkyl appendages (see top structure) defy established trends that link long ion-bound alkyl groups to higher melting points. The new ILs are also less viscous than a saturated standard (see bottom structure) at the same temperature. These features parallel those that underpin homeoviscous adaptation in certain organisms and are indirectly supportive of a fluid-mosaic-like nanoscale character.

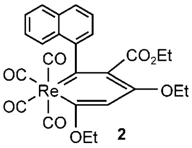
Metallacycles

K. C. Poon, L. Liu, T. Guo, J. Li, H. H. Y. Sung, I. D. Williams, Z. Lin,* G. Jia* **2759–2762**

Synthesis and Characterization of Rhenabenzenes



1



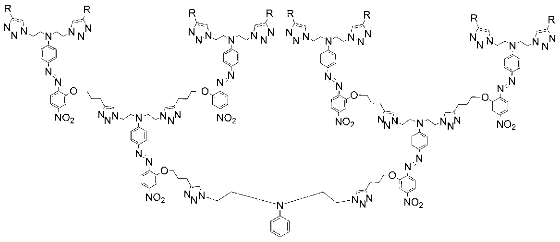
2

Do the Maca-Rhena: Although there are many known stable metallabenzenes that contain a late transition metal, there are no examples of the direct observation of metallabenzenes that contain an early or middle transition metal. The isolation and structural characterization of air-stable rhenabenzenes **1** and **2** (see scheme) are reported.

Dendrimers

Z. Li, W. Wu, Q. Li, G. Yu, L. Xiao, Y. Liu, C. Ye, J. Qin, Z. Li* **2763–2767**

High-Generation Second-Order Nonlinear Optical (NLO) Dendrimers: Convenient Synthesis by Click Chemistry and the Increasing Trend of NLO Effects

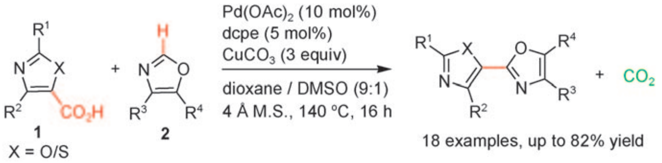


Click it in: Forth and fifth generation dendrimers (see structure), bearing 30 and 62 azobenzene chromophore moieties, respectively, are conveniently prepared in satisfactory yields through a combination of divergent and convergent approaches by using the powerful Sharpless "click" reaction.

Decarboxylative C–H Activation

F. Zhang, M. F. Greaney* — **2768–2771**

Decarboxylative C–H Cross-Coupling of Azoles

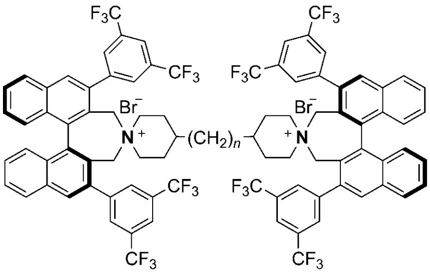


Côte d’Azole: The title reaction demonstrates the use of diverse oxazoles **2** as suitable substrates in cross-coupling reactions with azole-5-carboxylic acids **1** under palladium catalysis in the presence of copper carbonate. The reaction is successful for the synthesis of a range of bis(azole)s, and has been applied to the convergent synthesis of challenging poly azoles (dcpe = bis(dicyclohexylphosphino)ethane, DMSO = dimethyl sulfoxide, M.S. = molecular sieves).

Phase-Transfer Catalysis

M.-Q. Hua, H.-F. Cui, L. Wang, J. Nie, J.-A. Ma* — **2772–2776**

Reversal of Enantioselectivity by Tuning the Conformational Flexibility of Phase-Transfer Catalysts



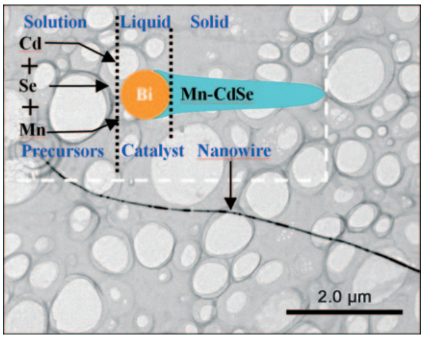
Towards perfect asymmetric catalysis: When binol-derived *N*-spiro quaternary ammonium salts were used as phase-transfer catalysts in the conjugate addition of nitroalkanes to chalcones and its analogues, an intriguing reversal of enantioselectivity was observed. Novel chiral catalysts have been designed and synthesized (see structure).

Doped Nanostructures

Z. Li,* L. N. Cheng, Q. Sun, Z. H. Zhu, M. J. Riley, M. Aljada, Z. X. Cheng, X. L. Wang, G. R. Hanson, S. Z. Qiao, S. C. Smith, G. Q. Lu* — **2777–2781**

Diluted Magnetic Semiconductor Nanowires Prepared by the Solution–Liquid–Solid Method

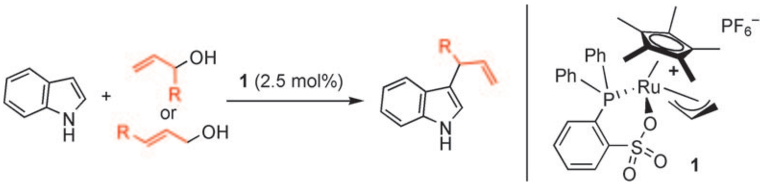
Wiry frame: Manganese-doped cadmium selenide (Mn-CdSe) colloidal nanowires (see picture) exhibit ferromagnetism and good conductivity without any changed to their optical properties. The nanowires are synthesized by a novel solution–liquid–solid approach that offers a low-cost route towards magnetically active quantum wires with excellent potential applications in electronics, photonics, and spintronics.



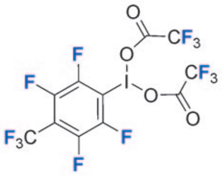
Homogeneous Catalysis

B. Sundararaju, M. Achard, B. Demerseman, L. Toupet, G. V. M. Sharma, C. Bruneau* — **2782–2785**

Ruthenium(IV) Complexes Featuring P,O-Chelating Ligands: Regioselective Substitution Directly from Allylic Alcohols



Branching out: A new ruthenium(IV) complex (**1**), containing a P,O-chelating ligand, is an efficient precatalyst for regioselective allylations starting from various allylic alcohol derivatives.



Hyper-reactive: A highly reactive, fully fluorinated hypervalent iodine reagent (see formula) mediates new transformations (e.g. the one-pot conversion of sulfides to sulfoximines) and serves as a stoichiometric oxidant in well-established reactions (e.g. C–C bond cleavage and the conversion of alcohols into aldehydes).

Hypervalent Iodine Compounds

S. Schäfer, T. Wirth* ______ **2786 – 2789**

A Versatile and Highly Reactive Polyfluorinated Hypervalent Iodine(III) Compound

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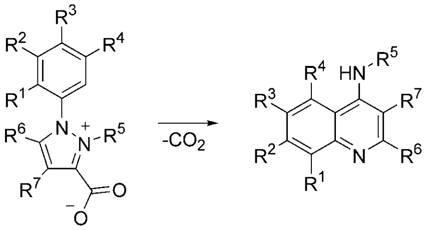


Thermal decarboxylation of 1-phenylpyrazolium-3-carboxylates from the mesomeric betaine class of substances leads to pyrazole-N-heterocyclic carbenes, which immediately rearrange to multiply substituted 4-aminoquinolines (see scheme). These species are of interest for the synthesis of heterocycles and pharmacologically active compounds.

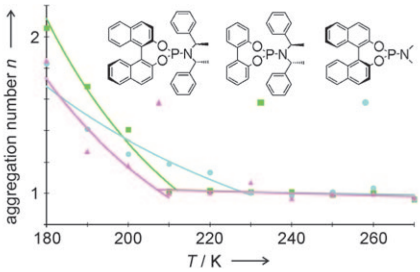
N-Heterocyclic Carbenes

A. Schmidt,* N. Münster,
A. Dreger ______ **2790 – 2793**

Functionalized 4-Aminoquinolines by Rearrangement of Pyrazole N-Heterocyclic Carbenes

---

DOSY awakening: The aggregation trends of phosphoramidite transition-metal complexes, which can catalyze highly enantioselective reactions, can be predicted by a DOSY NMR screening of the free ligands (see picture). This method is valuable for catalyst optimization as no structural knowledge of the complexes is required.



Catalyst Optimization

VIP

K. Schober, E. Hartmann, H. Zhang,
R. M. Gschwind* ______ **2794 – 2797**

^{1}H DOSY Spectra of Ligands for Highly Enantioselective Reactions: A Fast and Simple NMR Method to Optimize Catalytic Reaction Conditions

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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).

Service

The issues for March 2010 appeared online on the following dates
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