Service

Author Profile

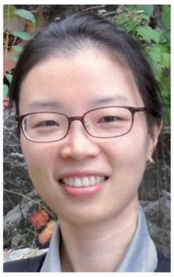
"If I were not a scientist, I would be a fisherman or a farmer.
What I look for first in a publication is its graphical abstract …"
This and more about Shu-Hong Yu can be found on page 12402.

News

G. Mugesh

G. J. Sanjayan

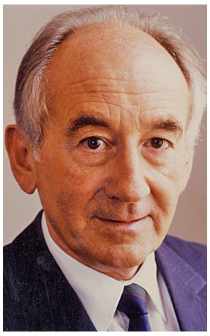
I. S. Lee



D.-H. Min

C. R. Bertozzi

Obituaries



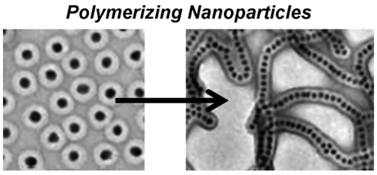
Heinz A. Staab, who was for many years Director at the Max Planck Institute (MPI) for Medical Research in Heidelberg, and previously President of the Max Planck Society (MPG) and the Gesellschaft Deutscher Chemiker (GDCh, German Chemical Society), passed away on July 29, 2012 at the age of 86 in Berlin after a long illness.

Books

Highlights

Nanoparticle Chains

No, it's not frogspawn! Polymer-coated gold nanoparticles can be assembled into extended mesoscopic chains with precise dimensional control. Here, the conditions can be adjusted to promote the fusion of polymeric ligands into cylindrical micellar aggregates. This type of colloidal polymerization offers a new and versatile route to a variety of mesoscopic assemblies of nanoparticles.



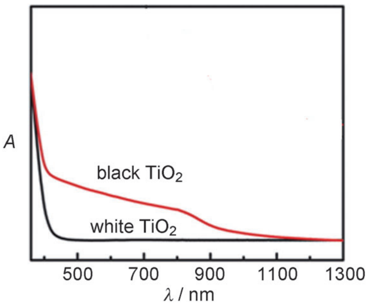
Polymerizing Nanoparticles

Photocatalysis

Y. H. Hu* ______ 12410 – 12412

A Highly Efficient Photocatalyst—Hydrogenated Black TiO_2 for the Photocatalytic Splitting of Water

In black and white: The hydrogenation of TiO_2 can extend its optical absorption into the visible and infrared region and change its color from white to black. Furthermore, the hydrogenated black TiO_2 exhibits excellent photocatalytic activity for the splitting of water to yield H_2.

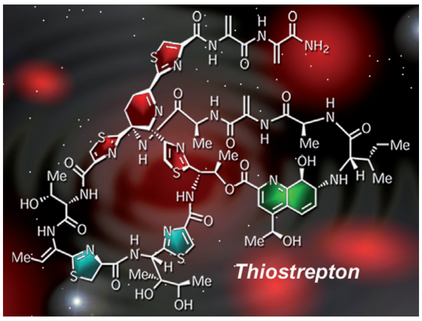


Reviews

Total Synthesis

K. C. Nicolaou* ______ 12414 – 12436

How Thiostrepton Was Made in the Laboratory



An adventurous undertaking: The synthetic conquest of thiostrepton was achieved in 2004. In this vivid account the author describes the laboratory odyssey with its many intriguing twists and turns that led to this memorable total synthesis.

Communications

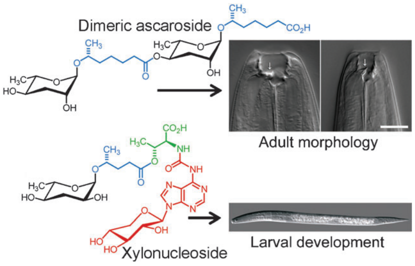
Metabolomics

N. Bose, A. Ogawa, S. H. von Reuss, J. J. Yim, E. J. Ragsdale, R. J. Sommer,* F. C. Schroeder* ______ 12438 – 12443

Complex Small-Molecule Architectures Regulate Phenotypic Plasticity in a Nematode

Frontispiece

Chemistry the worm's way: The nematode *Pristionchus pacificus* constructs elaborate small molecules from modified building blocks of primary metabolism, including an unusual xylopyranose-based nucleoside (see scheme). These compounds act as signaling molecules to control adult phenotypic plasticity and dauer development and provide examples of modular generation of structural diversity in metazoans.

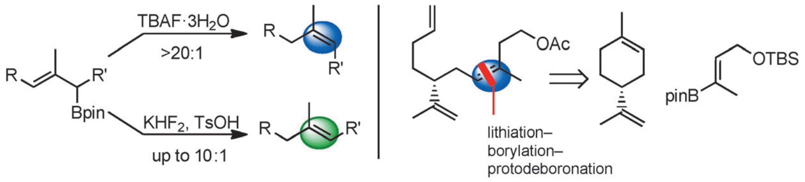


For the USA and Canada: ANGEWANDTE CHEMIE International Edition (ISSN 1433-7851) is published weekly by Wiley-VCH, PO Box 191161, 69451 Weinheim, Germany. Air freight and mailing in the USA by Publications Expediting Inc., 200 Meacham Ave., Elmont, NY 11003. Periodicals postage paid at Jamaica, NY 11431. US POSTMASTER: send address changes to *Angewandte Chemie*, Journal Customer Services, John Wiley & Sons Inc., 350 Main St., Malden, MA 02148-5020. Annual subscription price for institutions: US$ 11.738/10.206 (valid for print and electronic / print or electronic delivery); for individuals who are personal members of a national chemical society prices are available on request. Postage and handling charges included. All prices are subject to local VAT/sales tax.

E/Z-Alkene Synthesis

M. J. Hesse, C. P. Butts, C. L. Willis,*
V. K. Aggarwal* ______ 12444 – 12448

Diastereodivergent Synthesis of Trisubstituted Alkenes through Protodeboronation of Allylic Boronic Esters: Application to the Synthesis of the Californian Red Scale Beetle Pheromone



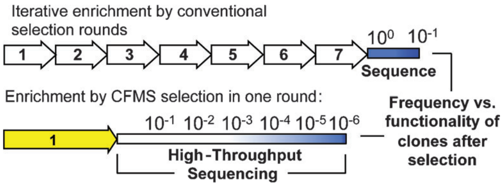
E-allylic boronic esters undergo a highly diastereoselective protodeboronation with TBAF·3 H_2O to give *Z*-trisubstituted alkenes. The selectivity can be switched to give predominantly the *E*-alkene instead by using KHF_2/TsOH (see scheme). The utility of the methodology has been illustrated in a short synthesis of a component of the sex pheromone of the Californian red scale beetle.

Ligand Design

VIP

C. A. Olson, J. Nie, J. Diep, I. Al-Shyoukh,
T. T. Takahashi, L. Q. Al-Mawsawi,
J. M. Bolin, A. L. Elwell, S. Swanson,
R. Stewart, J. A. Thomson, H. T. Soh,
R. W. Roberts, R. Sun* __ 12449 – 12453

Single-Round, Multiplexed Antibody Mimetic Design through mRNA Display

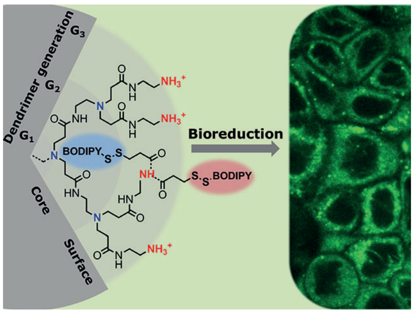


In a single round: By combining the high-efficiency enrichment through the continuous-flow magnetic separation (CFMS) technique with the analytical power of next-generation sequencing, the generation of antibody mimetics with a single round of mRNA display is made possible. This approach eliminates iterative selection cycles and provides a path to fully automated ligand generation (see picture).

Bioreduction

L. Brülisauer, N. Kathriner, M. Prenrecaj,
M. A. Gauthier,
J.-C. Leroux* ______ 12454 – 12458

Tracking the Bioreduction of Disulfide-Containing Cationic Dendrimers

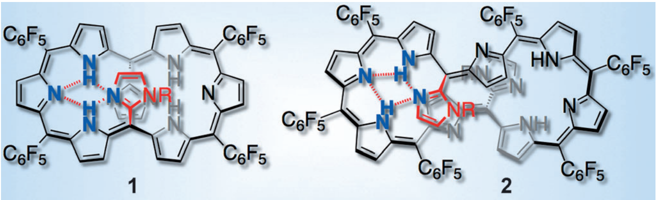


Disulfides enhance the transfection efficacy and reduce the toxicity of cationic gene delivery polymers. A quantitative analysis is provided of the bioreduction of a dynamic bioreducible dendritic polycationic probe in four cell lines. Such knowledge is indispensible for understanding and optimizing bioreducible drug and gene delivery systems.

Porphyrinoids

H. Mori, Y. M. Sung, B. S. Lee, D. Kim,*
A. Osuka* ______ 12459 – 12463

Antiaromatic Hexaphyrins and Octaphyrins Stabilized by the Hydrogen-Bonding Interactions of *meso*-Imidazolyl Groups



Stable antiaromatic expanded porphyrins were designed by the judicious implementation of *meso*-imidazolyl groups, which cause stabilization through the creation of a hydrogen-bonding network (see structures) that overcomes antiaromatic electronic destabilization. Both the [28]hexaphyrin **1** and the [36]octaphyrin **2**, which contain imidazolyl groups at two opposite *meso* positions, are shown to be stable Hückel antiaromatic species.

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Roald Hoffmann (Nobel Prize 1981)


Susumu Kitagawa


Jean-Marie Lehn (Nobel Prize 1987)


E.W. “Bert” Meijer


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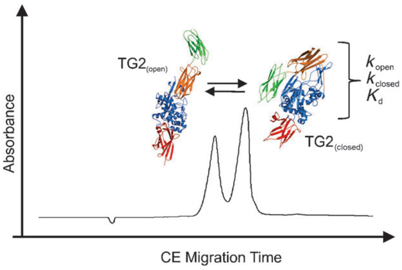
PSJ_12_42497_5_gu

Conformational analysis: Capillary electrophoresis (CE) allows for the rapid separation of slowly interconverting protein conformers. Kinetic analysis (k_{open}, k_{closed}, and K_d) of electropherograms in the presence and absence of effector ligands allows the measurement of kinetic and thermodynamic constants associated with conformational changes and ligand binding.



Protein Conformations

C. M. Clouthier, G. G. Mironov,
V. Okhonin, M. V. Berezovski,
J. W. Keillor* ______ **12464 – 12468**

Real-Time Monitoring of Protein Conformational Dynamics in Solution Using Kinetic Capillary Electrophoresis

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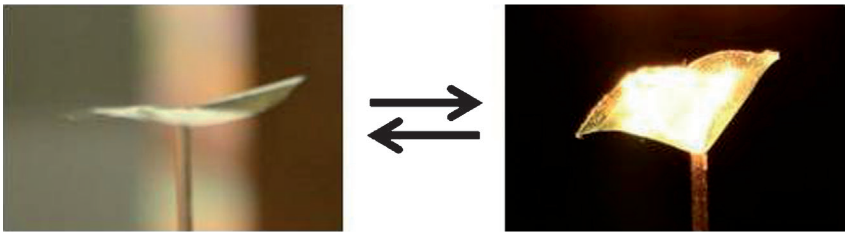


Rise or fall: Complex-structured free-standing polymer films with molecular order in three dimensions were prepared through photoalignment of polymerizable liquid crystals. The resulting films deform into cone and saddle shapes upon heating.

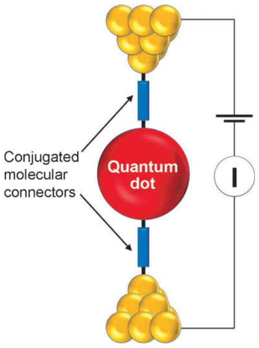
Smart Materials

L. T. de Haan, C. Sánchez-Somolinos,
C. M. W. Bastiaansen,
A. P. H. J. Schenning,*
D. J. Broer* ______ **12469 – 12472**

Engineering of Complex Order and the Macroscopic Deformation of Liquid Crystal Polymer Networks

---

Making contact to a quantum dot: Single quantum-dot electronic circuits are fabricated by wiring atomically precise metal chalcogenide clusters with conjugated molecular connectors. These wired clusters can couple electronically to nanoscale electrodes and be tuned to control the charge-transfer characteristics (see picture).

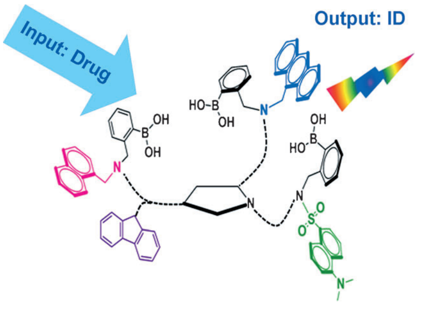


Molecular Electronics

X. Roy, C. L. Schenck, S. Ahn,
R. A. Lalancette, L. Venkataraman,*
C. Nuckolls,*
M. L. Steigerwald* ______ **12473 – 12476**

Quantum Soldering of Individual Quantum Dots

Inside Back Cover



Working together to uncover the truth: A molecule-sized diagnostic system combining several recognition elements and four fluorescence-emission channels enabled the identification of a wide range of pharmaceuticals on the basis of distinct photophysical processes. The molecular sensor (see simplified representation; ID = identification) was also used to analyze drug concentrations and combinations in urine samples in a high-throughput manner.

Molecular-Scale Diagnostics

B. Rout, L. Unger, G. Armony, M. A. Iron,
D. Margulies* ______ **12477 – 12481**

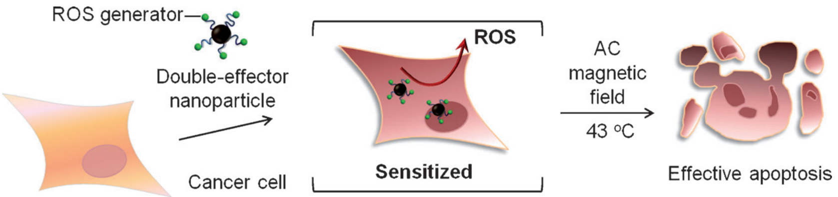
Medication Detection by a Combinatorial Fluorescent Molecular Sensor

Back Cover

Synergistic Apoptosis

D. Yoo, H. Jeong, C. Preihs, J.-s. Choi, T.-H. Shin, J. L. Sessler,* J. Cheon* ______ 12482 – 12485

Double-Effector Nanoparticles: A Synergistic Approach to Apoptotic Hyperthermia

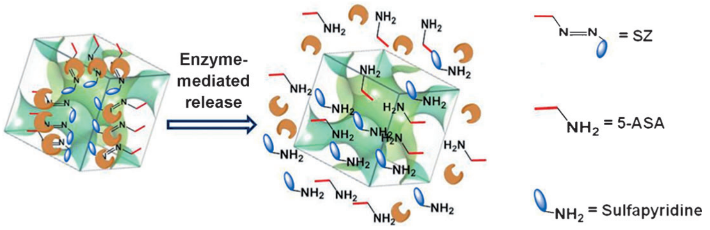


Highly efficient apoptotic hyperthermia is achieved using a double-effector nanoparticle that can generate reactive oxygen species (ROS) and heat. ROS render cancer cells more susceptible to subsequent heat treatment, which remarkably increases the degree of apoptotic cell death. Xenograft tumors (100 mm^3) in mice are completely eliminated within 8 days after a single mild magnetic hyperthermia treatment at 43 °C for 30 min.

Targeted Drug Delivery

A. Popat, B. P. Ross, J. Liu, S. Jambhrunkar, F. Kleitz,* S. Z. Qiao* ______ 12486 – 12489

Enzyme-Responsive Controlled Release of Covalently Bound Prodrug from Functional Mesoporous Silica Nanospheres



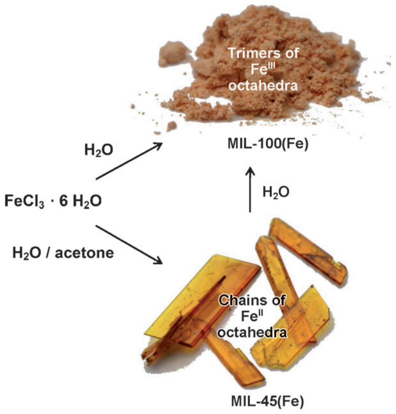
I want to break free: Mesoporous silica nanoparticles are functionalized with sulfasalazine (SZ; see scheme), a prodrug of 5-aminosalicylic acid (5-ASA) and sulfapyridine, to generate enzyme-responsive nanocarriers. In the presence of the colon-specific enzyme azo-reductase (orange), 5-ASA and sulfapyridine are efficiently released.

Metal–Organic Frameworks

T. Birsa Čelič, M. Rangus, K. Lázár, V. Kaučič, N. Zabukovec Logar* ______ 12490 – 12494

Spectroscopic Evidence for the Structure Directing Role of the Solvent in the Synthesis of Two Iron Carboxylates

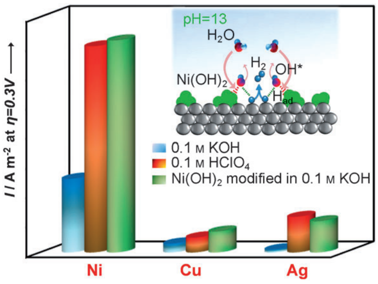
Crystal engineering: The synthesis of the known compounds MIL-100(Fe) and MIL-45(Fe) is characterized by spectroscopy. The products are obtained under identical conditions by varying the solvent from pure water to a mixture of water and acetone. The starting solution, the gel, and the final reaction product were characterized by X-ray absorption spectroscopy (see picture).



Electrochemistry

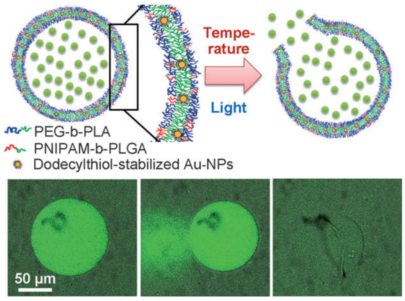
N. Danilovic, R. Subbaraman, D. Strmcnik, K.-C. Chang, A. P. Paulikas, V. R. Stamenkovic, N. M. Markovic* ______ 12495 – 12498

Enhancing the Alkaline Hydrogen Evolution Reaction Activity through the Bifunctionality of Ni(OH)$_2$/Metal Catalysts



Active in alkaline environment: The activity of nickel, silver, and copper catalysts for the electrochemical transformation of water to molecular hydrogen in alkaline solutions was enhanced by modification of the metal surfaces by Ni(OH)$_2$ (see picture; I = current density and η = overpotential). The hydrogen evolution reaction rate on a Ni electrode modified by Ni(OH)$_2$ nanoclusters is about four times higher than on a bare Ni surface.

Microfluidics: Thermo- and photoresponsive polymersomes are assembled using capillary microfluidic devices. Encapsulants can be selectively released from the thermoresponsive polymersomes if they are incubated at and above temperatures of 40 °C, whereas the photoresponsive polymersomes selectively release encapsulants if illuminated with laser light (see picture; NP = nanoparticle).

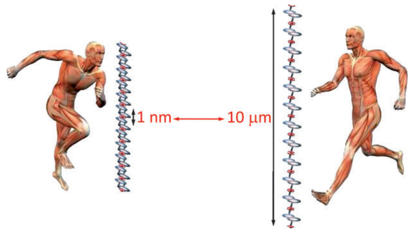


Soft Matter

E. Amstad, S.-H. Kim,
D. A. Weitz* ——— 12499 – 12503

Photo- and Thermoresponsive Polymersomes for Triggered Release

Pumping iron: Double-threaded rotaxanes can be linked to coordination units and polymerized in the presence of iron or zinc ions. pH modulation triggers cooperative contractions (or extensions) of the individual rotaxanes, thus resulting in an amplified motion of the muscle-like supramolecular chains with changes of their contour lengths of several micrometers (see picture).



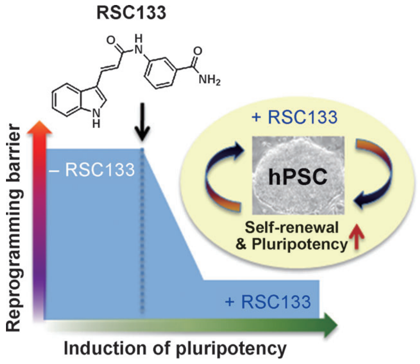
Nanotechnology

G. Du, E. Moulin, N. Jouault, E. Buhler,*
N. Giuseppone* ——— 12504 – 12508

Muscle-like Supramolecular Polymers: Integrated Motion from Thousands of Molecular Machines

Front Cover

Booster of pluripotency: RSC133, a new synthetic derivative of indoleacrylic acid/indolepropionic acid, exhibits dual activity by inhibiting histone deacetylase and DNA methyltransferase. Furthermore it potently improves the reprogramming of human somatic cells into a pluripotent state and aids the growth and maintenance of human pluripotent stem cells (hPSCs).

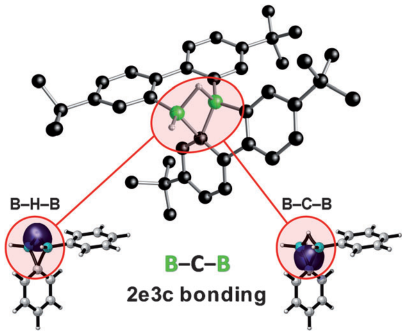


Pluripotency

J. Lee, Y. Xia, M.-Y. Son, G. Jin, B. Seol,
M.-J. Kim, M. J. Son, M. Do, M. Lee,
D. Kim, K. Lee,*
Y. S. Cho* ——— 12509 – 12513

A Novel Small Molecule Facilitates the Reprogramming of Human Somatic Cells into a Pluripotent State and Supports the Maintenance of an Undifferentiated State of Human Pluripotent Stem Cells

Finally, boron did it too: The first example of a dimeric organyl(hydro)borane with a B-B-bridging aryl ring has been elucidated (see picture; B green/blue, C black/gray). It features a B–C–B two-electron–three-center bond and a largely unperturbed aromatic π-electron system.



Bond Theory

A. Hübner, M. Diefenbach, M. Bolte,
H.-W. Lerner, M. C. Holthausen,*
M. Wagner* ——— 12514 – 12518

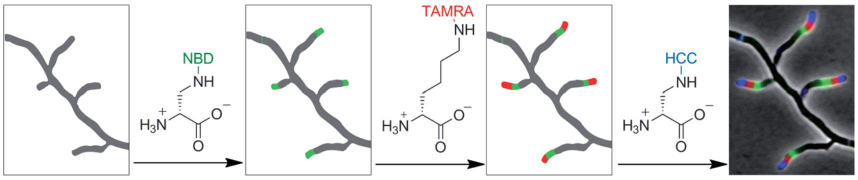
Confirmation of an Early Postulate: B–C–B Two-Electron–Three-Center Bonding in Organo(hydro)boranes

Fluorescence Imaging

E. Kuru, H. V. Hughes, P. J. Brown, E. Hall,
S. Tekkam, F. Cava, M. A. de Pedro,
Y. V. Brun,*
M. S. VanNieuwenhze* **12519 – 12523**

In Situ Probing of Newly Synthesized Peptidoglycan in Live Bacteria with Fluorescent D-Amino Acids

Inside Cover



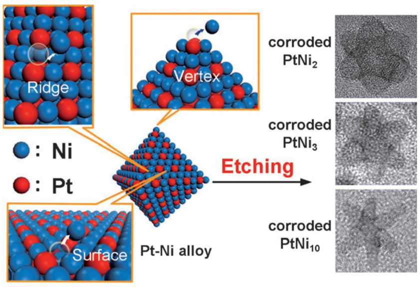
Tracking a bug's life: Peptidoglycan (PG) of diverse bacteria is labeled by exploiting the tolerance of cells for incorporating different non-natural D-amino acids. These nontoxic D-amino acids preferably label the sites of active PG synthesis, thereby enabling fine spatiotemporal tracking of cell-wall dynamics in phylogenetically and morphologically diverse bacteria. HCC = 7-hydroxycoumarin, NBD = 7-nitrobenzofurazan, TAMRA = carboxytetramethylrhodamine.

Alloys

Y. E. Wu, D. S. Wang, Z. Q. Niu,
P. C. Chen, G. Zhou,
Y. D. Li* **12524 – 12528**

A Strategy for Designing a Concave Pt–Ni Alloy through Controllable Chemical Etching

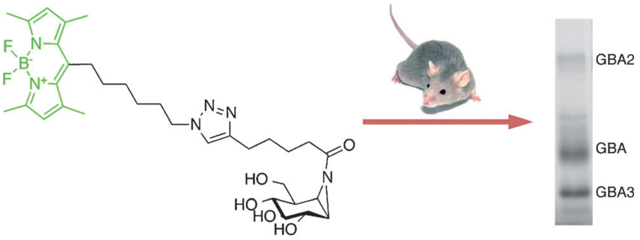
This corrosion: Octahedral Pt–Ni alloy nanoparticles (NPs) are converted into concave Pt_3Ni NPs by a coordination-assisted chemical-etching process (see scheme). The corroded concave Pt–Ni NPs have a higher density of low-coordinate atoms in steps sites, a decisive property in heterogeneous catalysis.



Enzyme Labeling

W. W. Kallemeijn, K.-Y. Li, M. D. Witte,
A. R. A. Marques, J. Aten, S. Scheij,
J. Jiang, L. I. Willems,
T. M. Voorn-Brouwer,
C. P. A. A. van Roomen, R. Ottenhoff,
R. G. Boot, H. van den Elst,
M. T. C. Walvoort, B. I. Florea,
J. D. C. Codée, G. A. van der Marel,
J. M. F. G. Aerts,*
H. S. Overkleeft* **12529 – 12533**

Novel Activity-Based Probes for Broad-Spectrum Profiling of Retaining β-Exoglucosidases In Situ and In Vivo



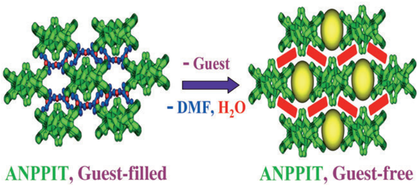
A high-end label: Cyclophellitol aziridine-type activity-based probes allow for ultra-sensitive visualization of mammalian β-glucosidases (GBA1, GBA2, GBA3, and LPH) as well as several non-mammalian β-glucosidases (see picture). These probes offer new ways to study β-exoglucosidases, and configurational isomers of the cyclophellitol aziridine core may give activity-based probes targeting other retaining glycosidase families.

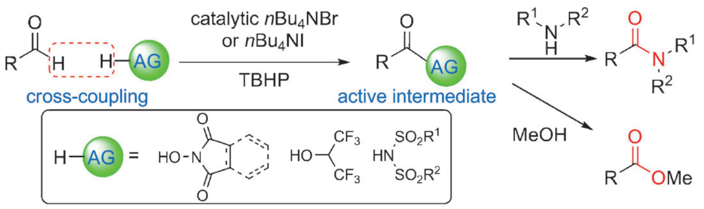
Multifunctional Organic Materials

S. Dalapati, R. Saha, S. Jana, A. K. Patra,
A. Bhaumik, S. Kumar,
N. Guchhait* **12534 – 12537**

A Multifunctional Porous Organic Schottky Barrier Diode

Mesoporous materials: A multifunctional porous organic material (ANPPIT; see picture) has been synthesized and characterized. Multifunctionality of the compound has been determined from nitrogen adsorption, guest-dependent luminescence, and electrical conductivity measurements.





Formation on demand: An organocatalytic cross-coupling reaction of aldehydes with *N*-hydroxyimides, hexafluoroisopropyl alcohol, and sulfonimides has been developed. The resulting active intermediates can be directly converted into amides or esters in one pot. This simple method makes use of readily available starting materials, and the newly discovered activating reagents should find broad application in the synthesis of amides and esters.

Cross-Coupling Reactions

B. Tan, N. Toda,
C. F. Barbas III* ______ 12538 – 12541

Organocatalytic Amidation and Esterification of Aldehydes with Activating Reagents by a Cross-Coupling Strategy

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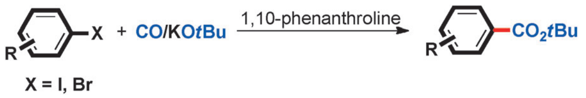
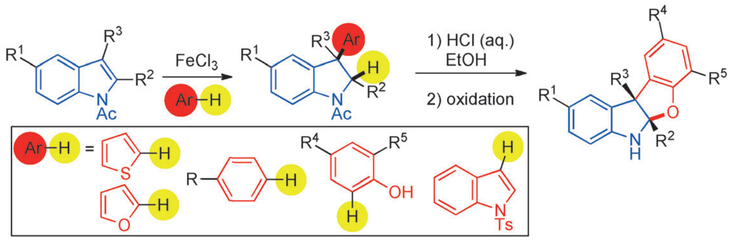


Transitions: The title reaction has been developed for the synthesis of a variety of *tert*-butyl benzoates by employing 1,10-phenanthroline as an additive. Various functional groups were tolerated and heteroaryl iodides were also suitable substrates. Preliminary mechanism studies were conducted and indicate the participation of radical intermediates.

Radical Reactions

H. Zhang, R. Shi, A. Ding, L. Lu, B. Chen,
A. Lei* ______ 12542 – 12545

Transition-Metal-Free Alkoxycarbonylation of Aryl Halides



IRONic electrophilic indoles! The C3-regioselective hydroarylation of *N*-acetyl indoles with aromatic nucleophiles mediated by $FeCl_3$ features a rare example of the electrophilic reactivity of the indole core in a Friedel–Crafts reaction. This indole umpolung allows us straightforward access to the tetracyclic benzofuroindoline motif found in the natural product diazonamide A, which is a potent antitumor agent.

Indole Chemistry

R. Beaud, R. Guillot, C. Kouklovsky,
G. Vincent* ______ 12546 – 12550

$FeCl_3$-Mediated Friedel–Crafts Hydroarylation with Electrophilic *N*-Acetyl Indoles for the Synthesis of Benzofuroindolines

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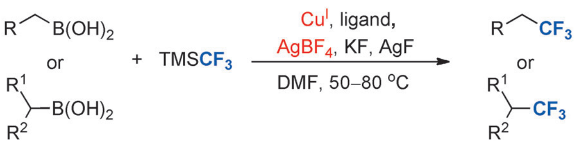


New couple: The Cu-promoted trifluoromethylation of primary and secondary alkylboronic acids with $TMSCF_3$ extends the scope of transition-metal-catalyzed trifluoromethylation reactions to sp^3-hybridized carbon centers. It also represents one of the first examples for Cu-catalyzed C–C cross-coupling reactions of alkylboronic acid derivatives.

Cross-Coupling Reactions

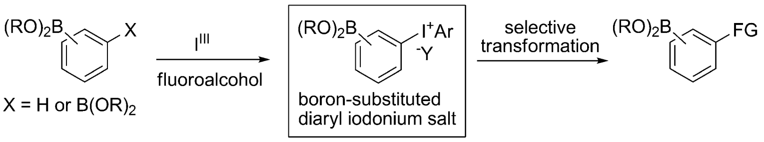
J. Xu, B. Xiao, C.-Q. Xie, D.-F. Luo, L. Liu,
Y. Fu* ______ 12551 – 12554

Copper-Promoted Trifluoromethylation of Primary and Secondary Alkylboronic Acids

Boron Compounds

M. Ito, I. Itani, Y. Toyoda, K. Morimoto, T. Dohi, Y. Kita* ________ 12555 – 12558

Synthesis of Boron-Substituted Diaryliodonium Salts and Selective Transformation into Functionalized Aryl Boronates

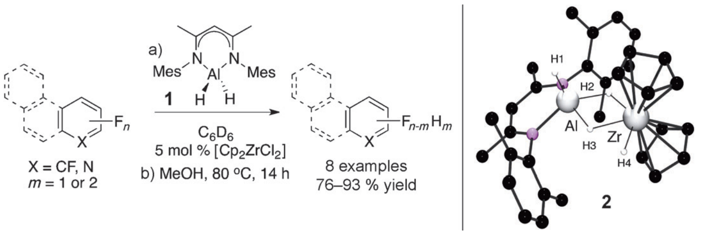


Dormant boron awaits its true destiny in diaryliodonium salts synthesized from aryl boronate derivatives according to two alternative general methods with hypervalent iodine(III) reagents and fluoroalcohol solvents: transformation of an aryl C–H bond and boron–iodine(III) exchange (see scheme; FG = functional group). The salts could be functionalized by both catalyst-free and metal-catalyzed reactions without loss of the boron functionality.

Hydrides

S. Yow, S. J. Gates, A. J. P. White, M. R. Crimmin* ________ 12559 – 12563

Zirconocene Dichloride Catalyzed Hydrodefluorination of C_{sp^2}–F bonds



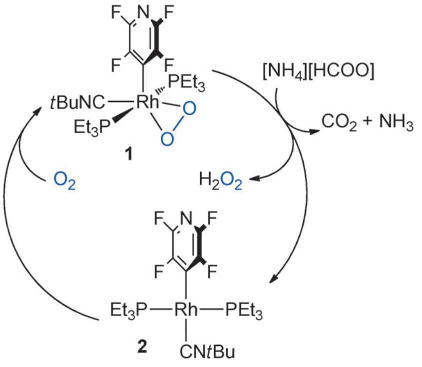
A two-metal job: Four-coordinate aluminum dihydrides such as **1** are reported as terminal reductants for the selective title reaction. The heterobimetallic complex **2** has been isolated and shown to be catalytically competent.

Oxygenation Chemistry

G. Meier, T. Braun* ________ 12564 – 12569

Hydrogenation of a Rhodium Peroxido Complex by Formate Derivatives: Mechanistic Studies and the Catalytic Formation of H_2O_2 from O_2

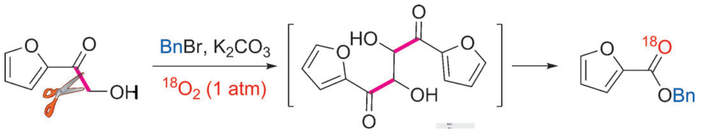
Hydrogenation of dioxygen: The rhodium peroxido complex **1**, which can be prepared from **2** and dioxygen, can be reduced with dihydrogen sources to yield hydrogen peroxide. In a catalytic experiment, hydrogen peroxide is produced from dioxygen and ammonium formate under ambient conditions in the presence of **1** (see scheme).



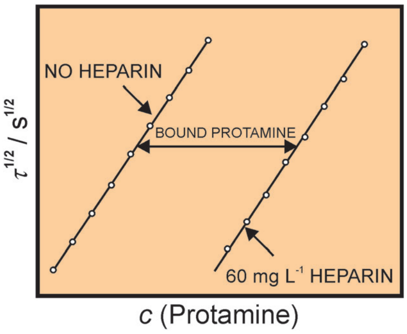
Synthetic Methods

H. Liu, C. Dong, Z. Zhang, P. Wu, X. Jiang* ________ 12570 – 12574

Transition-Metal-Free Aerobic Oxidative Cleavage of C–C Bonds in α-Hydroxy Ketones and Mechanistic Insight to the Reaction Pathway



Clear cut: For the title reaction, O_2, the ideal oxidant, was used as the only oxidizing reagent. The dimer intermediate (see scheme) and isotopic labeling control experiments with $^{18}O_2$ partially disclosed the reaction mechanism.



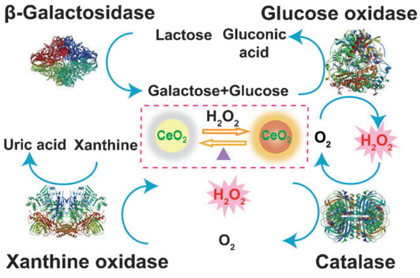
A permselective membrane electrode allows the rapid and operationally reversible detection of the polycationic polypeptide protamine in physiological samples. Anticoagulant levels of heparin can be measured in undiluted whole blood by adding a known excess of its antidote protamine to discrete blood samples.

Membranes

G. A. Crespo, M. G. Afshar,
E. Bakker* ———— 12575 – 12578

Reversible Sensing of the Anticoagulant Heparin with Protamine Permselective Membranes

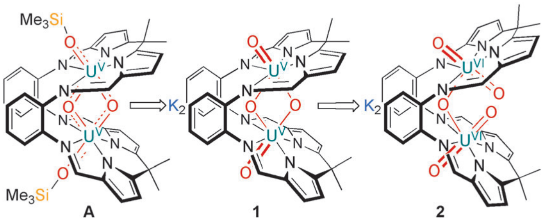
A label-free, resettable, and colorimetric logic network has been realized by utilizing thermally regenerable cerium oxide nanoparticles and biocatalytic reactions. Coupling switchable CeO_2 nanoparticles with biocomputing would convert molecular recognition events into colorimetric outputs and make logic gates feasible to reset.



Boolean Logic

Y. Lin, C. Xu, J. Ren,*
X. Qu* ———— 12579 – 12583

Using Thermally Regenerable Cerium Oxide Nanoparticles in Biocomputing to Perform Label-free, Resettable, and Colorimetric Logic Operations

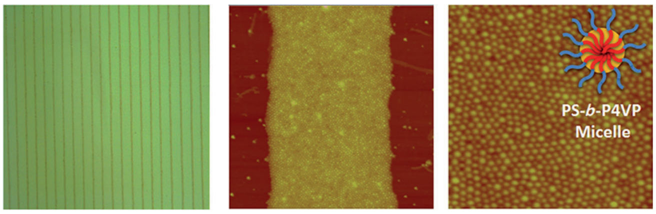


Switching on uranium(V) reactivity: The silylated uranium(V) dioxo complex $[(Me_3SiOUO)_2(L)_2]$ (**A**) is inert to oxidation, but after two-electron reduction to $[(Me_3SiOUO)_2(L)]^{2-}$ (**1**), it can be desilylated to form $[OU(\mu\text{-}O)_2UO(L)_2]^{2-}$ (**2**) with reinstated uranyl character. Removal of the silyl group uncovers new redox and oxo rearrangement chemistry for uranium, thus reforming the uranyl motif and involving the $U^{VI/V}$ couple in dioxygen reduction.

Uranyl Complexes

G. M. Jones, P. L. Arnold,*
J. B. Love* ———— 12584 – 12587

Controlled Deprotection and Reorganization of Uranyl Oxo Groups in a Binuclear Macrocyclic Environment



Earning their stripes: A hierarchical assembly of micelles composed of an amphiphilic diblock copolymer, poly(styrene)-*block*-poly(4-vinylpyridine) (PS-*b*-P4VP), were made by combining controlled evaporative self-assembly of the confined PS-*b*-P4VP toluene solution in a cylinder-on-Si geometry with spontaneous self-assembly of micelles. This method gave microscopic stripes of nanometer-sized PS-*b*-P4VP micelles within the stripes (see pictures).

Nanoparticle Gradient

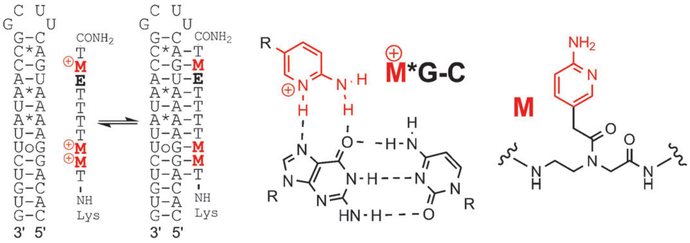
W. Han, M. Byun, B. Li, X. Pang,
Z. Lin* ———— 12588 – 12592

A Simple Route to Hierarchically Assembled Micelles and Inorganic Nanoparticles

RNA Recognition

T. Zengeya, P. Gupta,
E. Rozners* ______ 12593 – 12596

Triple-Helical Recognition of RNA Using 2-Aminopyridine-Modified PNA at Physiologically Relevant Conditions



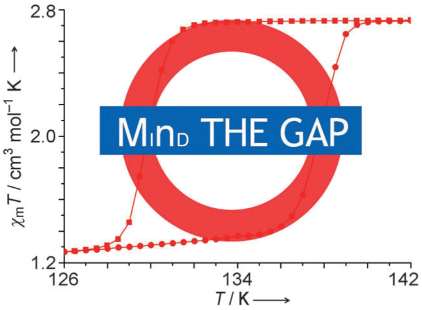
Peptide nucleic acids containing thymidine and 2-aminopyridine (**M**) nucleobases form stable and sequence-selective triple helices with double-stranded RNA at physiologically relevant conditions. The **M**-modified PNA showed unique RNA selectivity by having two orders of magnitude higher affinity for the double-stranded RNAs than for the same DNA sequences.

Spin Transitions

P. N. Martinho, B. Gildea, M. M. Harris,
T. Lemma, A. D. Naik, H. Müller-Bunz,
T. E. Keyes, Y. Garcia,
G. G. Morgan* ______ 12597 – 12601

Cooperative Spin Transition in a Mononuclear Manganese(III) Complex

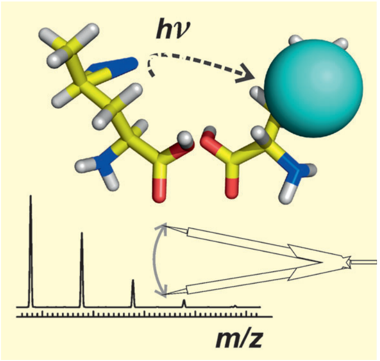
Mind the gap: A complete, cooperative spin transition for a mononuclear Mn^{III} complex is reported with an 8 K hysteresis window. Raman spectra collected at a single temperature in warming and cooling modes confirm the electronic bistability within the hysteresis loop. The source of the cooperativity is a disconnection in the hydrogen-bonded 1D chains that connect adjacent cations owing to an order–disorder transition in the PF_6^- counterion.



Peptide Structures

K. Kölbel,* C. H. Ihling,
A. Sinz* ______ 12602 – 12605

Analysis of Peptide Secondary Structures by Photoactivatable Amino Acid Analogues



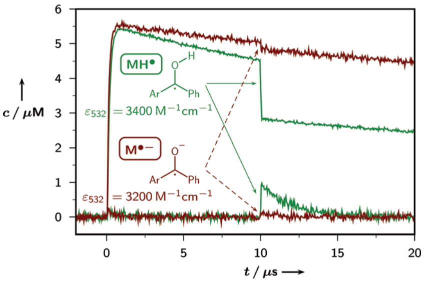
Photochemical cross-linking was applied to trap intramolecular interactions in peptides. The incorporation of diazirine-labeled amino acid analogues in combination with high-resolution mass spectrometry made it possible to catch reverse-turn conformations within peptides, exactly map their self-interacting surfaces, and discriminate between stable and transient interactions.

Photoionization

M. Goez,* C. Kerzig ______ 12606 – 12608

Counterintuitive Influence of Protonation on Radical-Anion Photoionization

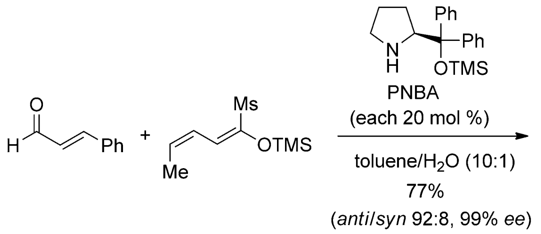
Protonation of a radical anion $M^{\bullet-}$ greatly facilitates its green-light photoionization despite much less favorable energetics for the resulting ketyl radical $MH^{\bullet}$. The state symmetry of the radical species absorbing the ionizing photon might provide an explanation.



Asymmetric Catalysis

V. Gupta, S. Sudhir V., T. Mandal,
C. Schneider* ______ 12609 – 12612

Organocatalytic, Highly Enantioselective Vinylogous Mukaiyama–Michael Reaction of Acyclic Dienol Silyl Ethers

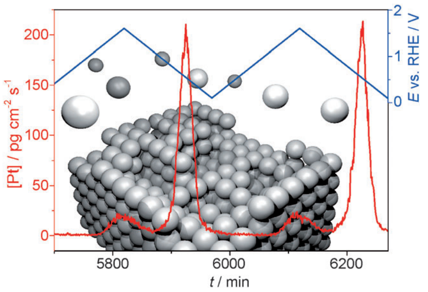


Now also acyclic: The first catalytic, enantioselective, vinylogous Michael reaction of linear, acyclic dienol silyl ethers was achieved. The reaction, based upon the principle of iminium ion catalysis, delivered 1,7-dioxo compounds in one step with good yields, complete regio-, and excellent enantioselectivity. γ-Substituted dienol silyl ethers furnished products with two new stereogenic centers with good diastereoselectivity. Ms = mesityl, PNBA = *para*-nitrobenzoic acid.

Platinum Dissolution

A. A. Topalov,* I. Katsounaros,
M. Auinger, S. Cherevko, J. C. Meier,
S. O. Klemm,
K. J. J. Mayrhofer* ______ 12613 – 12615

Dissolution of Platinum: Limits for the Deployment of Electrochemical Energy Conversion?

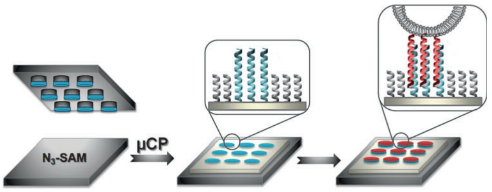


Platinum stability: Dissolution of Pt, which is one major degradation mechanism in, for example, hydrogen/air fuel cells, was monitored under potentiodynamic and potentiostatic conditions. The highly sensitive and time-resolving dissolution monitoring enables the distinction between anodic and cathodic dissolution processes during potential transient and chronoamperometric experiments, and the precise quantification of the amount of dissolved Pt.

Surface Patterning

J. Voskuhl, C. Wendeln, F. Versluis,
E.-C. Fritz, O. Roling, H. Zope, C. Schulz,
S. Rinnen, H. F. Arlinghaus, B. J. Ravoo,*
A. Kros* ______ 12616 – 12620

Immobilization of Liposomes and Vesicles on Patterned Surfaces by a Peptide Coiled-Coil Binding Motif



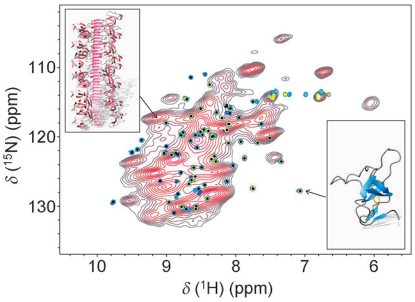
Patchy surfaces: An azide-terminated self-assembled monolayer was patterned with the peptide sequence (EIAALEK)$_3$ by using microcontact printing. This sequence forms stable coiled-coil heterodimers with the complementary peptide (KIAALKE)$_3$. By introducing this peptide to the surface of phospholipid liposomes and cyclodextrin vesicles, liposomes and vesicles can be immobilized at the patterned surface.

Amyloids

V. K. Morris, R. Linser, K. L. Wilde,
A. P. Duff, M. Sunde,*
A. H. Kwan* ______ 12621 – 12625

Solid-State NMR Spectroscopy of Functional Amyloid from a Fungal Hydrophobin: A Well-Ordered β-Sheet Core Amidst Structural Heterogeneity

GrEASy fibrils: Hydrophobins are fungal proteins that assemble into an amphipathic fibrillar monolayer with amyloid properties and a hydrophobic face as water-resistant as Teflon. Solid-state NMR studies on EAS hydrophobin fibrils reveal direct evidence of a partial molecular rearrangement on assembly and an ordered β-sheet-rich core in the context of a whole protein in this functional amyloid.



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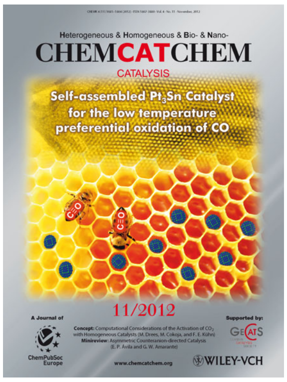

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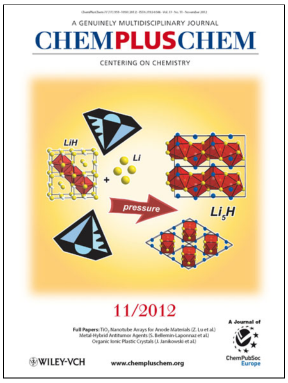

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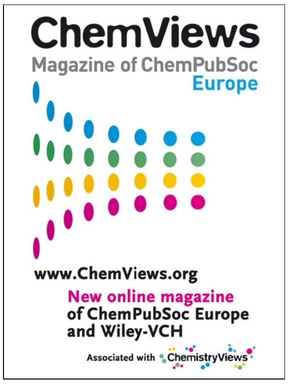

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