

VIP The following Communications have been judged by at least two referees to be "very important papers" and are published online at www.angewandte.org:

C. Wang, H. Daimon, T. Onodera, T. Koda, S. Sun*

A General Approach to the Size- and Shape-Controlled Synthesis of Platinum Nanoparticles and Their Catalytic Reduction of Oxygen

T. J. Greshock, A. W. Grubbs, P. Jiao, J. B. Gloer, R. M. Williams*
Isolation, Structure Elucidation, and Biomimetic Total Synthesis of Versicolamide B and the Isolation of Antipodal (–)-Stephacidin A and (+)-Notoamide B from *Aspergillus versicolor* NRRL 35600

H. Wu, H. Zhu, J. Zhuang, S. Yang, C. Liu, Y. C. Cao*

Water-Soluble Nanocrystals through Dual-Interaction Ligands

Y. V. Geletii, B. Botar,* P. Kögerler, D. A. Hillesheim, D. G. Musaev, C. L. Hill*

An All-Inorganic, Stable, and Highly Active Tetraruthenium Homogeneous Catalyst for Water Oxidation

Z. Liu, A. Kumbhar, D. Xu, J. Zhang, Z. Sun, J. Fang*
Co-Reduction Colloidal Synthesis of III-V Nanocrystals: The Case of InP

Y. H. Sehleier, A. Verhoeven, M. Jansen*

Observation of Direct Bonds Between Carbon and Nitrogen in Si–B–N–C Ceramic After Pyrolysis at 1400 °C

Chemistry, Medicine, and Crime

José Ramón Bertomeu-Sánchez, Agustí Nieto-Galan

Books

reviewed by G. B. Kauffman — 3670

Highlights

C–C Coupling

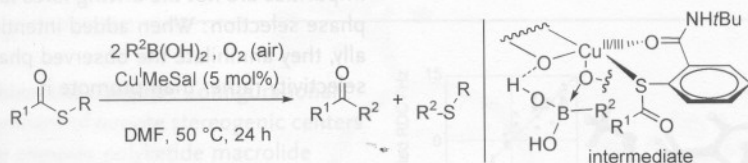
H. Prokopcová,
C. O. Kappe* — 3674–3676

Copper-Catalyzed C–C Coupling of Thiol Esters and Boronic Acids under Aerobic Conditions

Asymmetric Epoxidation

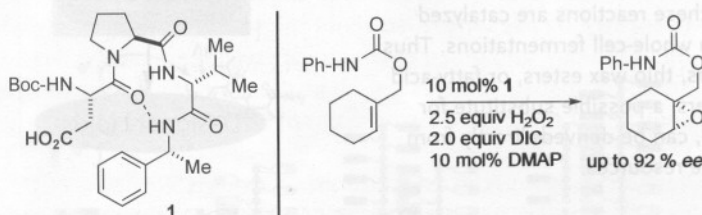
A. Berkessel* — 3677–3679

Asymmetric Epoxidation of Olefins with Hydrogen Peroxide—Catalysis by an Aspartate-Containing Tripeptide



Getting rid of palladium: Thiol esters can be cross-coupled with boronic acids to generate ketones at neutral pH by using a Cu-oxygenate catalyst under aerobic and Pd-free conditions (see scheme; S-pendant = NHtBu thiosalicylamide). The

mechanistically unique coupling is likely to proceed by a preorganized, higher oxidation state Cu species that relies on appropriately positioned ligating S-pendant groups on the thiol ester and on an additional equivalent of the boronic acid.



Oxidation per carboxylic acid: Upon incorporation into a suitable tripeptide, per-aspartate can epoxidize olefins that contain hydrogen-bonding groups with high enantioselectivity (up to 92% ee).

Catalytic asymmetric epoxidation can be effected with hydrogen peroxide as the terminal oxidant and carbodiimide as the stoichiometric activator for multiple acid/peracid turnovers.

Correspondence

Crystal Growth (1)

M. Lahav,* L. Leiserowitz* – 3680–3682

Comments on "Mirror Symmetry Breaking" of the Centrosymmetric CaCO_3 Crystals with Amino Acids

Symmetry violation: Recent results by Tremel and co-workers on the phase selection of calcium carbonate through the chirality of adsorbed amino acids appear to provide a deterministic route to "mirror-symmetry breaking", which may have ramifications for the emergence of

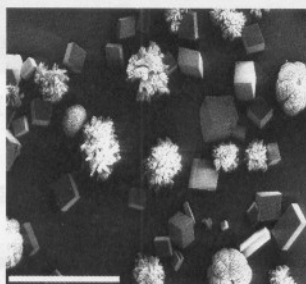
homochirality on Earth. In our view, however, the crystallization experiments violate basic rules of symmetry and we suspect the presence of chemical, biological, or other homochiral or achiral contaminants in the system.

Crystal Growth (2)

N. Loges, S. E. Wolf, M. Panthöfer, L. Müller, M.-C. Reinnig, T. Hoffmann, W. Tremel* – 3683–3686



Reply to "Mirror Symmetry Breaking" of the Centrosymmetric CaCO_3 Crystals with Amino Acids



Like chalk and cheese: Although the model put forward by Lahav and Leiserowitz may be quite reasonable for the crystallization of glycine in the presence of amino acids, it is not the case for the crystallization of CaCO_3 (see picture). In the latter case, the amino acids present cannot be considered to be innocent molecules as they are involved as ligands in the coordination chemistry of Ca^{2+} . New results indicate that homochiral impurities are not the driving force for the phase selection: When added intentionally, they annihilate the observed phase selectivity rather than promote it.

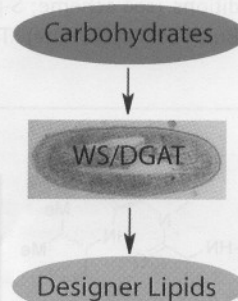
Minireviews

Acyltransferases

T. Stöveken, A. Steinbüchel* – 3688–3694

Bacterial Acyltransferases as an Alternative for Lipase-Catalyzed Acylation for the Production of Oleochemicals and Fuels

The low specificity of bacterial acyltransferases is utilized in the development of numerous biotechnology processes for lipid modification, a field that is dominated by the use of lipases. In contrast to lipases, these reactions are catalyzed in vivo in whole-cell fermentations. Thus wax esters, thio wax esters, or fatty-acid ethyl esters, a possible substitute for biodiesel, can be derived directly from renewable resources.



For the USA and Canada:

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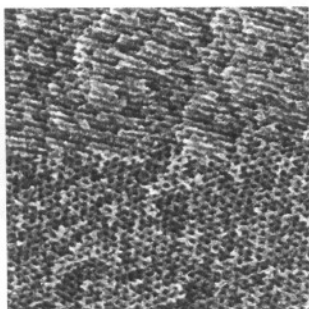
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Reviews

Nanostructured Carbon

C. Liang, Z. Li, S. Dai* — 3696–3717

Mesoporous Carbon Materials: Synthesis and Modification



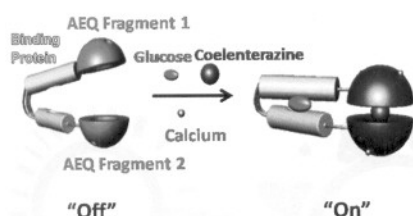
The right combination of new techniques, which use a large variety of hard and soft templates in the controlled synthesis of mesoporous carbon materials with well-defined nanostructures, and surface modification of these materials offers new perspectives for carbon material applications. The picture shows a high-resolution view of the surface structure of a fibrous material formed from phloroglucinol.

Communications

Biotechnology

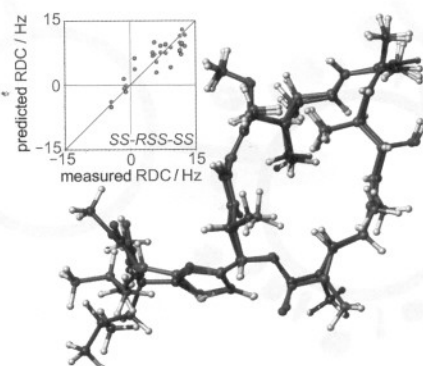
K. Teasley Hamorsky, C. M. Ensor, Y. Wei, S. Daunert* — 3718–3721

A Bioluminescent Molecular Switch For Glucose



Glowing after a sugar rush: A molecular switch is formed by inserting glucose-binding protein (GBP) into aequorin (AEQ; see picture). This switch is triggered by recognition of glucose by the GBP. For the first time, AEQ is rationally split into two fragments that, upon a molecular recognition event, come together and emit bioluminescence.

Combine and conquer: Configurational assignment of remote stereogenic centers in the complex polyketide macrolide archazolid A (see structure; red O, blue N, yellow S) was accomplished by a purely NMR-based approach relying on a combination of nuclear Overhauser effects, *J* couplings, and residual dipolar couplings (RDCs).



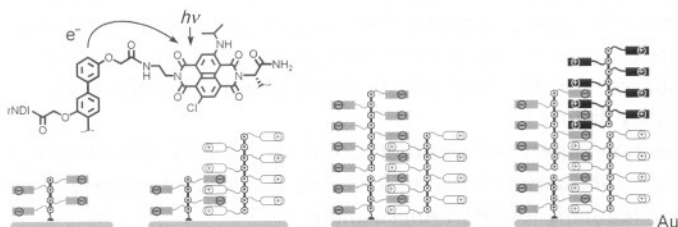
Polyketide Macrolides

C. Farès, J. Hassfeld, D. Menche, T. Carlomagno* — 3722–3726

Simultaneous Determination of the Conformation and Relative Configuration of Archazolid A by Using Nuclear Overhauser Effects, *J* Couplings, and Residual Dipolar Couplings

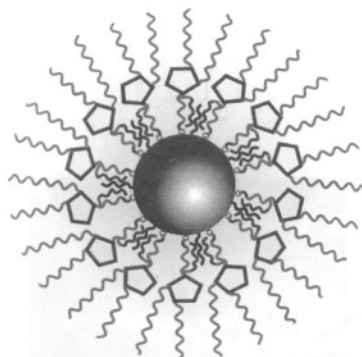
Artificial Photosynthesis

A. L. Sisson, N. Sakai, N. Banerji, A. Fürstenberg, E. Vauthey*, S. Matile* — 3727–3729

Zipper Assembly of Vectorial Rigid-Rod π -Stack Architectures with Red and Blue Naphthalenediimides: Toward Supramolecular Cascade n/p-Heterojunctions


Zippered up: Supramolecular 3D organization on gold with interdigitating intra- and interlayer recognition motifs (see picture, black *p*-oligophenyl rods; red, blue naphthalenediimide (NDI) stacks) is designed

to access supramolecular cascade n/p-heterojunctions or the adaptable directionality needed to control fill factors in current-voltage curves.



No fear of water: Hydrophobic nanocrystals (NCs) are converted into hydrophilic ones by dual-interaction ligands, which bind onto the surface of NCs by coordinate bonding and hydrophobic van der Waals interactions. The resulting NCs have high stability in aqueous solutions over a wide pH range (1–14), salt concentrations, and thermal treatments. Quantum dots coated with these ligands are excellent fluorescence labels for immunostaining tests.

Water-Soluble Nanocrystals

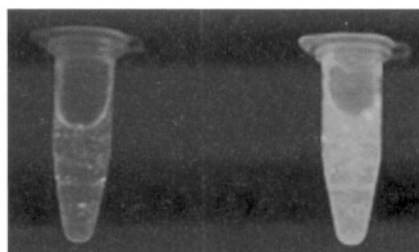
VIP

H. Wu, H. Zhu, J. Zhuang, S. Yang, C. Liu, Y. C. Cao* — 3730–3734

Water-Soluble Nanocrystals Through Dual-Interaction Ligands



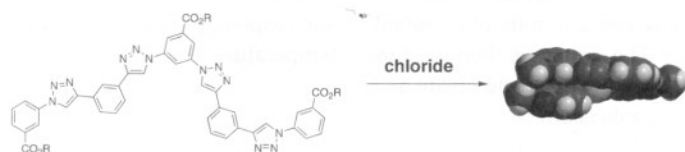
No destaining required: The luminescence properties of an iridium(III)–2-phenylpyridine complex can be utilized for the detection of proteins in sodium dodecyl sulfate–polyacrylamide gels. Emissive gel images obtained upon staining with the complex are visible under UV light. The high detection sensitivity for histidine-rich proteins (right vial, compared to a non-histidine-tagged protein) suggests potential applications in the signaling of biomolecules.



Luminescent Probes

D.-L. Ma, W.-L. Wong, W.-H. Chung, F.-Y. Chan, P.-K. So, T.-S. Lai, Z.-Y. Zhou, Y.-C. Leung, K.-Y. Wong* — 3735–3739

A Highly Selective Luminescent Switch-On Probe for Histidine/Histidine-Rich Proteins and Its Application in Protein Staining



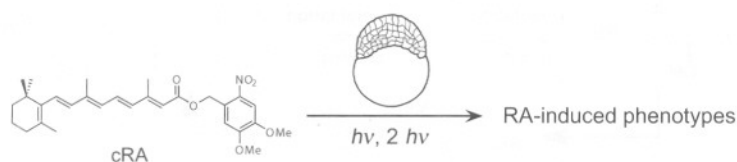
A new folder: The electropositive CH groups of diaryl triazoles interact favourably with chloride, leading to anion-induced helical folding in aryl triazole oligomers. Triazoles thus provide an

alternative to conventional protic hydrogen bonds and coordination complexes as functional components in anion receptors.

Molecular Recognition

H. Juwarker, J. M. Lenhardt, D. M. Pham, S. L. Craig* — 3740–3743

1,2,3-Triazole CH...Cl[−] Contacts Guide Anion Binding and Concomitant Folding in 1,4-Diaryl Triazole Oligomers



Escaping the cage: Retinoic acid (RA), a crucial signaling molecule for the embryogenesis of vertebrates, can be photoreleased from a simple caged derivative (cRA) upon illumination. In zebrafish

embryos, cRA causes RA-induced phenotypes with one- and two-photon excitation (see picture), which opens a route to the noninvasive generation of controlled RA concentration patterns in vivo.

Embryogenesis

P. Neveu, I. Aujard, C. Benbrahim, T. Le Saux, J.-F. Allemand, S. Vrız, D. Bensimon, L. Jullien* — 3744–3746

A Caged Retinoic Acid for One- and Two-Photon Excitation in Zebrafish Embryos



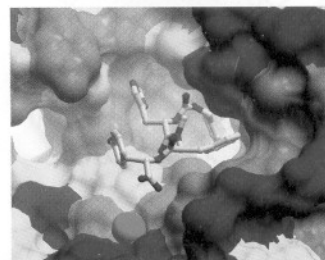
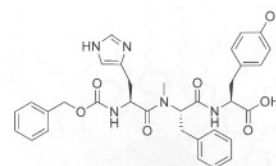
Enzyme Inhibitors

Z. Guo, Y.-W. Wu, K.-T. Tan, R. S. Bon, E. Guiu-Rozas, C. Delon, U. T. Nguyen, S. Wetzel, S. Arndt, R. S. Goody, W. Blankenfeldt, K. Alexandrov,*
H. Waldmann* **3747–3750**



Development of Selective RabGGTase Inhibitors and Crystal Structure of a RabGGTase–Inhibitor Complex

Stopping the transfer: Based on the structure of pepticcinnamin E, specific inhibitors of Rab geranylgeranyl transferase (RabGGTase) with activity in cells were developed, and the first crystal structure of the enzyme in complex with an inhibitor is reported (see inhibitor structure and positioning in the active site of the enzyme). The findings may have implications for the chemical-biological study of Rab prenylation and vesicular transport and the involvement of RabGGTase in the establishment of disease.

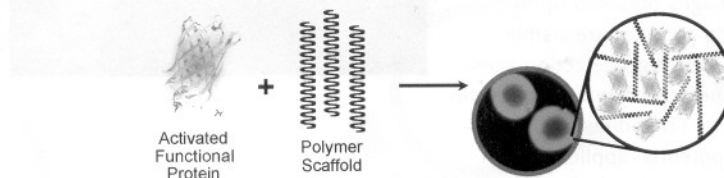


Protein–Polymer Hybrids

A. P. Esser-Kahn,
M. B. Francis* **3751–3754**



Protein–Cross-Linked Polymeric Materials through Site-Selective Bioconjugation



Creating a greener future: A strategy for creating hybrid materials of polymers and proteins relies on orthogonal reactions to activate the N and C termini of a protein concurrently. The protein is then used to cross-link polymer chains and create a

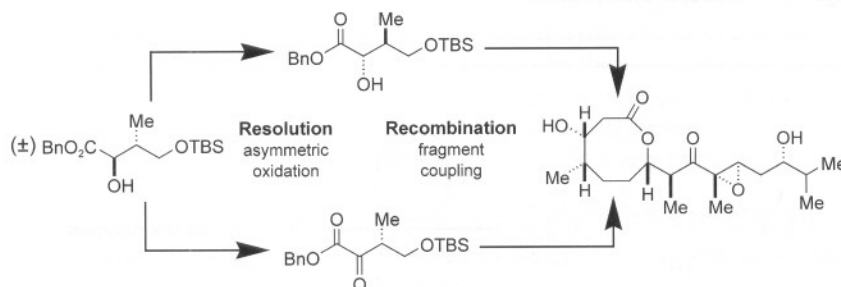
hydrogel (see picture). A model hybrid hydrogel containing enhanced green fluorescent protein is both biodegradable and responsive to changes in pH and temperature.

Kinetic Resolution

A. T. Radosevich, V. S. Chan, H.-W. Shih, F. D. Toste* **3755–3758**

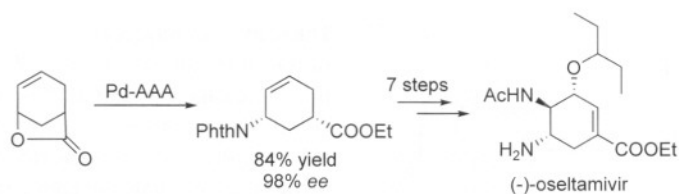


Synthesis of (–)-Octalactin A by a Strategic Vanadium-Catalyzed Oxidative Kinetic Resolution



Both products of the kinetic resolution were used in the resolution/recombination approach shown in the scheme for

the enantioselective total synthesis of (–)-octalactin A. Bn = benzyl, TBS = *tert*-butyldimethylsilyl.



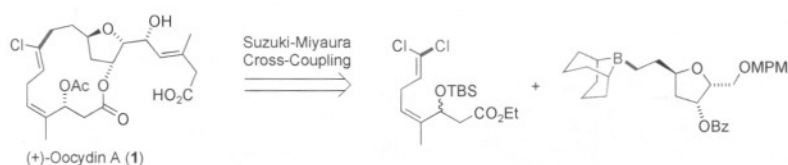
Tackling the supply problem: A short and efficient synthesis of (-)-oseltamivir has been developed which requires eight steps from commercially available starting material and proceeds with an overall yield of 30%. Key transformations include

a novel palladium-catalyzed asymmetric allylic alkylation reaction (Pd-AAA, see scheme) as well as a chemo-, regio-, and stereoselective aziridination reaction. Phth = phthaloyl.

Drug Synthesis

B. M. Trost,* T. Zhang — 3759–3761

A Concise Synthesis of (-)-Oseltamivir



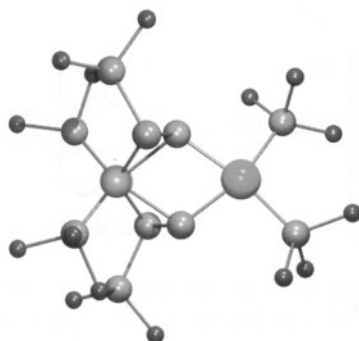
Two sensitive fragments were coupled in the mild title reaction to create the Z-chlorovinyl functionality of the target macrolide oocydin A (1; see scheme). Another highlight in the total synthesis of

1 was an efficient stereoselective Pd⁰-catalyzed cyclization to form the highly substituted tetrahydrofuran ring. Bz = benzoyl, TBS = *tert*-butyldimethylsilyl, MPM = 4-methoxyphenylmethyl.

Natural Product Synthesis

E. Roulland* — 3762–3765

Total Synthesis of (+)-Oocydin A: Application of the Suzuki–Miyaura Cross-Coupling of 1,1-Dichloro-1-alkenes with 9-Alkyl 9-BBN



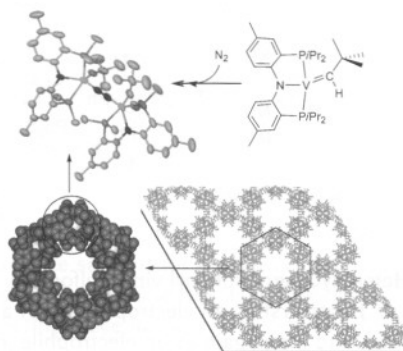
White phosphorus is sequentially activated and functionalized by stepwise reaction with cobalt and platinum metal complexes. The two zwitterionic diphenyl(alkyl)phosphonium(+)diphosphinide(−) molecules generated act as bridging side-on/end-on ligands that tether two different metal units (see picture of the complex core: C black, Co pale green, P orange, Pt green).

P₄ Activation

M. Caporali, P. Barbaro, L. Gonsalvi, A. Ienco, D. Yakhvarov, M. Peruzzini* — 3766–3768

Heterobimetallic Cooperation Mediates the Transformation of White Phosphorus into Zwitterionic *catena*-Phosphonium(+)diphosphinide(−) Ligands

Honeycomb architectures from N₂ sequestration! The V^{III}-bis-neopentyl complex [(PNP)V(CH₂tBu)₂] (PNP = N[4-Me-2-(*Pi*Pr₂)C₆H₃]₂[−]) is a synthon to terminal V^V alkylidene complexes when treated with two-electron oxidants such as N₂CPh₂, O^{2−} sources such as OPPh₃ and N₂O, and sulfide sources like S₈ and SPPH₃. The likely V^{III}-alkylidene intermediate, [(PNP)V=CHtBu], can also activate N₂ to form a honeycomb-like packing rearrangement along the N₂ unit (see picture).



Vanadium(V) Alkylidenes

U. J. Kilgore, C. A. Sengelaub, M. Pink, A. R. Fout, D. J. Mindiola* — 3769–3772

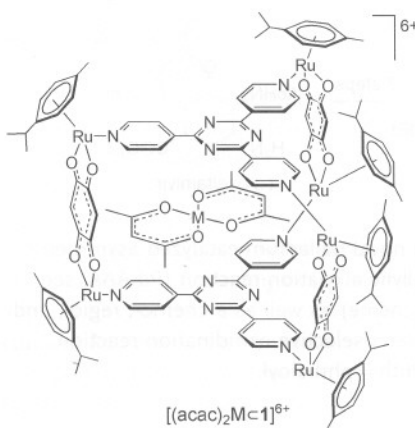
A Transient V^{III}-Alkylidene Complex: Oxidation Chemistry Including the Activation of N₂ to Afford a Highly Porous Honeycomb-Like Framework

Antitumor Agents

B. Therrien,* G. Süss-Fink,
P. Govindaswamy, A. K. Renfrew,
P. J. Dyson ————— 3773–3776



The “Complex-in-a-Complex” Cations
[(acac)₂M⊂Ru₆(*p*-iPrC₆H₄Me)₆-
(tpt)₂(dhbq)₃]⁶⁺: A Trojan Horse for Cancer
Cells



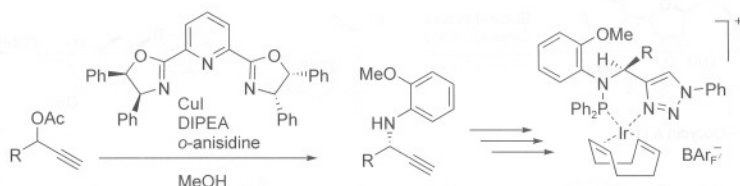
The start of an odyssey? The cytotoxicities of the large cationic arene–ruthenium prismatic cage **1**⁶⁺, and its “complex-in-a-complex” derivatives [(acac)₂M⊂**1**]⁶⁺ (M = Pd, Pt; acac = acetylacetonate; see picture), are evaluated in comparison with free [M(acac)₂]. The differences in cytotoxicity suggest that, like a “Trojan Horse”, leaching of the guest from the cage once inside a cell accelerates and increases the cytotoxic effect.

Asymmetric Catalysis

R. J. Detz, M. M. E. Delville, H. Hiemstra,
J. H. van Maarseveen* — 3777–3780



Enantioselective Copper-Catalyzed
Propargylic Amination



A proper copper catalyst with a chiral pyridine-2,6-bisoxazoline (pybox) ligand was used to convert a variety of propargylic acetates with aromatic side chains (R = Ar) into their amine counter-

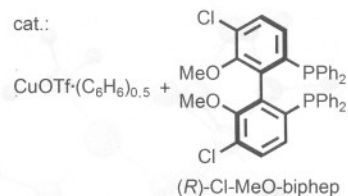
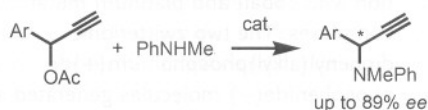
parts in high yield and with good selectivity (up to 88% *ee*). The resulting chiral propargylic amines can be elaborated further into P,N ligands (see scheme; DIPEA = diisopropylethylamine).

Asymmetric Amination

G. Hattori, H. Matsuzawa, Y. Miyake,
Y. Nishibayashi* ————— 3781–3783



Copper-Catalyzed Asymmetric Propargylic
Substitution Reactions of Propargylic
Acetates with Amines



Flexing your bipheps: Enantioselective propargylic substitution reactions of propargylic acetates with amines catalyzed by a copper-(*R*)-Cl-MeO-biphep or -binap complex give the corresponding pro-

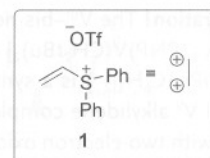
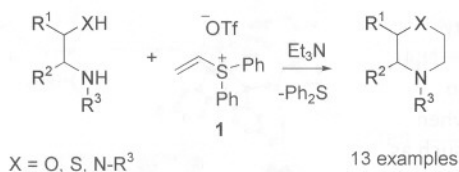
pargylic amines in excellent yields with up to 89% *ee*. The reaction described may provide a novel synthetic method for the preparation of chiral propargylic amines.

Nitrogen Heterocycles

M. Yar, E. M. McGarrigle,
V. K. Aggarwal* ————— 3784–3786

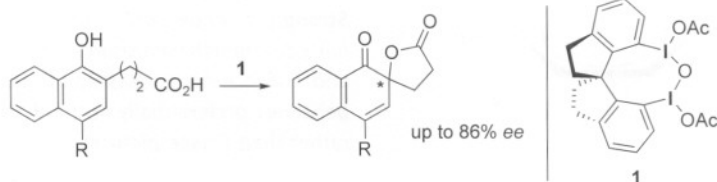


An Annulation Reaction for the Synthesis
of Morpholines, Thiomorpholines, and
Piperazines from β-Heteroatom Amino
Compounds and Vinyl Sulfonium Salts



Heterocycling: Diphenyl vinyl sulfonium salt **1** acts first as an electrophile, then as a base, and then again as an electrophile in this operationally simple, high yielding, one-pot synthesis of pharmacologically

important morpholines, thiomorpholines, and piperazines. Compound **1** is an excellent synthon for the 1,2-ethane dication.



The hype about iodine(III): A chiral hypervalent iodine(III) reagent (**1**) is reported to enantioselectively dearomatize phenols in a highly selective manner

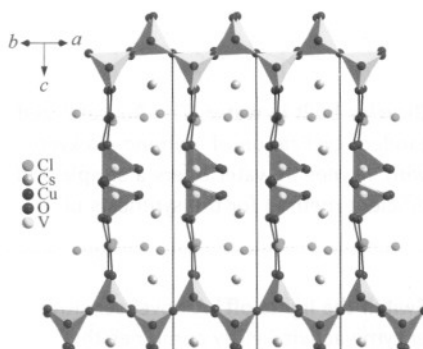
(see scheme). This result clearly supports existence of the associative pathway in hypervalent iodine(III)-induced phenolic oxidations.

Oxidation

T. Dohi, A. Maruyama, N. Takenaga, K. Senami, Y. Minamitsuji, H. Fujioka, S. B. Caemmerer, Y. Kita* — 3787–3790

A Chiral Hypervalent Iodine(III) Reagent for Enantioselective Dearomatization of Phenols

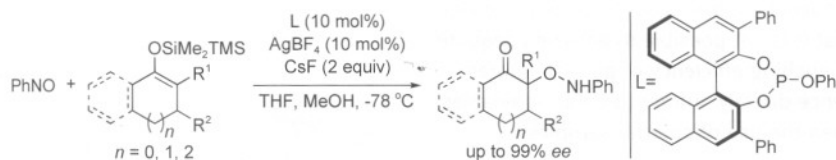
Acentric vanadates: Three unique structure types of the vanadate-based mixed-metal oxide systems (salt)·Mn^{II}·V^V·O and (salt)·Cu^{II}·V^V·O are presented, with a focus on the role of the asymmetric vanadate units (yellow polyhedra). The two structure types found in the (AX)₂M·(VO₃)₂ series differ in the propagation direction of the metavanadate chains, which is thought to be due to the presence (or absence) of a Jahn–Teller distortion of the metal (d⁹ Cu²⁺ vs. d⁵ Mn²⁺) ion.



Noncentrosymmetric Vanadates

W. L. Queen, J. P. West, S.-J. Hwu,* D. G. VanDerveer, M. C. Zarzyczny, R. A. Pavlick — 3791–3794

The Versatile Chemistry and Noncentrosymmetric Crystal Structures of Salt-Inclusion Vanadate Hybrids



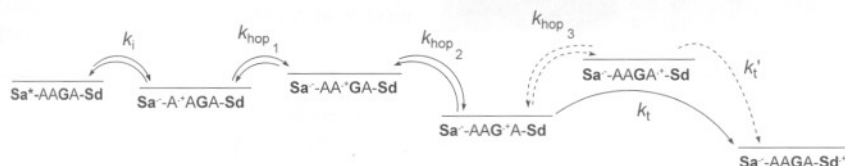
New nucleophiles for the O-nitroso aldol reaction in the form of readily prepared disilyl enol ethers make this transformation more practical and more versatile. A silver catalyst with a chiral biaryl

phosphite ligand promotes the title reaction with high enantio- and regioselectivity (see scheme). R¹, R² = H, Ar; TMS = trimethylsilyl.

Asymmetric Catalysis

M. Kawasaki, P. Li, H. Yamamoto* — 3795–3797

Enantioselective O-Nitroso Aldol Reaction of Silyl Enol Ethers



Stopover at G base: The efficiency of photoinduced charge separation between donor and acceptor chromophores separated by a polyadenine sequence containing a single guanine (G) is sensitive to the location of G and the total length of the

polypurine sequence. Quantum yields provide support for a stepwise mechanism in which G serves as a temporary resting place in the overall process (Sa: stilbenedicarboxamide electron acceptor, Sd: stilbenediether electron donor).

Electron Transfer

F. D. Lewis,* P. Daublain, B. Cohen, J. Vura-Weis, M. R. Wasielewski* — 3798–3800

The Influence of Guanine on DNA Hole Transport Efficiency

P versus C Protonation

Y. Zhang, F. S. Tham, J. F. Nixon, C. Taylor,
J. C. Green, C. A. Reed* — 3801–3804

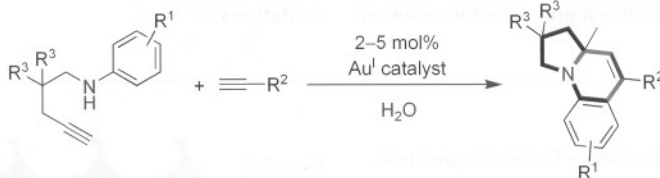


Strong yet gentle: Where triflate reagents fail, carborane-based sources of H^+ , CH_3^+ , and $[\text{R}_3\text{Si}]^+$ electrophiles add to phosphabenzenes preferentially at the P atom rather than C (see picture).

The Low Basicity of Phosphabenzenes:
First Examples of Protonation, Alkylation,
and Silylation Reactions

Gold Catalysis

X.-Y. Liu, C.-M. Che* — 3805–3810



Bicycles built in water: The Au^{I} -catalyzed tandem cyclization of 1-amino-4-alkynes with alkynes in water offers a simple and efficient method for the synthesis of

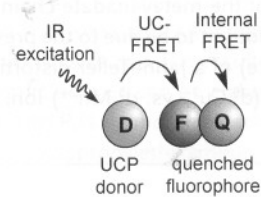
diversely substituted pyrrolo[1,2-*a*]quinolines with good to excellent product yields and excellent regio- and chemoselectivities (see scheme).

Sensors

T. Rantanen,* M.-L. Järvenpää, J. Vuojola,
K. Kuningas, T. Soukka — 3811–3813

Fluorescence-Quenching-Based Enzyme-Activity Assay by Using Photon Upconversion

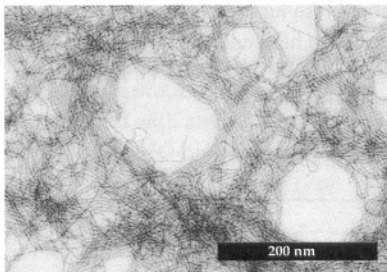
Switch the lights off! A novel sensitive enzyme-activity assay combines the advantageous features of upconverting phosphors (UCPs) and fluorescence quenching. The new assay principle allows the use of fluorescent particulate labels in a quenching-based assay despite the fact that it is not possible to achieve adequate quenching efficiency of particle fluorescence directly. Infrared excitation enables even the use of colorful samples.



Nanostructures

L. Cademartiri, R. Malakooti,
P. G. O'Brien, A. Migliori, S. Petrov,
N. P. Kherani, G. A. Ozin* — 3814–3817

Large-Scale Synthesis of Ultrathin Bi_2S_3 Necklace Nanowires

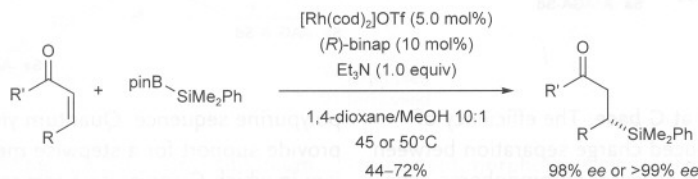


Think thin! Colloidally stable ultrathin Bi_2S_3 nanowires (see picture), which display strong excitonic features never before seen in bismuth chalcogenides and extremely high extinction coefficients, have been synthesized on a gram-scale. Nanostructures such as this are of very high technological potential for thermoelectric applications.

Asymmetric Catalysis

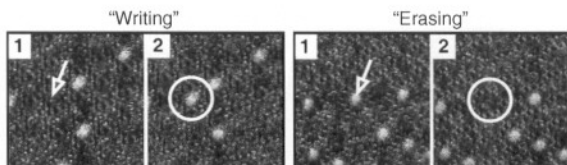
C. Walter, M. Oestreich* — 3818–3820

Catalytic Asymmetric C–Si Bond Formation to Acyclic α,β -Unsaturated Acceptors by Rh^{I} -Catalyzed Conjugate Silyl Transfer Using a Si–B Linkage



A perfect match: The Rh^{I} -catalyzed conjugate silylation of acyclic *Z*-configured α,β -unsaturated carboxyl compounds including imides with silylboronic ester

yields almost enantiopure α -chiral quaternary silanes (see scheme; *R* = aryl and (branched) alkyl, cod = cycloocta-1,5-diene, pin = pinacolato).



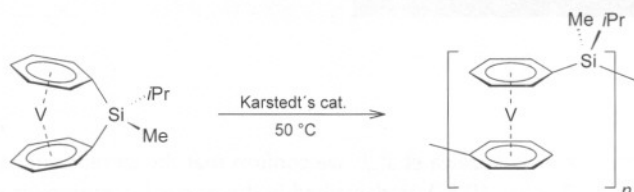
Now you see it, now you don't: A molecular monolayer polymorph of an oligopyridine forms a host–guest network with copper(II) phthalocyanine at the solid–liquid interface with controllable phthalocyanine occupation. The slow

movement of the phthalocyanine guest molecules and the competition between oligopyridine and phthalocyanine guest molecules make it possible to manipulate individual guest molecules in analogy to “writing” and “erasing”.

Host–Guest Chemistry

C. Meier, K. Landfester, D. Künzel,
T. Markert, A. Groß,
U. Ziener* 3821–3825

Hierarchically Self-Assembled Host–Guest Network at the Solid–Liquid Interface for Single-Molecule Manipulation



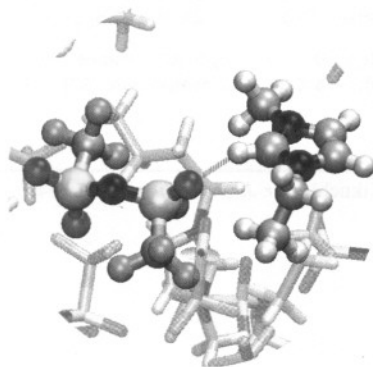
Salt-elimination reactions led to the formation of highly strained [1]bora- and [1]silavanadoarenophanes, which undergo different types of ring-opening reactions with low-valent platinum complexes. Whereas the boron-bridged deri-

vative opened stoichiometrically by cleavage of the V–C_{arene} bond, the [1]silavanadoarenophane reacted at the Si–C_{ipso} bond to afford a polymer containing spin-active metal centers in the main chain (see scheme).

Ansa Complexes

H. Braunschweig,* C. J. Adams, T. Kupfer,
I. Manners, R. M. Richardson,
G. R. Whittell 3826–3829

Synthesis of a Paramagnetic Polymer by Ring-Opening Polymerization of a Strained [1]Vanadoarenophane



Bending and stretching: The nature of intermolecular interactions in imidazolium-based ionic liquids has been studied by far-infrared spectroscopy. The lowest frequencies can be assigned to the bending and stretching vibrational modes of the cation–anion interaction, which describes the cohesion energy.

Ionic Liquids

K. Fumino, A. Wulf,
R. Ludwig* 3830–3834

The Cation–Anion Interaction in Ionic Liquids Probed by Far-Infrared Spectroscopy

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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Corrigendum

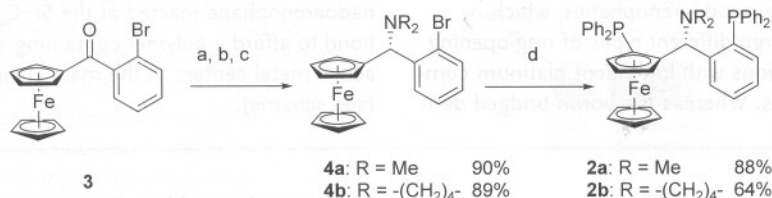
Ferrocenyl Ligands with Two Phosphanyl Substituents in the α,ϵ Positions for the Transition Metal Catalyzed Asymmetric Hydrogenation of Functionalized Double Bonds

T. Ireland, G. Grossheimann, C. Wieser-Jeunesse, P. Knochel _____ 3212–3215

Angew. Chem. Int. Ed. **1999**, 38

DOI 10.1002/(SICI)1521-3773
(19991102)38:21 < 3212::AID-ANIE3212 > 3.0.CO;2-9

Following a remark by Fukuzawa et al.,^[1] we confirm that the stereochemistry of ferrocenyl ligands **2** is not (*R,S_{FC}*) as described in the original communication, but (*R,R_{FC}*) as indicated by the X-ray structure of the [Rh(nbd)(**2a**)]BF₄ complex included in the manuscript. Thus, the ferrocene derivatives **2a** and **2b** have (*R,R_{FC}*) configuration (Scheme 1).



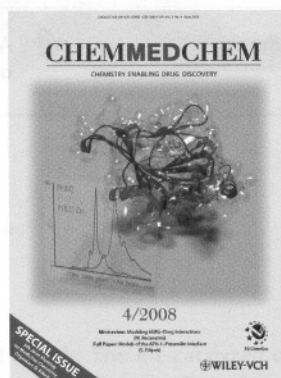
Scheme 1. a) CBS catalyst (0.3 equiv), BH₃-Me₂S, 0°C, 2 h; b) Ac₂O, pyridine, 12 h; c) HNR₂, CH₃CN, H₂O, 12 h; d) *t*BuLi (3.5 equiv), -78°C to room temperature (RT), 1 h; then ClPPh₂ (2.5 equiv), -78°C to RT, 1 h.

[1] S. Fukuzawa, M. Yamamoto, M. Hosaka, S. Kikuchi, *Eur. J. Org. Chem.* **2007**, 5540.

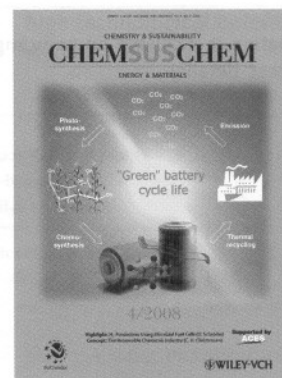
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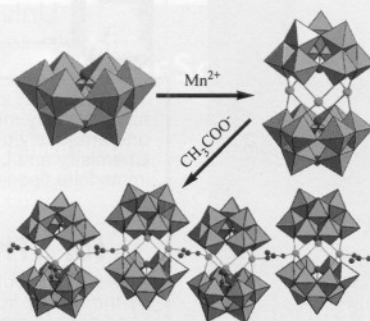
Polyoxometalates

J.-P. Wang, P.-T. Ma, J. Li, H.-Y. Niu, J.-Y. Niu*

Self-Assembly of $[B-SbW_9O_{33}]^{9-}$ Subunit with Transition Metal Ions (Mn^{2+} , Cu^{2+} , Co^{2+}) in Aqueous Solution: Syntheses, Structures and Magnetic Properties of Sandwich Type Polyoxometalates with Subvalent Sb^{III} Heteroatom

Chem. Asian J.

DOI: 10.1002/asia.200700363



Fast-food chains: A series of new 1D, 2D, or 3D extended structural sandwiched compounds built from $B-\alpha-[SbW_9O_{33}]^{9-}$ or $B-\beta-[SbW_9O_{33}]^{9-}$ building blocks (see figure) can be prepared by rational self-assembly being interconnected by either a carboxylate-bridge or a transition-metal covalent bond.

Directed Evolution

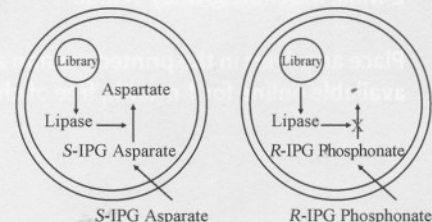
Y. L. Boersma, M. J. Dröge, A. M. van der Sloot, T. Pijning, R. H. Cool, B. W. Dijkstra, W. J. Quax*

A Novel Genetic Selection System for Improved Enantioselectivity of *Bacillus subtilis* Lipase A

ChemBioChem

DOI: 10.1002/cbic.200700754

Enhancing enzyme enantioselectivity: A novel method for selecting enzymes with altered enantioselectivity was developed. A mutant library of lipases transformed to an *E. coli* aspartate auxotroph was grown on (S)-(+)-IPG-aspartate ester. Dual selection by using an (R)-(-)-IPG phosphonate inhibitor was shown to increase selection pressure towards improved enantioselectivity to (S)-(+)-IPG.



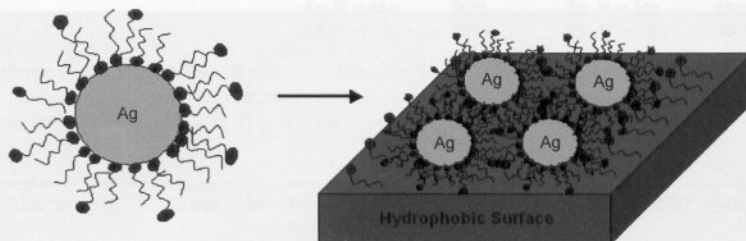
Nanocavities

M. Kahraman, N. Tokman, M. Çulha*

Silver Nanoparticle Thin Films with Nanocavities for Surface-Enhanced Raman Scattering

ChemPhysChem

DOI: 10.1002/cphc.200800007



Nanocavities: The presence of nanometer-sized gaps between silver nanoparticles is critical for optimum enhancement in surface-enhanced Raman scattering (SERS). In thin films prepared on hydro-

phobic surfaces from concentrated silver colloidal suspensions, such gaps are generated using cationic surfactant molecules as spacers (see picture).

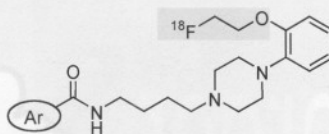
Imaging Agents

C. Hocke,* O. Prante, I. Salama, H. Hübner, S. Löber, T. Kuwert, P. Gmeiner

^{18}F -Labeled FAUC 346 and BP 897 Derivatives as Subtype-Selective Potential PET Radioligands for the Dopamine D3 Receptor

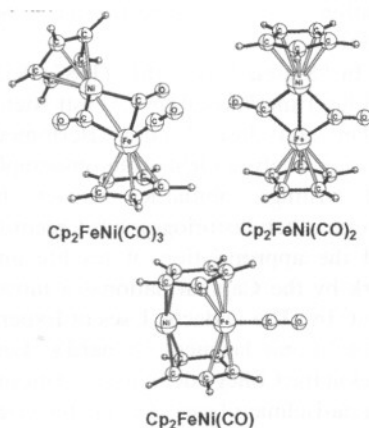
ChemMedChem

DOI: 10.1002/cmdc.200700327



The dopamine D3 receptor has attracted special attention in recent year because of its potential importance in psychiatric illness. However, there exists a lack of subtype-selective ligands for the D3 receptor. Based on 3D-QSAR models predicting subtype selectivities of dopaminergic test compounds, the $[^{18}F]$ labeled D3 receptor ligands $[^{18}F]$ 4a-d were synthesized and tested in vitro.

Using density functional theory (BP86) the global minima of both $\text{Cp}_2\text{FeNi}(\text{CO})_3$ and $\text{Cp}_2\text{FeNi}(\text{CO})_2$ are found to have two bridging CO groups. The coaxial structure of $\text{Cp}_2\text{FeNi}(\text{CO})$ prefers an open-shell high spin state whereas the isoelectronic $\text{Cp}_2\text{Co}_2(\text{CO})$ prefers a closed shell state with a $\text{Co}\equiv\text{Co}$ triple bond. However, the global minimum for the monocarbonyl is a singlet perpendicular $\text{Cp}_2\text{FeNi}(\text{CO})$ structure with an iron-bonded terminal CO group.

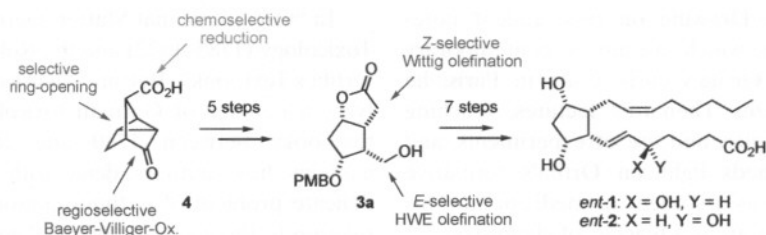


Multiple Metal–Metal Bonds

J. D. Zhang, Z. Chen, R. B. King, H. F. Schaefer, I.

Comparison of Isoelectronic Heterometallic and Homometallic Binuclear Cyclopentadienylmetal Carbonyls: The Iron–Nickel vs. the Dicobalt Systems

Eur. J. Inorg. Chem.
DOI: 10.1002/iejic.200701065



The all-*cis* substituted Corey lactone analogue **3a** was synthesized by a five-step sequence starting from enantiomerically pure nortricyclanone **4**. Further applica-

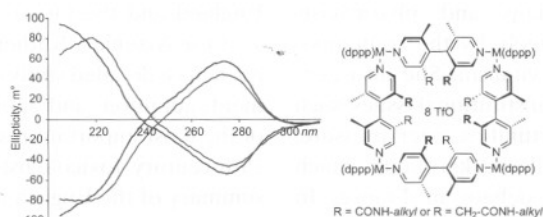
tion of this chiral building block is demonstrated in the total syntheses of two diastereomeric isoprostanes belonging to the 5- F_2 family (*ent*-**1** and *ent*-**2**).

Isoprostane Synthesis

P. Elsner, P. Jetter, K. Brödner, G. Helmchen*

Stereoselective Synthesis of a *cis*-1,2-Dialkylcyclopentane Building Block and Its Application in Isoprostane Synthesis (5-*ent*- $\text{F}_{2\text{C}}$ -IsoP)

Eur. J. Org. Chem.
DOI: 10.1002/ejoc.200800010



A preferred choice: Prochiral 3,3',5,5'-tetramethyl-4,4'-bipyridine can be converted into two types of axially chiral 4,4'-bipyridine compounds, separable into enantiomers by chiral HPLC. The obtained enantiopure bipyridines were sufficiently

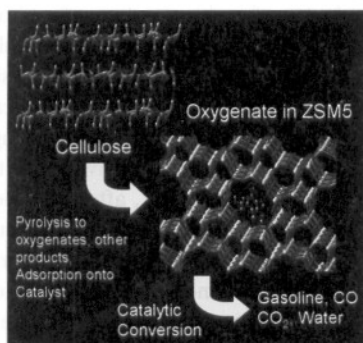
stable in solution to be used in the self-assembly of chiral metallo-supramolecular squares, which reveal a remarkable preference for one of ten possible structures.

Supramolecular Chemistry

A. Rang, M. Engeser, N. M. Maier, M. Nieger, W. Lindner, C. A. Schalley*

Synthesis of Axially Chiral 4,4'-Bipyridines and Their Remarkably Selective Self-Assembly into Chiral Metallo-Supramolecular Squares

Chem. Eur. J.
DOI: 10.1002/chem.200800113



A fuelling success: High-quality aromatic fuel additives can be produced directly from solid biomass feedstocks by catalytic fast pyrolysis in a single catalytic reactor at short residence times. High heating rates and catalyst-to-feed ratios are needed to ensure that pyrolyzed biomass compounds enter the pores of the ZSM5 catalyst and that thermal decomposition is avoided. Product selectivity is a function of the active site and pore structure of the catalyst.

Heterogeneous Catalysis

T. R. Carlson, T. P. Vispute, G. W. Huber*

Green Gasoline by Catalytic Fast Pyrolysis of Solid Biomass Derived Compounds

ChemSusChem
DOI: 10.1002/cssc.200800018