



The following Communications have been judged by at least two referees to be “very important papers” and will be published online at www.angewandte.org soon:

Q. Wang, M. Zhang, C. Chen, W. Ma, J. Zhao*

**Photocatalytic Aerobic Oxidation of Alcohols on TiO₂:
The Acceleration Effect of Brønsted Acids**

Y. Fu, Q. Dai, W. Zhang, J. Ren, T. Pan,* C. He*

**AlkB Domain of Mammalian ABH8 Catalyzes Hydroxylation of
5-Methoxycarbonylmethyluridine at the Wobble Position of tRNA**

M. Roth, P. Kindervater, H.-P. Raich, J. Bargon, H. W. Spiess,*
K. Münnemann*

**Continuous ¹H and ¹³C Signal Enhancement in NMR
Spectroscopy and MRI Using Parahydrogen and Hollow-Fiber
Membranes**

H. Zheng, J. Gao*

**Highly Specific Heterodimerization Mediated by Quadrupole
Interactions**

H. Shao, J. Seifert, N. C. Romano, M. Gao, J. J. Helmus,
C. P. Jaroniec, D. A. Modarelli, J. R. Parquette*

Amphiphilic Self-Assembly of an *n*-Type Nanotube

M. Willis, M. Götz, A. K. Kandalam, G. F. Ganteför,* P. Jena*

Hyperhalogens: A New Class of Highly Electronegative Species

V. Mazumder, M. Chi, K. L. More, S. Sun*

**Synthesis and Characterization of Multimetallic Pd/Au and
Pd/Au/FePt Core/Shell Nanoparticles**

S. Scheller, M. Goenrich, S. Mayr, R. K. Thauer, B. Jaun*

**The Catalytic Cycle of Methyl-Coenzyme M Reductase Proceeds
through an Intermediate: Isotope Exchange is Consistent with
Formation of a *s*-Alkane Nickel Complex**

P. Chakraborty, I. Krivokapic, R. Bronisz, C. Enachescu, A. Hauser*
**Giant Variation of the Singlet–Quintet Intersystem Crossing Rate
Constant in an Iron(II) High-Spin Complex as a Function of
Temperature**

H. Li, A. C. Fahrenbach, S. K. Dey, S. Basu, A. Trabolsi, Z. Zhu,
Y. Y. Botros, J. F. Stoddart*

Mechanical Bond Formation by Radical Templatation

G. Yao, C. Deng,* X. Zhang, P. Yang

**Efficient Tryptic Proteolysis Accelerated by Laser Radiation for
Peptide Mapping in Proteome Analysis**

K. P. Neupane, V. L. Pecoraro*

**Probing a Homoleptic PbS₃ Coordination Environment in a
Designed Peptide Using ²⁰⁷Pb NMR Spectroscopy: Implications
for Understanding the Molecular Basis of Lead Toxicity**

B. Alonso,* E. Belamie*

Chitin–Silica Nano-Composites Through Self-Assembly

D. V. Esposito, S. T. Hunt, A. L. Stottlemeyer, K. D. Dobson,
B. E. McCandless, R. W. Birkmire, J. G. Chen*

**Low-Cost Hydrogen-Evolution Catalysts Based on Monolayer
Platinum on Tungsten Monocarbide (WC) Substrates**



*“If I were not a scientist, I would be an architect or a
designer.*

*My favorite subject at school was art because art provides
essentially unlimited possibilities based on one’s
imagination ...”*

This and more about Takuzo Aida can be found on page
7380.

Author Profile

Takuzo Aida _____ 7380

Hans Georg von Schnering (1931–2010)

Obituary

A. Simon _____ 7383–7384

Reviews

Telomeres/Telomerase

J. W. Szostak* ————— 7386 – 7404

DNA Ends: Just the Beginning (Nobel Lecture)

E. H. Blackburn* ————— 7405 – 7421

Telomeres and Telomerase: The Means to the End (Nobel Lecture)

Secrets revealed: The Nobel Prize for Medicine 2009 was awarded for the solution to one of the greatest mysteries of biology: how are chromosomes copied upon cell division and protected from degradation? The answer can be found at the ends of the chromosomes—the telomeres—and in the enzyme that forms them—telomerase. The laureates describe the events leading to the discovery first-hand.



C. W. Greider* ————— 7422 – 7439

Telomerase Discovery: The Excitement of Putting Together Pieces of the Puzzle (Nobel Lecture)

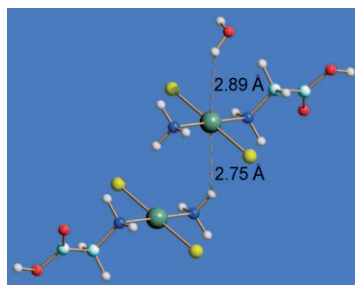
Communications

Hydrogen Bonding

S. Rizzato, J. Bergès, S. A. Mason, A. Albinati, J. Kozelka* — 7440 – 7443



Dispersion-Driven Hydrogen Bonding: Predicted Hydrogen Bond between Water and Platinum(II) Identified by Neutron Diffraction

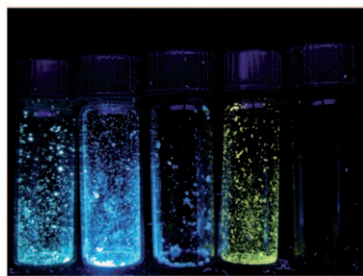
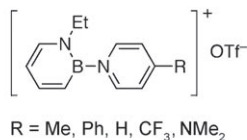


An alternative to classical? In square-planar d^8 complexes the metal ion can interact with axial H_2O molecules either as a Lewis acid or as a Lewis base. Ab initio calculations predicted that uncharged Pt^{II} complexes form a hydrogen-bond-like interaction with H_2O , in which Pt^{II} acts as a Lewis base. Such a nonclassical $O-H \cdots Pt$ hydrogen bond has now been identified in crystals of *trans*- $[PtCl_2(NH_3)(N\text{-glycine})] \cdot H_2O$ by neutron diffraction.

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\$ 9442/8583 (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.



Positively brilliant: The first examples of 1,2-azaborine cations have been prepared and their structure and optoelectronic properties characterized (see picture). 1,2-Azaborine cations exhibit solid-state fluorescence that is distinct from their neutral all-carbon analogues, and the 1,2-azaborine moiety is a critical component for the optoelectronic properties. There is a potential for the utility of these complexes in materials applications.

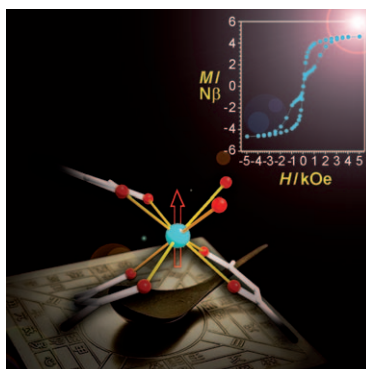
Fluorescent BN-Heterocycles

A. J. V. Marwitz, J. T. Jenkins,
L. N. Zakharov, S.-Y. Liu* — 7444–7447

1,2-Azaborine Cations



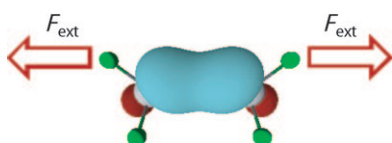
No dates for Dy³⁺: With a single-ion magnet containing dysprosium, magnetic-site dilution leads to a hysteresis loop that can be detected at 0.5 and 2 K. On cooling below 8 K, the relaxation mechanism of the undiluted complex changes from a thermally activated process to quantum tunneling. The quantum tunneling can be suppressed by applying a direct-current field and by magnetic site dilution.



Single-Ion Magnets

S.-D. Jiang, B.-W. Wang,* G. Su,
Z.-M. Wang, S. Gao* — 7448–7451

A Mononuclear Dysprosium Complex
Featuring Single-Molecule-Magnet
Behavior

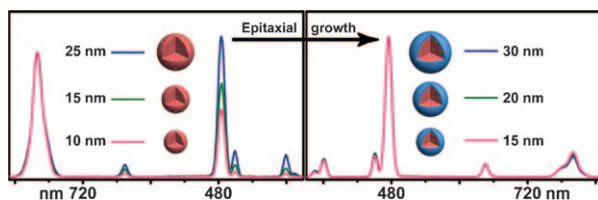


Stress test: Quantum chemical methods were used to study how subjecting molecules to mechanical stresses (see picture; F_{ext} is an external force) can overcome the Woodward–Hoffmann (WH) rules. The results show that applied stresses do not alter the electronic structure (as is the case for irradiation) but rather render the WH rules secondary to mechanochemical factors that favor progression to the products.

Mechanochemistry

G. S. Kochhar, A. Bailey,
N. J. Mosey* — 7452–7455

Competition between Orbitals and Stress
in Mechanochemistry



A series of Yb/Tm co-doped NaGdF₄ nanoparticles without or with a thin surface protection layer provide direct evidence of a surface quenching effect on size-dependent upconversion lumines-

cence (see picture). The coating preserves the optical integrity of the nanoparticles (right-hand spectrum) and minimizes emission loss induced by surface quenching.

Doped Nanoparticles

F. Wang, J. Wang, X. Liu* — 7456–7460

Direct Evidence of a Surface Quenching
Effect on Size-Dependent Luminescence
of Upconversion Nanoparticles



Photoresponsive Materials

S. Tamesue, Y. Takashima, H. Yamaguchi, S. Shinkai, A. Harada* — 7461 – 7464



Photoswitchable Supramolecular Hydrogels Formed by Cyclodextrins and Azobenzene Polymers

Shine a light: A supramolecular hydrogel is formed by the glucan curdlan equipped with α -cyclodextrins (CD-CUR) and azo-benzene-modified poly(acrylic acid)-($\text{pAC}_{12}\text{Azo}$). The sol–gel transition and the morphology of the supramolecular hydrogel can be switched by photoirradiation at the appropriate wavelength, which controls the formation of an inclusion complex between the α -cyclodextrins and the azobenzene moieties (see picture).



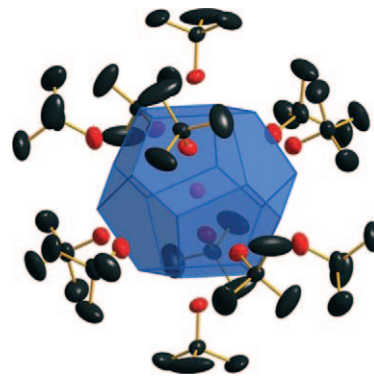
Container Molecules

M. Podewitz, J. D. van Beek, M. Wörle, T. Ott, D. Stein, H. Rüegger, B. H. Meier,* M. Reiher,* H. Grützmacher* — 7465 – 7469



Ion Dynamics in Confined Spaces: Sodium Ion Mobility in Icosahedral Container Molecules

Cage it: A central PH_2^- ion (see picture, magenta) is encapsulated within a container of twelve *tert*-butoxides (red and black) in an icosahedral arrangement. The twelve or thirteen sodium counterions are dynamically disordered over the twenty corners of a regular dodecahedron (blue). The estimated activation barriers for sodium exchange are remarkably low ($10\text{--}30\text{ kJ mol}^{-1}$) and in the range of fast Li^+ ion conductors.

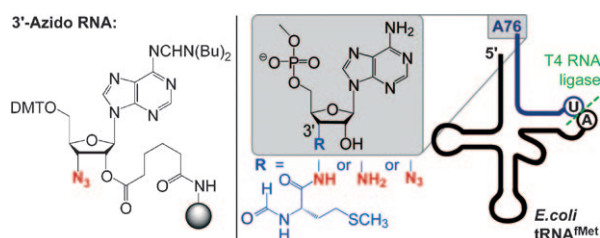


Modified RNA Derivatives

J. Steger, D. Graber, H. Moroder, A.-S. Geiermann, M. Aigner, R. Micura* — 7470 – 7472



Efficient Access to Nonhydrolyzable Initiator tRNA Based on the Synthesis of 3'-Azido-3'-Deoxyadenosine RNA



Flexibility exercised: Hydrolysis-resistant 3'-aminoacyl-tRNA conjugates that contain a stable amide linkage instead of the natural ester are valuable substrates for biochemical studies of ribosomal processes. In a novel preparation of the

stable *E. coli* initiator tRNA derivative 3'-(*N*-formylmethionyl)amino-tRNA^{Met} the key feature is the synthesis of 3'-azido oligoribonucleotides using a new functionalized solid support.

Protein Sensing

H. Taskent-Sezgin, J. Chung, P. S. Banerjee, S. Nagarajan, R. B. Dyer, I. Carrico,* D. P. Raleigh* — 7473 – 7475

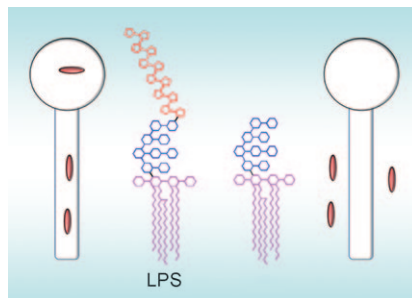


Azidohomoalanine: A Conformationally Sensitive IR Probe of Protein Folding, Protein Structure, and Electrostatics

Highly sensitive: The azido analogue of methionine, azidohomoalanine (see picture), is shown to be a sensitive IR probe of protein structure, folding, and electrostatics, as demonstrated for ribosomal protein NTL9. It can be readily incorporated in to proteins, and the azido frequency is significantly blue-shifted in the thermally unfolded state.



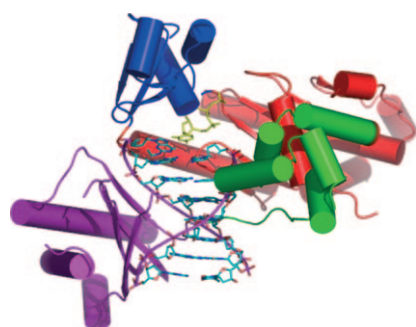
Dress code for living in a fungus: Analysis of the carbohydrate coating of the toxin-producing endobacterium of the phytopathogenic fungus *Rhizopus microsporus* revealed an unprecedented lipopolysaccharide (LPS) structure, which is important for infection and colonization of the fungal host. A mutant lacking the unusual $[\rightarrow 2)\text{-}\beta\text{-D-galactofuranose-(1}\rightarrow)]_n$ O antigen (red in the schematic illustration) was incapable of forming a stable symbiosis with the fungus.



Natural Products

M. R. Leone, G. Lackner, A. Silipo,
R. Lanzetta, A. Molinaro,*
C. Hertweck* _____ **7476–7480**

An Unusual Galactofuranose
Lipopolysaccharide That Ensures the
Intracellular Survival of Toxin-Producing
Bacteria in Their Fungal Host

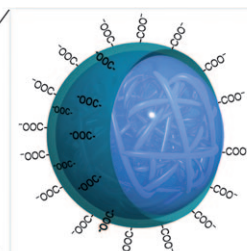
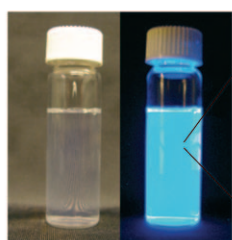
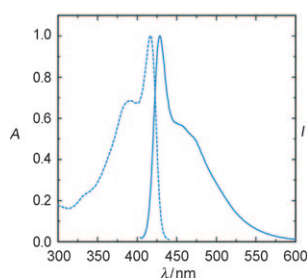


Picking a pucker! Fixed-conformation North (N)- and South (S)-methanocarb-2'-deoxyadenosine-triphosphate (MC-dATP) have different effects in DNA strand extension catalyzed by HIV-1 RT and three human Y-family DNA polymerases (pols). All of the polymerases tested preferred the N-oriented furanose geometry, though pol η could insert both pucker mimics. The growth of malignant breast cancer cells overexpressing pol ι was more severely inhibited by N-MC-dATP than that of nonmalignant breast cells.

Polymerases

R. L. Eoff, C. E. McGrath, L. Maddukuri,
S. G. Salamanca-Pinzón, V. E. Marquez,
L. J. Marnett, F. P. Guengerich,
M. Egli* _____ **7481–7485**

Selective Modulation of DNA Polymerase
Activity by Fixed-Conformation
Nucleoside Analogues



Conjugated Polymers

J. Lim, T. M. Swager* _____ **7486–7488**

Fluorous Biphasic Synthesis of a Poly(*p*-phenyleneethynylene) and its Fluorescent Aqueous Fluorous-Phase Emulsion

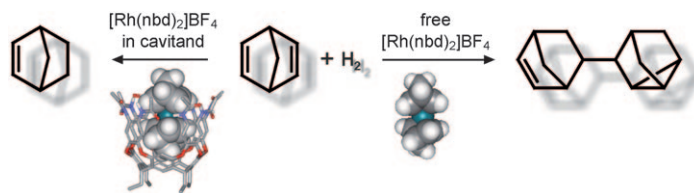
It's just a phase: A highly fluorinated compound with a rigid three-dimensional architecture was synthesized as a monomer for poly(*p*-phenyleneethynylene)s (PPEs). Fluorous biphasic reactions were applied for the synthesis of a PPE that is

soluble only in fluorous solvents. A fluorous solution of the polymer could be processed into aqueous emulsions that display high fluorescence quantum yields (see picture).



Supramolecular Catalysis

M. A. Sarmentero, H. Fernández-Pérez,
E. Zuidema, C. Bo, A. Vidal-Ferran,*
P. Ballester* ————— 7489 – 7492



Catalytic Hydrogenation of
Norbornadiene by a Rhodium Complex in
a Self-Folding Cavitand

It's a wrap! The inclusion of $[\text{Rh}(\text{nbd})_2]\text{BF}_4$ (nbd = norbornadiene) in a deep-cavity cavitand produces a catalytically active species that promotes the hydrogenation of norbornadiene to norbornene (see

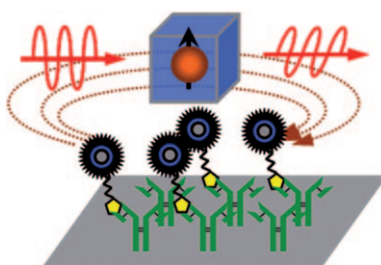
picture). The structure of the cavitand acts as a second-sphere ligand and modifies the stability, selectivity, and reactivity observed for the free organometallic complex in solution.

Imaging Methods

L. Yao, A. C. Jamison, S. Xu* 7493 – 7496



Scanning Imaging of Magnetic
Nanoparticles for Quantitative Molecular
Imaging



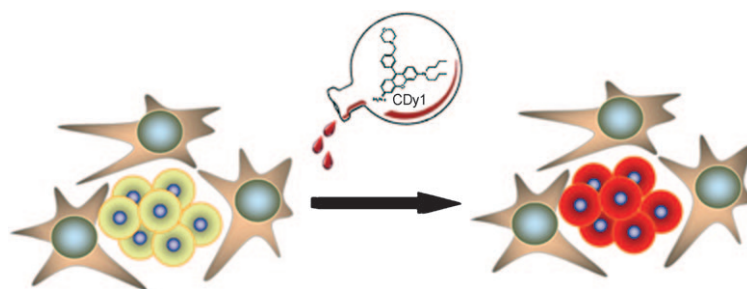
Quantitative molecular imaging: Labeled magnetic nanoparticles serve as molecular probes that bind to specific antibody molecules. The magnetic field of the bound particles is detected using scanning magnetic imaging with an optical atomic magnetometer based on the magneto-optical property of alkali metals. The magnetization, and thus the number of the antibody-bound magnetic nanoparticles, and the corresponding two-dimensional spatial information are obtained simultaneously.

Imaging Agents

C.-N. Im, N.-Y. Kang, H.-H. Ha, X. Bi,
J. J. Lee, S.-J. Park, S. Y. Lee, M. Vendrell,
Y. K. Kim, J.-S. Lee, J. Li, Y.-H. Ahn, B. Feng,
H.-H. Ng, S.-W. Yun,*
Y.-T. Chang* ————— 7497 – 7500

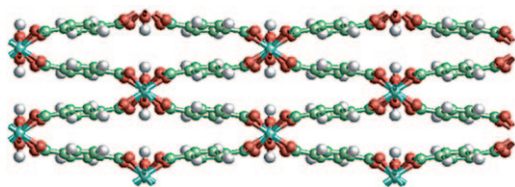


A Fluorescent Rosamine Compound
Selectively Stains Pluripotent Stem Cells



The cell-by date: The fluorescent compound CDy1 selectively stains embryonic stem cells (see scheme). CDy1 was used to identify fibroblasts undergoing reprog-

ramming to induced pluripotent stem cells prior to the expression of green fluorescent protein under the control of the Oct4 promoter.



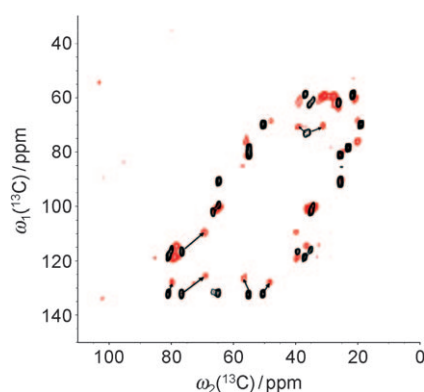
Breathtaking MOFs: DFT calculations reveal that the exceptional, thermally induced density change of the metal-organic framework MIL53(Al) is controlled by a competition between short- and long-range interactions and entropic factors. As shown in the picture (C green,

Al cyan, O red, H white), dispersive interactions between the phenyl rings are responsible for stabilizing a narrow-pore form at low temperature. At 325–375 K, vibrational entropy causes the structure to expand markedly, permitting large volumes of light gases to be adsorbed.

Metal–Organic Frameworks

A. M. Walker, B. Civalleri, B. Slater,*
C. Mellot-Draznieks, F. Corà,
C. M. Zicovich-Wilson, G. Román-Pérez,
J. M. Soler, J. D. Gale ——— 7501 – 7503

Flexibility in a Metal–Organic Framework Material Controlled by Weak Dispersion Forces: The Bistability of MIL-53(Al)



Solid evidence: Induction of the polymerization of $\alpha\beta$ -tubulin dimers into microtubules by epothilones, such as patupilone, by an as yet unknown mechanism leads to the apoptosis of cancer cells. Solid-state NMR spectroscopy of patupilone bound to microtubules has now enabled the identification of atomic positions of the drug that undergo clear chemical-shift changes upon binding (see correlation spectra of free (black) and complexed patupilone (red)).

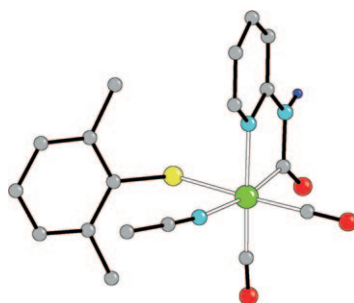
Drug Binding

A. Kumar, H. Heise, M. J. J. Blommers,
P. Krastel, E. Schmitt, F. Petersen,
S. Jeganathan, E.-M. Mandelkow,
T. Carlomagno, C. Griesinger,*
M. Baldus* ——— 7504 – 7507

Interaction of Epothilone B (Patupilone) with Microtubules as Detected by Two-Dimensional Solid-State NMR Spectroscopy



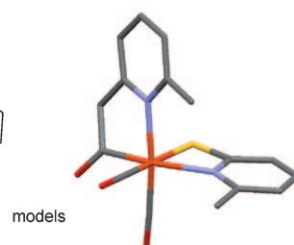
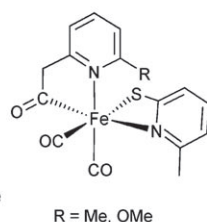
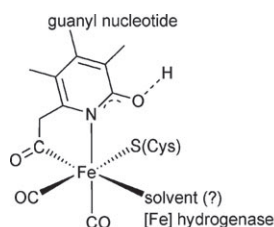
Natural model: The synthesis of a close structural analogue of the active site of [Fe]-hydrogenase is described (see structure; C gray, H dark blue, Fe green, N light blue, O red, S yellow). Nature most probably constructs the five membered ferracyclic ring to poise the 2-hydroxy pyridine substituent in a position to assist the heterolytic cleavage of dihydrogen, and the accessibility of the analogue should now provide opportunities for probing this.



Enzyme Mimics

P. J. Turrell, J. A. Wright, J. N. T. Peck,
V. S. Oganessian,
C. J. Pickett* ——— 7508 – 7511

The Third Hydrogenase: A Ferracyclic Carbamoyl with Close Structural Analogy to the Active Site of Hmd



Enzyme Models

D. F. Chen, R. Scopelliti,
X. L. Hu* ——— 7512 – 7515

[Fe]-Hydrogenase Models Featuring Acylmethylpyridinyl Ligands



Where is my iron? The synthesis, structure, and reactivity of small-molecule models of [Fe]-hydrogenase are described.

These models feature the intriguing acylmethylpyridinyl ligands found exclusively in the enzyme.



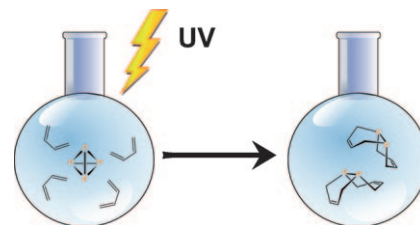
Photolytic Activation of P_4

D. Tofan, C. C. Cummins* — 7516–7518



Photochemical Incorporation of Diphosphorus Units into Organic Molecules

From P_4 to organic diphosphanes in a single operation: Photolysis of solutions containing P_4 and readily available 1,3-dienes produces bicyclic organic diphosphanes, in a one-step, metal-free protocol. Use of 2,3-dimethylbutadiene or 1,3-butadiene (see drawing) allowed the isolation and solid-state structural characterization of the diphosphane products $P_2(C_6H_{10})_2$ and $P_2(C_4H_6)_2$.



C–F Activation

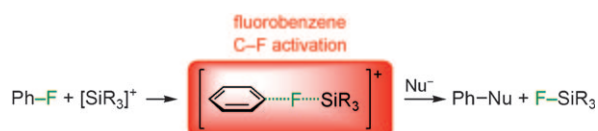
S. Duttwyler, C. Douvris, N. L. P. Fackler, F. S. Tham, C. A. Reed,* K. K. Baldrige,* J. S. Siegel* — 7519–7522



C–F Activation of Fluorobenzene by Silylium Carboranes: Evidence for Incipient Phenyl Cation Reactivity

Si(mply) rips it apart: C–F activation of fluorobenzene has been achieved using the extremely strong silyl Lewis acids $[Et_3Si(X)]^+$ ($X = PhF$ or Et_3SiH) and $[(2,6\text{-dixylyl-C}_6\text{H}_3)\text{SiMe}_2]^+$ paired with the anion

$CHB_{11}Cl_{11}^-$. They abstract fluoride from unactivated fluorobenzene to give arylated products, consistent with phenylation-like reactivity (see scheme).

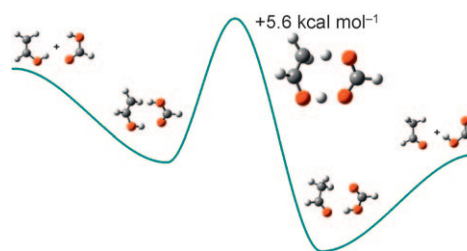


Keto–Enol Kinetics

G. da Silva* — 7523–7525



Carboxylic Acid Catalyzed Keto–Enol Tautomerizations in the Gas Phase



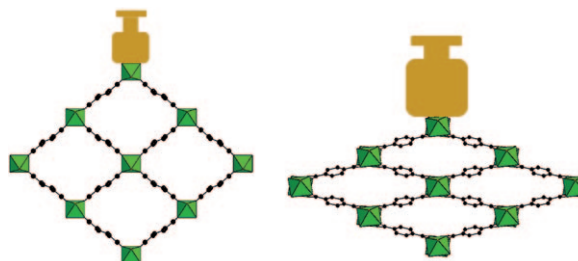
Long live the ketone! Carboxylic acids are shown to directly participate in gas-phase keto–enol tautomerizations that occur through a novel chemically activated double-hydrogen-shift (DHS)

mechanism. This mechanism decreases the reaction barrier by an order of magnitude, and is predicted to reduce the lifetimes of the atmospheric enol forms to approximately one hour.

Metal–Organic Frameworks

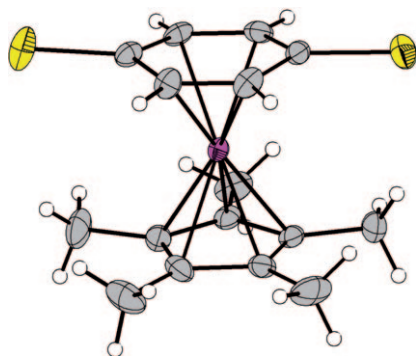
I. Beurroies, M. Boulhout, P. L. Llewellyn, B. Kuchta, G. Férey, C. Serre, R. Denoyel* — 7526–7529

Using Pressure to Provoke the Structural Transition of Metal–Organic Frameworks



Performance under pressure: Hysteresis of intrusion–extrusion of mercury observed in MIL-53(Cr) particles is interpreted as the transition from large-pore to narrow-pore forms of this metal–organic framework (MOF) material, provoked by

the isostatic pressure created by mercury around the porous particles. The observed behavior may be qualitatively explained by a simple energetic model and opens possibilities for applications as dampers or molecular springs.

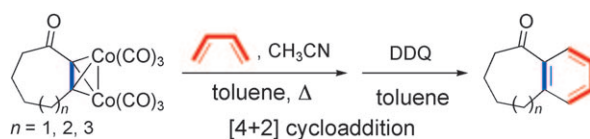


Caught in the act: The first stable η^4 -diseleno-*p*-benzoquinone complex, $[\text{Cp}^*\text{Ir}(\eta^4\text{-C}_6\text{H}_4\text{Se}_2)]$, has been isolated. The X-ray structure (see picture; Ir magenta, Se yellow) confirms the coordination of the elusive diselenobenzoquinone intermediate. The anticancer activity of this complex was compared to related oxygen and sulfur analogues; only the diseleno complex was cytotoxic, having a comparable activity to cisplatin.

Quinone Complexes

H. Amouri,* J. Moussa, A. K. Renfrew, P. J. Dyson, M. N. Rager, L.-M. Chamoreau — 7530–7533

Discovery, Structure, and Anticancer Activity of an Iridium Complex of Diselenobenzoquinone



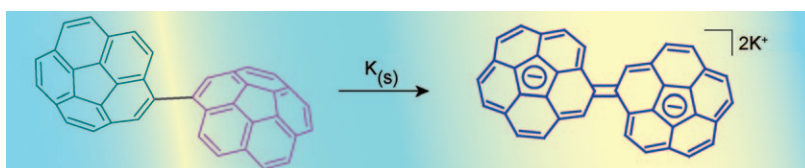
A general protocol for the title transformation has been achieved and is applicable to a wide range of acyclic 1,3-dienes and cyclic alkyne- $\{\text{Co}_2(\text{CO})_6\}$ complexes leading to various types of benzannulated medium-sized cyclic compounds after

oxidative work up (see scheme; DDQ = 2,3-dichloro-5,6-dicyano-1,4-benzoquinone). Interestingly, the [4+2] cycloaddition proceeded preferentially over the Pauson–Khand reaction.

Cycloaddition Reactions

N. Iwasawa,* I. Ooi, K. Inaba, J. Takaya — 7534–7537

[4+2] Cycloaddition Reaction of Cyclic Alkyne- $\{\text{Co}_2(\text{CO})_6\}$ Complexes with Dienes



Super bowl: Bicornannulenyli, a large biaryl composed of two corannulene bowls, effectively becomes an overcrowded ethylene upon reduction to form a dianion (see picture). DFT calculations and NMR spectroscopic experiments reveal the

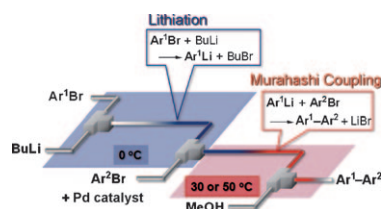
double-bond character of the connection between the two bowls. Three stable diastereomers that interconvert through bowl inversions and central bond rotations were shown to exist.

Buckybowls

D. Eisenberg, E. A. Jackson, J. M. Quimby, L. T. Scott, R. Shenhar* — 7538–7542

The Bicornannulenyli Dianion: A Charged Overcrowded Ethylene

Going with the flow: The use of palladium catalysts bearing a carbene ligand resulted in a faster Murahashi coupling, and enabled its integration with the Br–Li exchange of ArBr with BuLi in a microreactor (see picture). This system allows the cross-coupling of two different aryl bromides within a minute without necessitating low temperatures (-78°C).



Microreactors

A. Nagaki, A. Kenmoku, Y. Moriwaki, A. Hayashi, J. Yoshida* — 7543–7547

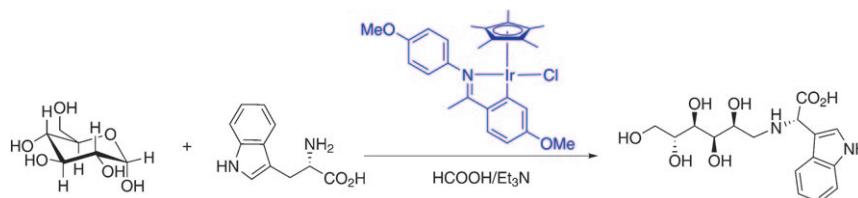
Cross-Coupling in a Flow Microreactor: Space Integration of Lithiation and Murahashi Coupling

Transfer Hydrogenation

C. Wang, A. Pettman, J. Bacsá,
J. Xiao* 7548–7552



A Versatile Catalyst for Reductive
Amination by Transfer Hydrogenation



An **iridium catalyst** enables the reductive amination of carbonyl groups with unprecedented substrate scope, selectivity, and activity using formic acid as the

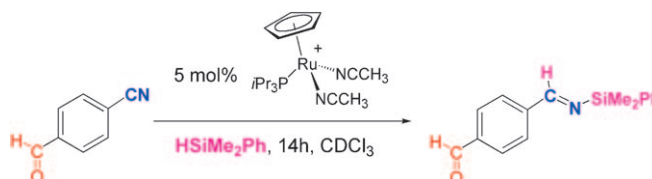
hydrogen source (see scheme). The catalyst system provides significant improvement over commonly used boron hydrides.

Silyl Compounds

D. V. Gutsulyak,
G. I. Nikonov* 7553–7556



Chemoselective Catalytic Hydrosilylation
of Nitriles



Well-behaved: The ruthenium complex [Cp(iPr₃P)Ru(NCCH₃)₂]⁺ (Cp = cyclopentadienyl) catalyzes monohydrosilylation of nitriles (see scheme) with unprecedented tolerance of most common functional

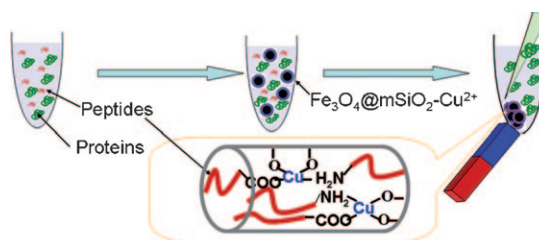
groups. The catalyst is easily synthesized starting from commercially available compounds, is air-stable, recyclable, and works under solvent-free conditions.

Magnetic Materials

S. Liu, H. Chen, X. Lu, C. Deng,* X. Zhang,
P. Yang 7557–7561



Facile Synthesis of Copper(II) Immobilized
on Magnetic Mesoporous Silica
Microspheres for Selective Enrichment of
Peptides for Mass Spectrometry Analysis



Captivating pores: Copper ions were immobilized on mesoporous silica shells with perpendicularly aligned pore channels, formed on Fe₃O₄ cores through a surfactant-templated sol-gel process. The highly accessible mesopores, large in-pore

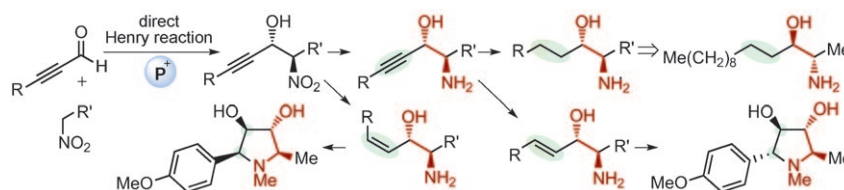
surface, and numerous Cu²⁺ ions on the microspheres allowed selective capture of hydrophobic and hydrophilic peptides from complex biosamples followed by magnetic separation and MS analysis (see picture).

Asymmetric Synthesis

D. Uraguchi, S. Nakamura,
T. Ooi* 7562–7565

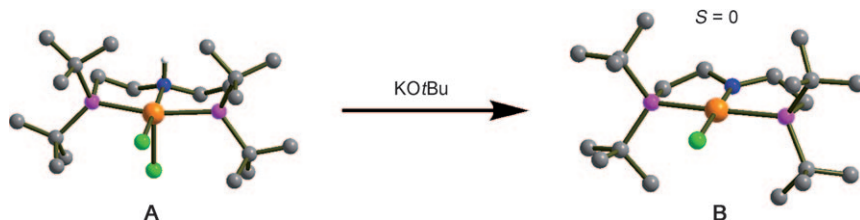


Catalytic Asymmetric Direct Henry
Reaction of Ynals: Short Syntheses of
(2S,3R)-(+)-Xestoaminol C and
(–)-Codonopsinines



Triple for all: Various optically active *anti*-β-nitro propargylic alcohols are synthesized by the catalytic stereoselective addition of nitroalkanes to ynals (the

direct Henry reaction of ynals). The utilization of the rich chemistry of carbon-carbon triple bond allows rapid access to three natural products.



Ground-about: The ruthenium(II) complex $[\text{RuCl}\{\text{N}(\text{CH}_2\text{CH}_2\text{PtBu}_2)_2\}]$ (**B**) is obtained in high yield by the reaction of $[\text{RuCl}_2\{\text{HN}(\text{CH}_2\text{CH}_2\text{PtBu}_2)_2\}]$ (**A**) with KOtBu . Complex **B** exhibits an unusual electronic low-spin ($S=0$) ground-state

configuration. Comparison with Caulton's $[\text{RuCl}\{\text{N}(\text{SiMe}_2\text{CH}_2\text{PtBu}_2)_2\}]$ (ground state: $S=1$) shows that the ground-state spin multiplicity in these complexes is controlled by the $\text{N}\rightarrow\text{Ru}$ π -donor strength.

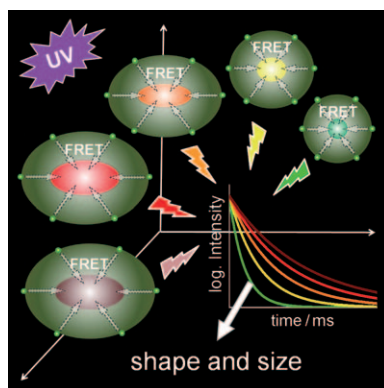
Square-Planar Ru^{II}

B. Askevold, M. M. Khusniyarov,
E. Herdtweck, K. Meyer,
S. Schneider* 7566–7569

A Square-Planar Ruthenium(II) Complex
with a Low-Spin Configuration



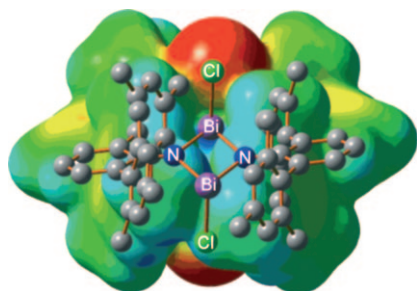
Nanoshapes and sizes: A time-resolved multicolor optical analysis of Förster resonance energy transfer (FRET) from a luminescent terbium complex to different semiconductor quantum dots allows the rapid and accurate measurement of the size and shape of different functionalized quantum dots under physiological conditions. This spectroscopic ruler opens the possibility of a simultaneous analysis of different biological processes at sub-nanomolar concentrations.



Molecular Rulers

F. Morgner, D. Geißler, S. Stufler,
N. G. Butlin, H.-G. Löhmansröben,
N. Hildebrandt* 7570–7574

A Quantum-Dot-Based Molecular Ruler
for Multiplexed Optical Analysis

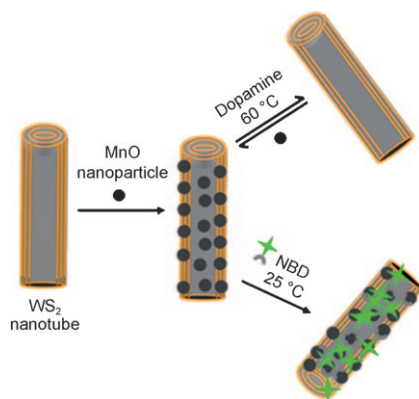


Labile but stable: Despite a labile $\text{Bi}-\text{N}$ bond, the first example of a dichlorocyclodibismadiazane (see picture) is prepared by treatment of terphenyl- $\text{N}(\text{H})\text{BiCl}_2$ with the base DBU. The product only decomposes above 205°C and is stable under argon at room temperature in the solid state and in benzene solution. The background shows the electrostatic potential mapped onto the electron density of the molecule.

Bi-N Heterocycles

D. Michalik, A. Schulz,*
A. Villinger* 7575–7577

Dichlorocyclodibismadiazane



Softly, softly: A novel modification strategy for layered chalcogenide nanoparticles (NPs) takes advantage of the chalcophilic affinity of Mn^{2+} . Surface-bound MnO NPs can be selectively bound to the surface of WS_2 nanotubes and functionalized with the fluorescent dopamine derivative NBD at room temperature. The MnO NPs can also be reversibly detached from the chalcogenide surface with excess dopamine at elevated temperatures.

Surface Functionalization

J. K. Sahoo, M. N. Tahir, A. Yella,
T. D. Schladt, E. Mugnaoli, U. Kolb,
W. Tremel* 7578–7582

Reversible Self-Assembly of Metal
Chalcogenide/Metal Oxide
Nanostructures Based on Pearson
Hardness

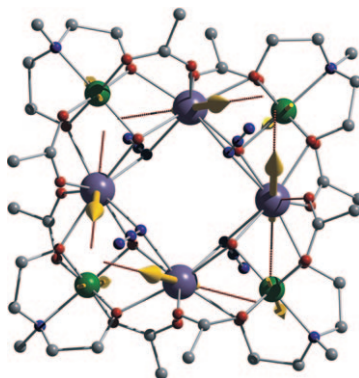


Single-Molecule Magnets

J. Rinck, G. Novitchi, W. Van den Heuvel,
L. Ungur, Y. Lan, W. Wernsdorfer,
C. E. Anson, L. F. Chibotaru,
A. K. Powell* _____ **7583–7587**



An Octanuclear $[\text{Cr}^{\text{III}}_4\text{Dy}^{\text{III}}_4]$ 3d–4f Single-Molecule Magnet



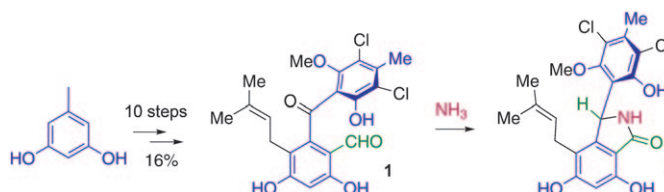
“Square-within-a-square”: The first Cr–Dy single-molecule magnet (SMM) with an energy barrier to spin reorientation of 15 K is presented. The anisotropy in this octanuclear compound arises from the orientations of the four Dy^{III} centers (dark blue), which, in conjunction with the contributions from the Cr^{III} centers (green), leads to the SMM behavior.

Natural Products

N. Slavov, J. Cvengroš, J.-M. Neudörfl,
H.-G. Schmalz* _____ **7588–7591**



Total Synthesis of the Marine Antibiotic Pestalone and its Surprisingly Facile Conversion into Pestalalactone and Pestalachloride A



Surprise, surprise! The total synthesis of the marine natural product pestalone (**1**), a highly substituted benzophenone with strong antibiotic activity, has provided insight into the surprising tendency of this and related molecules to undergo intra-

molecular Cannizzaro–Tishchenko-type reactions. Pestalone can be readily converted into pestalachloride A, a strongly antifungal metabolite isolated from an endophytic fungus, by simple treatment with ammonia at pH 8.



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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Authors _____ **7593**

Preview _____ **7595**