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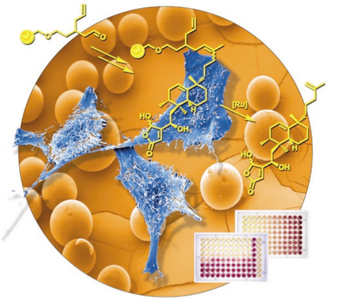
Pages 195–370

COVER PICTURE

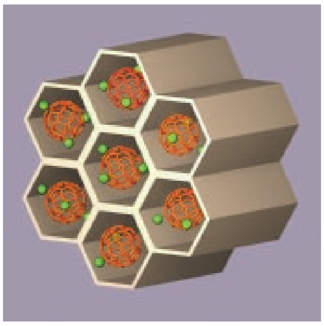
The cover picture shows schematically the 11-step synthesis of 6-*epi*-dysidiolide on a solid support. By means of this extraordinarily demanding and long solid-phase synthesis a small library of analogues of the Cdc25 protein phosphatase inhibitor dysidiolide was synthesized. This synthesis demonstrates that the solid-phase synthesis of natural products and compound libraries derived from them is feasible. This is a decisive cornerstone of a new principle for enhancing the efficiency of the hit- and lead-finding processes in pharmaceutical research based on natural products and their interaction with protein domains. Electron microscopy pictures of polymer beads and tumor cells are shown in the background. A 2-nm-thick gold layer was vaporized on to the resin beads. Tumor cells floating in front of the beads were employed in a cytotoxicity assay. The results of the assay are readily seen on the microtiter plates with the naked eye: living cells reduce a yellow tetrazolium salt to a red-violet dye. A detailed description of the study is reported by H. Waldmann et al. on p. 307 ff.



REVIEWS

Contents

Semiconductors, fuel cells, and stoichiometric electron acceptors are just three of the applications of non-silica mesoporous materials which have novel electronic and electrooptical properties. The chemical composition of these materials is as varied as their chemistry and encompasses structures based on transition metal oxides, sulfides, and selinides, and the incorporation of alkali metal fullerides and metallocenes. The picture shows a niobium oxide host with incorporated K_3C_{60} units which form a one-dimensional wire within the pores of the oxide framework.

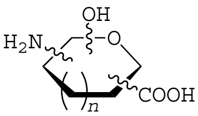


Keywords: electronic properties · mesoporous materials · semiconductors · solid-state structures · template synthesis

Angew. Chem. **2002**, *114*, 222–238

1433-7851/02/4102-0197 $ 17.50+.50/0

Sugar–amino acid hybrids combine the molecular features of amino acids and carbohydrates. These hybrids (see picture) are attractive building blocks and scaffolds for combinatorial synthesis because of their polyfunctional nature. Oligomerization and derivatization of these hybrids have resulted in novel glycomimetics, peptidomimetics, and biopolymers, many of which are biologically active.



Angew. Chem. **2002**, *114*, 240–264

F. Schweizer* 230–253

Glycosamino Acids: Building Blocks for Combinatorial Synthesis—Implications for Drug Discovery

Keywords: combinatorial chemistry · glycoconjugates · glycomimetics · peptidomimetics · sugar amino acids

ESSAY

Alzheimer's disease, type II diabetes, Creutzfeldt–Jakob disease, and amyloid-related diseases: In each of these pathological situations, well-folded proteins undergo an irreversible transition from the "correctly folded" state to a collapsed β-sheet-rich structure. Here it is suggested that the aggregated form represents a global minimum in Gibbs energy for ensembles of protein molecules in general, and that at an infinite time *any* protein solution above a critical concentration will eventually undergo structural transition into the aggregated state.

Angew. Chem. **2002**, *114*, 267–269

E. Gazit* 257–259

The "Correctly Folded" State of Proteins: Is It a Metastable State?

Keywords: aggregation · amyloidosis · protein folding · proteins

VIPs

The following communications are "Very Important Papers" in the opinion of two referees. They will be published shortly (those marked with a diamond will be published in the next issue). Short summaries of these articles can be found on the *Angewandte Chemie* homepage at the address http://www.angewandte.com

Gold–Xenon Complexes

T. Drews, S. Seidel, K. Seppelt* ◆

Iron-Catalyzed Polyethylene Chain Growth on Zinc: Linear α-Olefins with a Poisson Distribution

G. J. P. Britovsek, S. A. Cohen, V. C. Gibson,* P. J. Maddox, M. van Meurs* ◆

The Uronium/Guanidinium Peptide Reagents: Finally the True Uronium Salts

L. A. Carpino,* H. Imazumi, A. El-Faham, F. J. Ferrer, C. Zhang, Y. Lee, B. M. Foxman, P. Henklein, C. Hanay, C. Mügge, H. Wenschuh, J. Klose, M. Beyermann, M. Bienert ◆

Nonrelaxable Anisotropic Organization of Organic-Inorganic Hybrid Materials Induced by an Electric Field

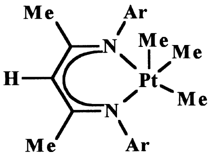
G. Cerveau, R. J. P. Corriu,* E. Framery, S. Ghosh, M. Nobili

A Nanoporous Metal-Organic Framework Based on Bulky Phosphane Ligands

X. Xu, M. Nieuwenhuyzen, S. L. James*

HIGHLIGHT

A breakthrough in understanding hydrocarbon activation by platinum complexes has been achieved by two research groups who report the isolation of model compounds **1** and **2** for the proposed unsaturated platinum(IV) complex intermediates.



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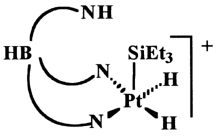


2

Angew. Chem. **2002**, *114*, 271–273

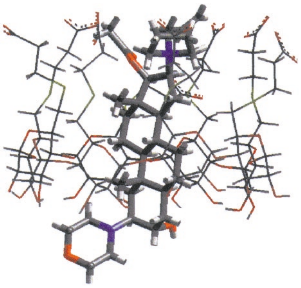
R. J. Puddephatt* 261–263

Coordinative Unsaturation in Platinum(IV) Chemistry: From Proposed Reaction Intermediates to the First Structurally Characterized Complexes

Keywords: C–C activation · C–H activation · coordination chemistry · homogeneous catalysts · platinum

COMMUNICATIONS

Superior to current clinically used reversal agents in terms of efficacy and side effects: The formation of a high-affinity host–guest binary complex (association constant K_a: ca. $10^7\,\text{M}^{-1}$) between the aminosteroidal guest molecule rocuronium bromide, the most widely used neuromuscular blocking agent in surgery, and a cyclodextrin-based synthetic host molecule (see X-ray crystal structure) results in reversal of the neuromuscular blockade induced by rocuronium bromide.



Angew. Chem. **2002**, *114*, 276–280

A. Bom, M. Bradley, K. Cameron, J. K. Clark, J. van Egmond, H. Feilden, E. J. MacLean, A. W. Muir, R. Palin, D. C. Rees, M.-Q. Zhang* 265–270

A Novel Concept of Reversing Neuromuscular Block: Chemical Encapsulation of Rocuronium Bromide by a Cyclodextrin-Based Synthetic Host

Keywords: cyclodextrins · drug design · host–guest systems · medicinal chemistry · neuromuscular blockers

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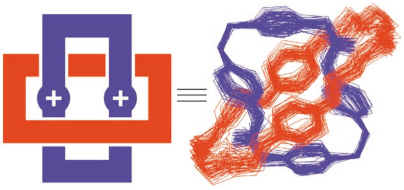
A dicationic macrocycle containing two NH_2^+ centers can insert itself spontaneously inside bisparaphenylene[34]crown-10 to form a highly ordered, stable, 1:1 complex in solution, as well as in the solid state (see picture). The self-assembly of this superstructure, wherein the mean planes of the two macrocycles are aligned approximately orthogonally to one another, augurs well for the use of supramolecular assistance to covalent synthesis in the construction of interlocked molecular compounds beyond catenanes and rotaxanes.



Angew. Chem. **2002**, *114*, 280–284

S.-H. Chiu, A. R. Pease, J. F. Stoddart,* A. J. P. White, D. J. Williams* . 270–274

A Ring-in-Ring Complex

Keywords: crown compounds · hydrogen bonding · molecular recognition · self-assembly

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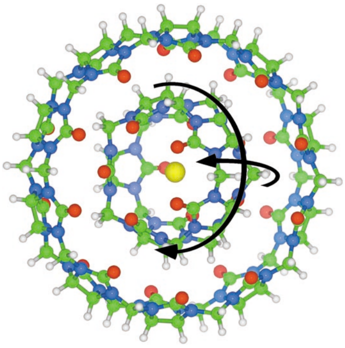
Concentric rotating and precessing macrocycles: The crystal structure of the inclusion complex of cucurbit[5]uril within cucurbit[10]uril shows the macrocycles to be concentric but not coaxial, and with a chloride ion at the center (see structure). Both rings rotate freely relative to each other in solution, as shown by NMR spectroscopy. The facile axial and precessive motion of the inner ring relative to the outer ring represents the molecular analogy of the gyroscope.



Angew. Chem. **2002**, *114*, 285–287

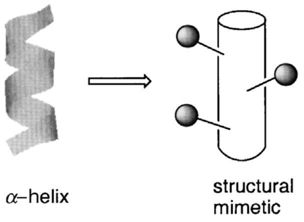
A. Day,* R. J. Blanch,* A. P. Arnold, S. Lorenzo, G. R. Lewis, I. Dance 275–277

A Cucurbituril-Based Gyroscane: A New Supramolecular Form

Keywords: host–guest systems · molecular machines · nanostructures · self-assembly · supramolecular chemistry

1433-7851/02/4102-0199 $ 17.50+.50/0

Low micromolar inhibition of HIV-1 fusion into host cells has been achieved by using a small molecule antagonist for the disruption of the gp41 core that was designed by mimicry of the α-helical 4-3 hydrophobic repeat regions (see schematic representation).



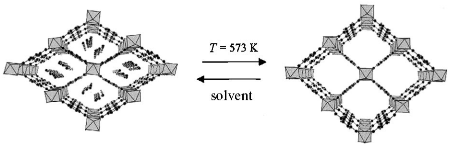
J. T. Ernst, O. Kutzki, A. K. Debnath, S. Jiang, H. Lu, A. D. Hamilton* 278–281

Design of a Protein Surface Antagonist Based on α-Helix Mimicry: Inhibition of gp41 Assembly and Viral Fusion

Keywords: drug design · HIV · proteins · proteomimetics

Angew. Chem. **2002**, *114*, 288–291

Breathtaking are the highly magnetic and porous vanadocarboxylates ($T_N = 95$ K) MIL-47as (left) and evacuated MIL-47 (right) that exhibit three-dimensional large-pore structures built up from infinite chains of corner-sharing $V^{III}O_4(OH)_2$ (MIL-47as) and $V^{IV}O_6$ (MIL-47) octahedra linked by rigid terephthalate anions. The reversible adsorption–desorption corresponds to a breathing of the structure. The high T_N value results from the combination of magnetic chains with the presence of the π electrons of the terephthalate.



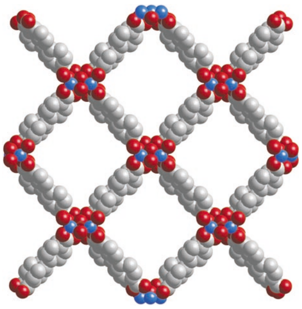
K. Barthelet, J. Marrot, D. Riou,* G. Férey 281–284

A Breathing Hybrid Organic–Inorganic Solid with Very Large Pores and High Magnetic Characteristics

Keywords: carboxylate ligands · magnetic properties · microporous materials · organic–inorganic hybrid composites · vanadium

Angew. Chem. **2002**, *114*, 291–294

Interlinked Zn-O-C infinite secondary building units (SBUs) form the basis of the novel metal-organic frameworks (MOFs) $[Zn_3(OH_2)(X)_2] \cdot 4\,DEF \cdot 2\,H_2O$ (MOF-69A: X = 4,4′-biphenyldicarboxylate; MOF-69B: X = 2,6-naphthalenedicarboxylate; DEF = *N,N′*-diethylformamide). The nature of the infinite SBUs results in frameworks (structure of MOF-69A depicted) wherein catenation is forbidden.



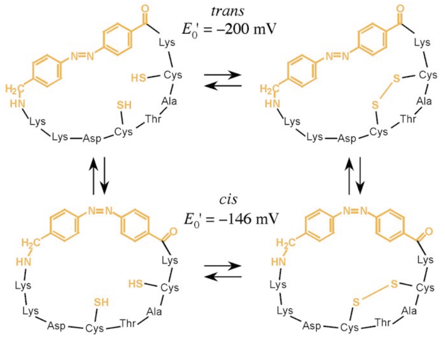
N. L. Rosi, M. Eddaoudi, J. Kim, M. O'Keeffe, O. M. Yaghi* ... 284–287

Infinite Secondary Building Units and Forbidden Catenation in Metal-Organic Frameworks

Keywords: carboxylate ligands · copolymerization · interpenetration · secondary building units · zeolite analogues · zinc

Angew. Chem. **2002**, *114*, 294–297

The conformational transition of the disulfide-bridged bicyclic peptide (see picture) and of the related reduced monocyclic peptide induced by photoisomerization of the azobenzene moiety is responsible for significant differences in the redox properties. These can be exploited for photomodulation of rates and yields of in vitro oxidative folding of reduced and denatured RNase A as a model protein.



A. Cattani-Scholz, C. Renner, C. Cabrele, R. Behrendt, D. Oesterhelt, L. Moroder* 289–292

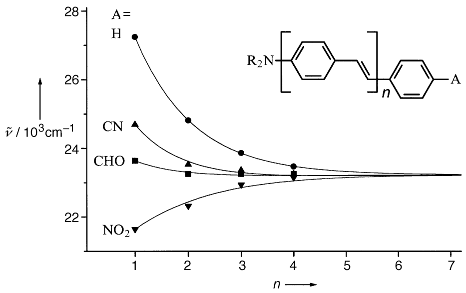
Photoresponsive Cyclic Bis(cysteinyl)peptides as Catalysts of Oxidative Protein Folding

Keywords: azo compounds · conformation analysis · isomerization · peptides · redox chemistry

Angew. Chem. **2002**, *114*, 299–302

1433-7851/02/4102-0200 $ 17.50+.50/0

Hypsochromic or bathochromic? Depending upon the acceptor group (A = H, CN, CHO, NO_2) the position and intensity of the absorption maxima of a series of substituted oligo(phenylenevinylene)s change (see picture). Supported by semiempirical calculations, the extent and direction of the shift (hypsochromic or bathochromic) is attributable to the opposing effects of length of conjugation and charge transfer.



Angew. Chem. **2002**, *114*, 302–306

H. Meier,* J. Gerold, H. Kolshorn,
W. Baumann,* M. Bletz 292–295

Oligo(phenylenevinylene)s with Terminal Donor–Acceptor Substitution

Keywords: absorption · conjugation · donor–acceptor systems · oligomers · semiempirical calculations

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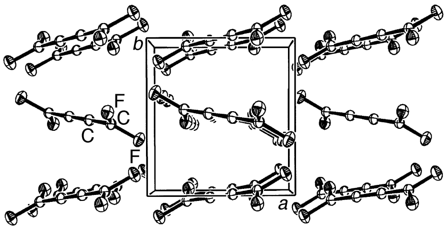

Despite its high instability, the cumulene 1,1,4,4-tetrafluorobutatriene was obtained in a crystalline form. Its X-ray structure characterization revealed the presence of a herringbone motif in the solid state (see picture). Experimental and calculated charge desity distributions show, as expected, that the central double bond is shorter and displays a higher charge density than the two outer double bonds.

Angew. Chem. **2002**, *114*, 311–314

A. Bach, D. Lentz,* P. Luger,*
M. Messerschmidt, C. Olesch,
M. Patzschke 296–299

Crystal Structure Analysis of 1,1,4,4-Tetrafluorobutadiene and Experimental Determination of the Charge Density of 1,1,4,4-Tetrafluorobutatriene

Keywords: charge density · C–C coupling · cumulenes · solid-state structures · X-ray diffraction

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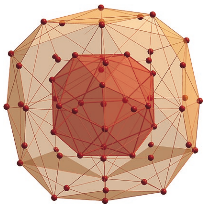
124 silver atoms and 57 selenido ligands are contained in the cluster complex $[\mathrm{Ag_{124}Se_{57}(SeP}t\mathrm{Bu_2)_4Cl_6(}t\mathrm{Bu_2P(CH_2)_3P}t\mathrm{Bu_2)_{12}}]$. The molecule has an approximate diameter of 3 nm. The selenium substructure (see picture) is formed of spheres with a central Frank–Kasper polyhedron (red). Apart from this silver selenide cluster, three smaller silver–selenide cluster complexes are described.



Angew. Chem. **2002**, *114*, 306–310

D. Fenske,* T. Langetepe 300–304

Synthesis and Structures of Silver–Selenide Cluster Complexes $[\mathrm{Ag_4(Se}i\mathrm{Pr)_4(dppm)_2}]$, $[\mathrm{Ag_8(SeEt)_8(dppp)}]_\infty$, $[\mathrm{Ag_{28}Se_6(Se}n\mathrm{Bu)_{16}(dppp)_4}]$, and $[\mathrm{Ag_{124}Se_{57}(SeP}t\mathrm{Bu_2)_4Cl_6(}t\mathrm{Bu_2P(CH_2)_3P}t\mathrm{Bu_2)_{12}}]$

Keywords: cluster compounds · nanoparticles · selenium · silver · solid-state structures

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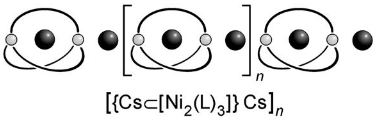


$[\{\mathrm{Cs}\subset[\mathrm{Ni_2(L)_3}]\}\,\mathrm{Cs}]_n$

A molecular wagon train composed of self-complementary containers (shown schematically) results from the reaction of catecholate-spacered bis-1,3-diketones with nickel acetate in the presence of an excess of cesium ions. The most remarkable feature of this assembly is the oxo-bridged metal string running through it.

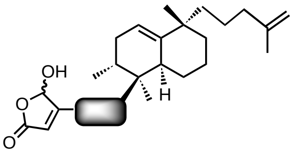
Angew. Chem. **2002**, *114*, 323–326

R. W. Saalfrank,* H. Maid, N. Mooren,
F. Hampel 304–307

Hybrid Metallacoronates or One-Dimensional Oxo-Bridged Metal Strings by Self-Assembly—Coordination Number Controlled Product Formation

Keywords: copper · metallacryptates · nickel · oxo-bridged metal strings · self-assembly

A multistep solid-phase synthesis was used successfully to prepare a series of analogues (see picture) of the protein phosphatase inhibitor dysidiolide. The natural product and its analogues were prepared on a solid support over 8–12 linear steps with overall yields of 6–27%. The analogues display pronounced antitumor activity in cell-based assays.



Angew. Chem. **2002**, *114*, 319–323

D. Brohm, S. Metzger, A. Bhargava,
O. Müller, F. Lieb,
H. Waldmann* 307–311

Natural Products Are Biologically Validated Starting Points in Structural Space for Compound Library Development: Solid-Phase Synthesis of Dysidiolide-Derived Phosphatase Inhibitors

Keywords: combinatorial chemistry · natural products · proteins · solid-phase synthesis · total synthesis

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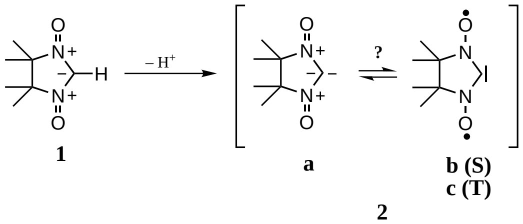
By deprotonation of the nitronylnitrosonium cation 1 the dinitroxide carbene **2** was prepared in solution (see scheme, S = singlet, T = triplet). Carbene **2** is the first example of a new class of carbenes with autoumpolung capability, the electronic structure of which is discussed in terms of configurations **2a–c**. Stable transition metal complexes derived from **2a** were synthesized and structurally characterized.



Angew. Chem. **2002**, *114*, 327–329

R. Weiss,* N. Kraut 311–314

Dinitroxide Carbenes, A New Class of Carbenes with Autoumpolung Character: Preparation in Solution and Stabilization in Transition Metal Complexes

Keywords: autoumpolung · carbene ligands · palladium · radicals

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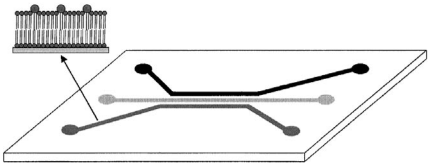
Selectively functionalized micrometer-sized compartments of solid-supported lipid bilayers (see schematic representation) were generated by a new procedure. These compartments are particularly suitable for carrying out optical and scanning force microscopy investigations of ligand–receptor interactions.



Angew. Chem. **2002**, *114*, 330–332

S. Künneke, A. Janshoff* 314–316

Visualization of Molecular Recognition Events on Microstructured Lipid-Membrane Compartments by In Situ Scanning Force Microscopy

Keywords: biosensors · lipids · molecular recognition · scanning probe microscopy · soft lithography

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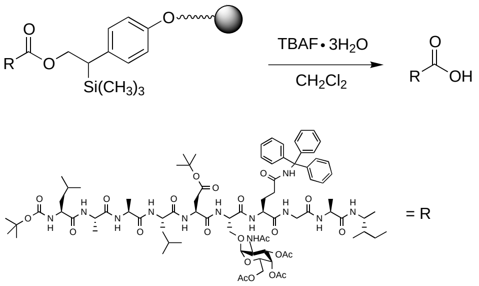
Suitable for the immobilization of carboxylic acids, the (2-phenyl-2-trimethylsilyl)ethyl linker was developed as a novel, fluoride-sensitive anchor. Cleavage with tetrabutylammonium fluoride (TBAF) trihydrate in CH$_2$Cl$_2$ under almost neutral conditions gives the corresponding peptides and glycopeptides in high yields and purity without affecting aspartate structures and most of the common protecting groups in peptide chemistry (see scheme).



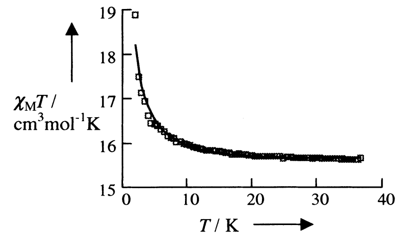
Angew. Chem. **2002**, *114*, 315–319

M. Wagner, H. Kunz* 317–321

The (2-Phenyl-2-trimethylsilyl)ethyl(PTMSEL) Linker—A Novel Linker for the Solid-Phase Synthesis of Protected Peptides and Glycopeptides Cleavable with Fluoride

Keywords: glycopeptides · peptides · protecting groups · solid-phase synthesis

An intramolecular ferromagnetic interaction (see picture) is evidenced for the first time in a dinuclear gadolinium complex that has four carboxylate bridges. A similar interaction exists in a dinuclear erbium complex, but, as a result of the depopulation of the excited Stark levels, its signature only appears at very low temperature.



Angew. Chem. **2002**, *114*, 333 – 335

J.-P. Costes,* J. M. Clemente-Juan,
F. Dahan, F. Nicodème,
M. Verelst .... 323 – 325

Unprecedented Ferromagnetic Interaction in Homobinuclear Erbium and Gadolinium Complexes: Structural and Magnetic Studies

Keywords: coordination chemistry • lanthanides • magnetic properties • rare-earth compounds

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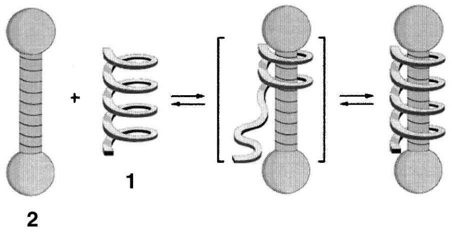
A dynamic binding mechanism allows the association of dumbbell-shaped ligand **2** with helical folded oligo(*m*-phenyleneethynylene)s **1** (see schematic representation). Association constants are oligomer length specific, with a maximum value for the icosamer and docosamer. These oligomers have helical conformations that are highly shape-complementary to **1**; shorter and longer oligomers exhibit association constants roughly an order of magnitude smaller.



Angew. Chem. **2002**, *114*, 335 – 338

A. Tanatani, T. S. Hughes,
J. S. Moore* .... 325 – 328

Foldamers as Dynamic Receptors: Probing the Mechanism of Molecular Association between Helical Oligomers and Rodlike Ligands

Keywords: chirality • foldamers • host – guest systems • molecular recognition • self-assembly

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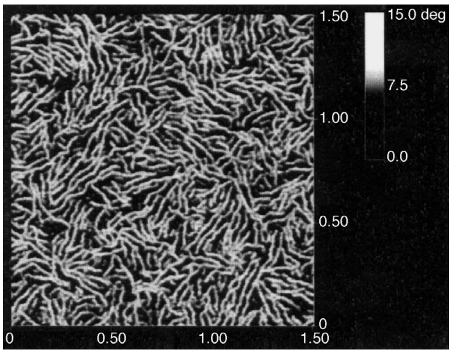
Simply changing the solvent or evaporation conditions enables the physical properties of polythiophene block copolymers and polyurethane elastomers to be controlled. The copolymers all have high conductivities as well as excellent film-forming and good mechanical properties, and well-defined nanowires that reach lengths in the micron range can be formed (see atomic force microscopy image).



Angew. Chem. **2002**, *114*, 339 – 342

J. Liu, E. Sheina, T. Kowalewski,
R. D. McCullough* .... 329 – 332

Tuning the Electrical Conductivity and Self-Assembly of Regioregular Polythiophene by Block Copolymerization: Nanowire Morphologies in New Di- and Triblock Copolymers

Keywords: conducting materials • nanostructures • polymers • self-assembly • thiophene

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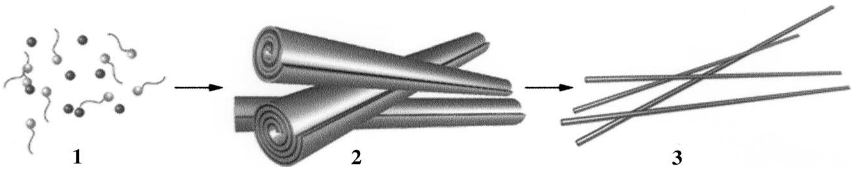
Bulk quantities of uniform tungsten nanowires 3 with diameters of 20 – 80 nm and lengths ranging from 5 to 30 μm were obtained by a simple vacuum-controlled pyrolysis process from lamellar composites of WO_4^{2-} ions and cetyltrimethylammonium (CTA^+) surfactant ions. The lamellar composites were obtained from aggregates of CTA – WO_4 ion pairs (**1**). The cylindrical scrolls **2** are probably the first product of the pyrolysis; this confines the carbothermal reaction and results in the formation of the nanowires.



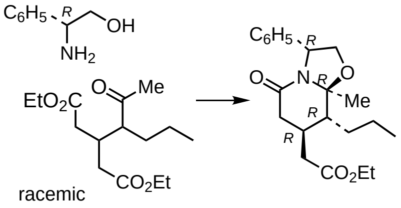
Angew. Chem. **2002**, *114*, 343 – 345

Y. D. Li,* X. L. Li, Z.-X. Deng,
B. C. Zhou, S. S. Fan, J. W. Wang,
X. M. Sun .... 333 – 335

From Surfactant – Inorganic Mesostructures to Tungsten Nanowires

Keywords: lamellar structures • nanostructures • surfactants • tungsten

Enantiotopic ester groups are desymmetrized in the cyclodehydration of prochiral δ-oxodiesters with (R)-phenylglycinol. This reaction can be extended to racemic δ-oxodiesters, which undergo a tandem dynamic kinetic resolution – diastereoselective differentiation process (see scheme). The resulting bicyclic lactams can be used in the preparation of a variety of synthetically and pharmacologically interesting enantiopure piperidine derivatives.



Angew. Chem. **2002**, *114*, 345 – 348

M. Amat,* M. Cantó, N. Llor, V. Ponzo, M. Pérez, J. Bosch .... 335 – 338

Dynamic Kinetic Resolution and Desymmetrization of Enantiotopic Groups by Cyclodehydration of Racemic or Prochiral δ-Oxoesters with (R)-Phenylglycinol: Enantioselective Synthesis of Piperidines

Keywords: diastereoselectivity · dynamic kinetic resolution · lactams · nitrogen heterocycles · synthetic methods

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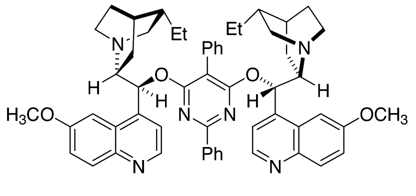
The mechanism is not yet known but the modified biscinchona alkaloid shown here is an excellent catalyst for the general and highly enantioselective 1,4-addition of thiols to cyclic enones. Selectivities ranging from 93 to >99% *ee* were achieved for the addition of 2-thionaphthol to six- to nine-membered enones.



Angew. Chem. **2002**, *114*, 348 – 350

P. McDaid, Y. Chen, L. Deng* 338 – 340

A Highly Enantioselective and General Conjugate Addition of Thiols to Cyclic Enones with an Organic Catalyst

Keywords: asymmetric catalysis · cinchona alkaloids · enones · Michael addition · thiols

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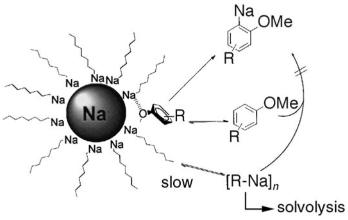
Finely dispersed metallic sodium in combination with an alkyl chloride RCl can replace organolithium reagents in the *ortho*-metalation of aromatic compounds (see scheme). The in situ generated base is consumed as soon as it is formed, which avoids Wurtz coupling, the usual side reaction, and the handling and storage of highly reactive alkyl sodium bases. Reaction conditions are mild, the reaction is easy to scale up, and the reagents needed are inexpensive.



Angew. Chem. **2002**, *114*, 350 – 353

A. Gissot, J.-M. Becht, J. R. Desmurs, V. Pévère, A. Wagner,* C. Mioskowski* .... 340 – 343

Directed *ortho*-Metalation, a New Insight into Organosodium Chemistry

Keywords: metalation · sodium · substituent effects · synthetic methods

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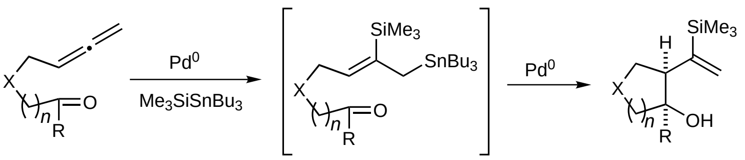
Two in one: the palladium-catalyzed regio- and diastereoselective silastannylation of allene aldehydes and ketones and the subsequent allyl addition to the carbonyl group gives rise to *cis*-cycloalkanols (see scheme; $n = 1, 2$; R = H, CH_3; X = NTs, O, $C(CO_2Et)_2$, etc.). This tandem process requires a single catalyst and is carried out at a constant temperature.



Angew. Chem. **2002**, *114*, 353 – 355

S.-K. Kang,* Y.-H. Ha, B.-S. Ko, Y. Lim, J. Jung .... 343 – 345

Palladium-Catalyzed Regio- and Diastereoselective Tandem Silastannylation/Allyl Addition of Allene Aldehydes and Allene Ketones: Synthesis of *cis* Cyclopentanols and Cyclohexanols

Keywords: allenes · allylic compounds · cyclization · homogeneous catalysis · silastannylation

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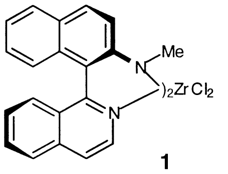
A long-lost cousin of the binaphthyl family has been found to be readily accessible and configurationally stable. These so-called IAN-amines are competent ligands for Zr^{IV} ions that display remarkable diastereoselectivity in the formation of C_2-symmetric 2:1 complexes such as **1**. The ligands of the favored diastereomeric complex are homochiral despite the use of a racemic mixture to make the complex.



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Angew. Chem. **2002**, *114*, 355 – 358

S. B. Cortright, J. N. Johnston* 345 – 348

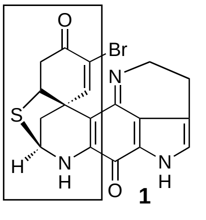
IAN-Amines: Direct Entry to a Chiral C_2-Symmetric Zirconium(IV) β-Diketimine Complex

Keywords: biaryls · N ligands · zirconium

H. Tohma, Y. Harayama, M. Hashizume,
M. Iwata, M. Egi, Y. Kita* .... 348 – 350

Synthetic Studies on the Sulfur-Cross-Linked Core of Antitumor Marine Alkaloid, Discorhabdins: Total Synthesis of Discorhabdin A

A concise and efficient method to construct the characteristic sulfur-cross-linked core of an unprecedented antitumor marine alkaloid, discorhabdins, has been developed. By utilizing this methodology the first total synthesis of (±)-discorhabdin A (**1**) has been achieved.



Angew. Chem. **2002**, *114*, 358 – 360

Keywords: alkaloids · nitrogen heterocycles · spiro compounds · sulfur heterocycles · total synthesis

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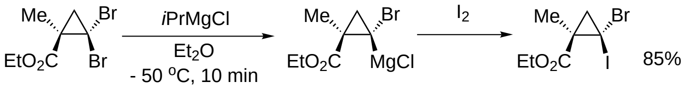
V. A. Vu, I. Marek, K. Polborn,
P. Knochel* .... 351 – 352

Preparation of New Functionalized Cyclopropylmagnesium Reagents

An I – Mg or Br – Mg exchange reaction has enabled ester-functionalized cyclopropylmagnesium derivatives including magnesium carbenoids to be prepared for the first time in high yield. These magnesium reagents are configurationally stable and react stereoselectively with electrophiles (see scheme).



Angew. Chem. **2002**, *114*, 361 – 362

Keywords: carbenoids · halogen – metal exchange · magnesium · small ring systems · stereoselectivity

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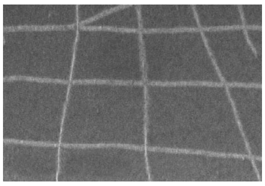
M. R. Diehl, S. N. Yaliraki,
R. A. Beckman, M. Barahona,
J. R. Heath* .... 353 – 356

Self-Assembled, Deterministic Carbon Nanotube Wiring Networks

A "minimal-lithography" technique for chemically assembling small deterministic crossbars of single-walled carbon nanotube (SWNT) ropes: The formation of electrically conducting crossbar circuits with 8 to 14 junctions (see picture) from a suspension of SWNTs is described. The critical structural parameters of the circuits were controlled by chemically directed self-assembly, rather than lithographic patterning, and all steps were carried out under ambient conditions.



Angew. Chem. **2002**, *114*, 363 – 366

Keywords: conducting materials · nanostructures · nanotubes · self-assembly

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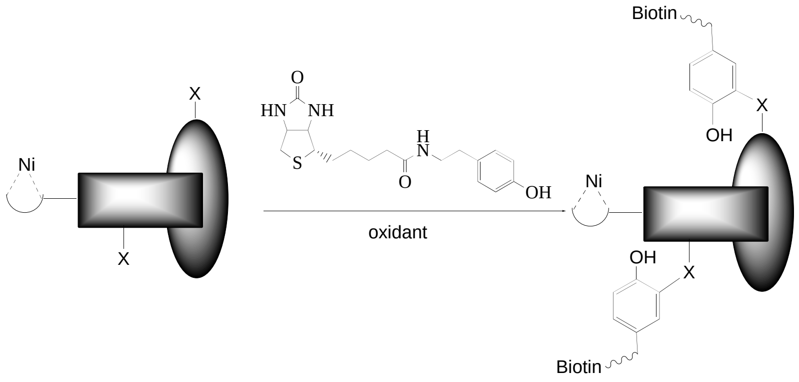
F. Amini, T. Kodadek,*
K. C. Brown* .... 356 – 359

Protein Affinity Labeling Mediated by Genetically Encoded Peptide Tags

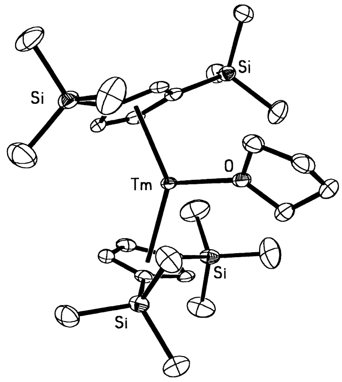
A useful method for identifying the binding partners of a given protein: The complex of Ni^{II} with the tripeptide NH_2-glycine-glycine-histidine or the hexahistidine peptide mediates biotinylation of proximal proteins through an oxidatively triggered reaction (see scheme).



Angew. Chem. **2002**, *114*, 366 – 369

Keywords: affinity labeling · biotinylation · nickel · oxidation · proteins

The right choice of solvents, ligand ($[C_5H_3(SiMe_3)_2]^-$), and reaction conditions has facilitated the isolation and structural characterization of the first Tm^{II} metallocene (see picture). In situ organometallic chemistry of the even more reducing Dy^{II} ion, namely a dinitrogen reduction to give the Dy^{III} dinitrogen complex $[\{[C_5H_3(SiMe_3)_2]_2Dy\}_2N_2]$, reveals the importance of carrying out such reactions in an atmosphere more inert than nitrogen.



Angew. Chem. **2002**, *114*, 369–371

W. J. Evans,* N. T. Allen,
J. W. Ziller 359–361

Expanding Divalent Organolanthanide Chemistry: The First Organothulium(II) Complex and the In Situ Organodysprosium(II) Reduction of Dinitrogen

Keywords: cyclopentadienyl ligands · dysprosium · lanthanides · metallocenes · thulium

Supporting information on the WWW (see article for access details).

* Author to whom correspondence should be addressed

Accelerated publications

The electron microscopy pictures were taken by Dr. Perer Herter, and the cover picture was designed and prepared by Gesine Schulte (both at the MPI für Molekulare Physiologie Dortmond).

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