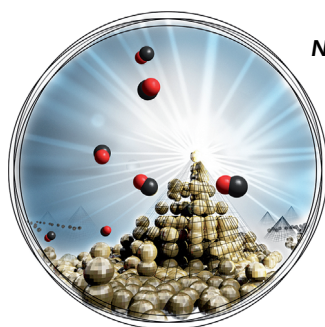
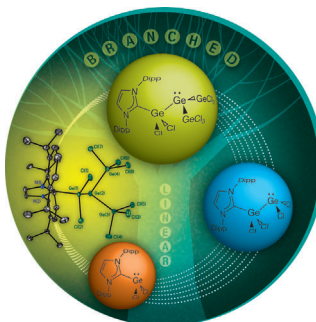




... as potential intrinsic DNA photosensitizers are discussed by V. Lhiaubet-Vallet, M. A. Miranda, et al. in their Communication on page 6476 ff. 5-Methyl-2-pyrimidone deoxyribonucleoside was shown to photosensitize the DNA damage, acting as a Trojan horse. This concept is illustrated using images of Valencia, taken from the Fallas Festival and the Science Museum.

Dichlorogermanium Oligomers

In their Communication on page 6390 ff., E. Rivard et al. describe a mild stepwise route to various linear and branched $(\text{GeCl}_2)_x$ oligogermynes supported by Lewis bases. The authors thank P. Lummis and E. Oesterreich, RGD, for their assistance with the design.

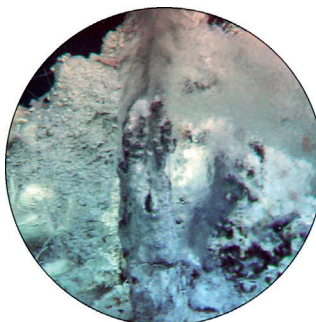


Nanoparticle Surface

In their Communication on page 6459 ff., A. Fery, A. R. de Lera, L. F. Marsal, R. A. Alvarez-Puebla et al. describe a new micropatterning technique to create micropyramids out of gold nanoparticles. This surface serves as an excellent substrate for surface-enhanced Raman spectroscopy.

Nanoemulsions

The unique environment in the surroundings of hydrothermal vents in the deep ocean inspired S. Deguchi and N. Ifuku to develop a novel bottom-up emulsification process, described in their Communication on page 6409 ff.



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Spotlight on Angewandte's Sister Journals

6358 – 6360



"My greatest achievement has still not been published ... I hope!"

My biggest motivation is curiosity ..."

This and more about Manuel Alcarazo can be found on page 6358.

Service

Author Profile

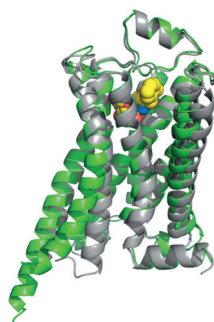
Manuel Alcarazo _____ 6358

Redox Biocatalysis

Daniela Gaménara, Gustavo A. Seoane,
Patricia Saenz-Méndez, Pablo
Domínguez de María

Books

reviewed by V. Urlacher _____ 6363



The idea of receptors has fascinated scientists for more than a century. Today it is known that the G-protein coupled receptors (GPCRs) represent by far the largest, most versatile and most ubiquitous of the several families of plasma membrane receptors. The Nobel Prize for Chemistry 2012 was awarded for studies on GPCRs.

Nobel Lectures

G-Protein-Coupled Receptors

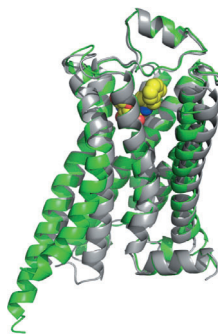
R. J. Lefkowitz* _____ 6366 – 6378

A Brief History of G-Protein Coupled Receptors (Nobel Lecture)

G-Protein-Coupled Receptors

B. Kobilka* ————— 6380–6388

The Structural Basis of G-Protein-Coupled Receptor Signaling (Nobel Lecture)



Cells from different parts of our bodies communicate with each other using chemical messengers in the form of hormones and neurotransmitters. They process information encoded in these chemical messages using G-protein-coupled receptors (GPCRs) located in the plasma membrane. The Nobel Prize for Chemistry 2012 was awarded for studies on GPCRs.

Communications



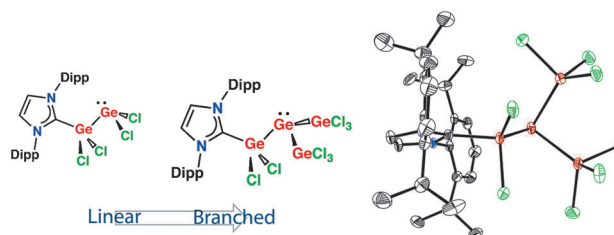
Main Group Chemistry

S. M. I. Al-Rafia, M. R. Momeni,
R. McDonald, M. J. Ferguson, A. Brown,
E. Rivard* ————— 6390–6395



Controlled Growth of Dichlorogermanium Oligomers from Lewis Basic Hosts

Frontispiece



To branch or not to branch: A mild stepwise route to various linear and branched $(\text{GeCl}_2)_x$ oligogermynes supported by Lewis bases is reported,

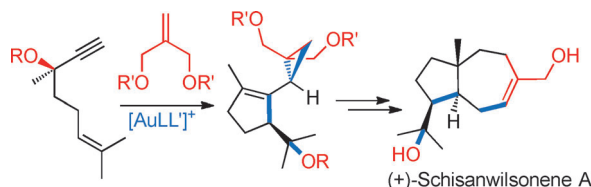
including the carbene-bound Ge_4 complex $\text{NHC} \cdot \text{GeCl}_2\text{Ge}(\text{GeCl}_3)_2$ (see picture). Dipp = 2,6- $i\text{Pr}_2\text{C}_6\text{H}_3$, NHC = N-heterocyclic carbene.

Natural Products

M. Gaydou, R. E. Miller, N. Delpont,
J. Ceccon,
A. M. Echavarren* ————— 6396–6399



Synthesis of (+)-Schisanwilsonene A by Tandem Gold-Catalyzed Cyclization/1,5-Migration/Cyclopropanation



Going (anti)viral: The first total synthesis of the antiviral (+)-schisanwilsonene A has been completed using a fully stereoselective tandem cyclization/1,5-migra-

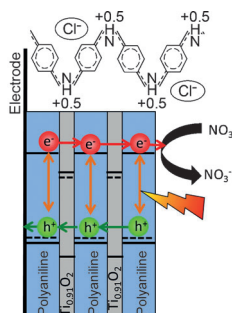
tion/intermolecular cyclopropanation. The key reaction sequence is catalyzed by gold.

For the USA and Canada:

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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.

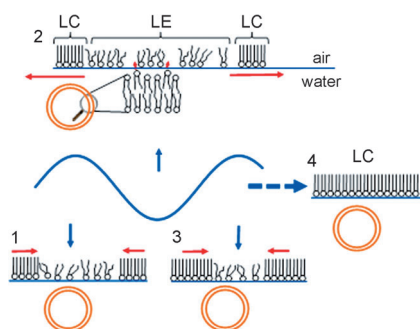


Multifunctional nanomaterials: A new type of multilayer thin film containing alternating polyaniline layers and titania nanosheets was self-assembled (see picture). The film was used as photoelectrode which has n-type to p-type switchable semiconducting properties.

Photochemistry

B. Seger, J. McCray, A. Mukherji, X. Zong, Z. Xing, L. Wang* — 6400 – 6403

An n-Type to p-Type Switchable Photoelectrode Assembled from Alternating Exfoliated Titania Nanosheets and Polyaniline Layers



Prolonged periodical variations of the surface density of a film of phospholipids adsorbed on the surface of an air bubble and in contact with a dispersion of phospholipid vesicles (orange) lead to accelerated phospholipid adsorption and lowering of the interfacial tension. The phenomenon is assigned to a coupling between the periodical variation of the surface density of the phospholipid at the interface and its dilute-to-condensed (LE-to-LC) phase transition.

Interfaces

P. N. Nguyen, G. Waton, T. Vandamme, M. P. Krafft* — 6404 – 6408

Behavior of an Adsorbed Phospholipid Monolayer Submitted to Prolonged Periodical Surface Density Variations



Only 10 seconds: Hydrocarbons and water do not mix under standard conditions, but they do mix freely at high temperature and high pressure near the gas/liquid critical point of water ($T_c = 374^\circ\text{C}$, $P_c = 22.1\text{ MPa}$). Quenching of homogeneous solutions of dodecane and water at such extreme conditions in the presence of a surfactant results in bottom-up formation of nanosized oil droplets in water in only 10 seconds.



Nanoemulsions

S. Deguchi,* N. Ifuku — 6409 – 6412

Bottom-Up Formation of Dodecane-in-Water Nanoemulsions from Hydrothermal Homogeneous Solutions



Back Cover



A chameleon luminophore: A temperature-sensing material is reported that has a high thermostability (see picture). The material is composed of color-changing luminescent coordination polymers containing Eu^{III} and Tb^{III} ions. The coordination polymer exhibits a high emission quantum yield Φ of 40% at room temperature and a temperature-sensing ability over a wide range of 200–500 K.

Luminescence

K. Miyata, Y. Konno, T. Nakanishi, A. Kobayashi, M. Kato, K. Fushimi, Y. Hasegawa* — 6413 – 6416

Chameleon Luminophore for Sensing Temperatures: Control of Metal-to-Metal and Energy Back Transfer in Lanthanide Coordination Polymers

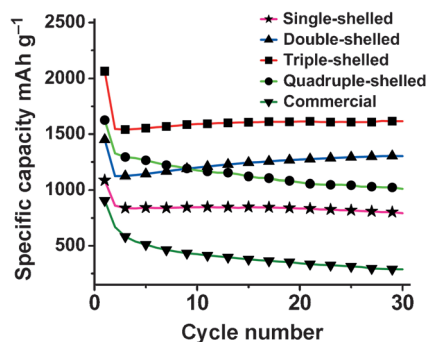


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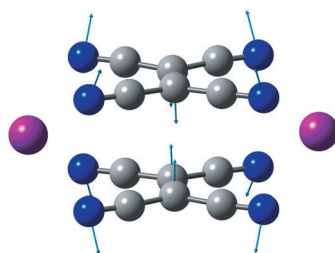
More than just an empty shell: Multi-shelled Co_3O_4 microspheres were synthesized as anode materials for lithium-ion batteries in high yield and purity. As their porous hollow multishell structure guarantees a shorter Li^+ diffusion length and sufficient void space to buffer the volume expansion, their rate capacity, cycling performance, and specific capacity were excellent ($1615.8 \text{ mAh g}^{-1}$ in the 30th cycle for triple-shelled Co_3O_4 ; see graph).

Lithium-Ion Batteries

J. Wang, N. Yang, H. Tang, Z. Dong, Q. Jin, M. Yang, D. Kisailus, H. Zhao, Z. Tang, D. Wang* — 6417–6420

Accurate Control of Multishelled Co_3O_4 Hollow Microspheres as High-Performance Anode Materials in Lithium-Ion Batteries

Long C–C bonds: Analysis of the 1064 nm Raman vibrational spectrum of $\text{K}_2[\text{TCNE}]_2$ possessing isolated $\pi\text{-}[\text{TCNE}]_2^{2-}$ (TCNE = tetracyanoethylene) dimers shows several low-energy symmetric intradimer breathing modes at 198, 173, 155, 131, 107, and 85 cm^{-1} . These data confirm the presence of a long two-electron/four-center C–C bond (see picture).

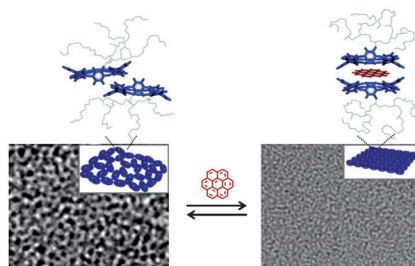


Structure Elucidation

J. Casado,* P. M. Burrezo, F. J. Ramírez, J. T. L. Navarrete,* S. H. Lapidus, P. W. Stephens,* H.-L. Vo, J. S. Miller,* F. Mota, J. J. Novoa* — 6421–6425

Evidence for Multicenter Bonding in Dianionic Tetracyanoethylene Dimers by Raman Spectroscopy

Slim guests are welcome: Aromatic macrobicyclic amphiphiles underwent self-assembly through a face-to-face interaction to form dimeric micelles, which further associated laterally to form porous sheets with nanometer-sized pores. The resulting sheets efficiently intercalated planar aromatic guest molecules, whereupon the porous sheets were reversibly transformed into closed sheets (see picture).

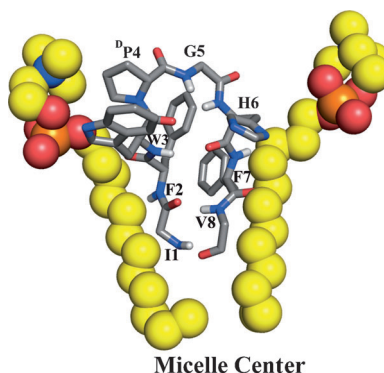


Host–Guest Systems

Y. Kim, S. Shin, T. Kim, D. Lee, C. Seok, M. Lee* — 6426–6429

Switchable Nanoporous Sheets by the Aqueous Self-Assembly of Aromatic Macrobicycles

Autonomously folded designed β -hairpin peptides in detergent micelles show peroxidase activity with heme binding. Aromatic–aromatic cross-strand packing interactions that stabilize β -hairpin structures in solution are not strictly required for the structure and activity of a β -hairpin folded in a micelle environment.



Micelle Center

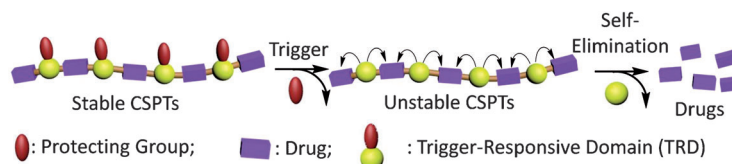
Membrane-Peptide Mimetics

M. Mahajan, S. Bhattacharjya* — 6430–6434

β -Hairpin Peptides: Heme Binding, Catalysis, and Structure in Detergent Micelles

Polymer-Drug Conjugates

Y. Zhang, Q. Yin, L. Yin, L. Ma, L. Tang,
J. Cheng* 6435–6439



Chain-Shattering Polymeric Therapeutics
with On-Demand Drug-Release Capability

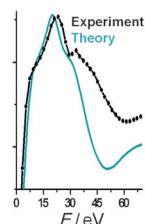
Trigger happy: Trigger-responsive chain-shattering polymeric therapeutics (CSPTs) were prepared by condensation polymerization of a UV- or hydrogen peroxide-responsive domain and a drug as co-

monomers. Drug release can be started and stopped by starting and stopping the trigger treatment. Chemotherapeutic-containing CSPTs showed trigger-responsive in vitro and in vivo antitumor efficacy.



Heterogeneous Catalysis

A. Tougeri, E. Berrier, A.-S. Mamede,
C. La Fontaine, V. Briois, Y. Joly, E. Payen,
J.-F. Paul, S. Cristol* 6440–6444



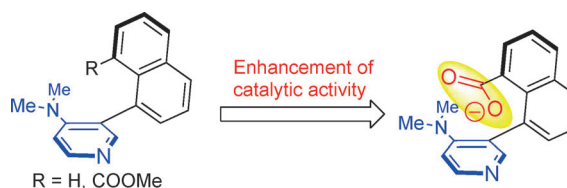
Active phase of a catalyst: Using the 3D structural characterization of the environment around Mo atoms provided by X-ray absorption near-edge structure spectroscopy (left; spectrum of the Mo_K edge) and DFT calculations, the molecular-scale structure of a TiO_2 -supported molybdenum oxide catalyst was defined. The structure consists of Mo octahedra arranged in a six-membered ring.



Synergy between XANES Spectroscopy
and DFT to Elucidate the Amorphous
Structure of Heterogeneous Catalysts:
 TiO_2 -Supported Molybdenum Oxide
Catalysts

Counteranion Control

R. Nishino, T. Furuta,* K. Kan, M. Sato,
M. Yamanaka, T. Sasamori, N. Tokitoh,
T. Kawabata* 6445–6449



Investigation of the Carboxylate Position
during the Acylation Reaction Catalyzed
by Biaryl DMAP Derivatives with an
Internal Carboxylate

Location of the carboxylate ion: A series of biaryl DMAP catalysts with an internal carboxylate was prepared, and the catalytic activities of the derivatives were evaluated to determine the carboxylate position that most accelerated the DMAP-

catalyzed acylation. The carboxylate ion proximal to the pyridine ring in a face-to-face geometry was found to act as an effective general base for the acylation reaction.

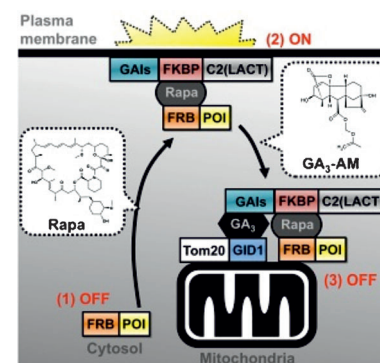
Cell Signaling

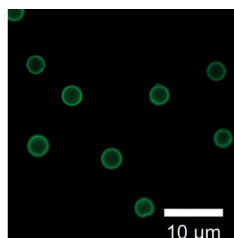
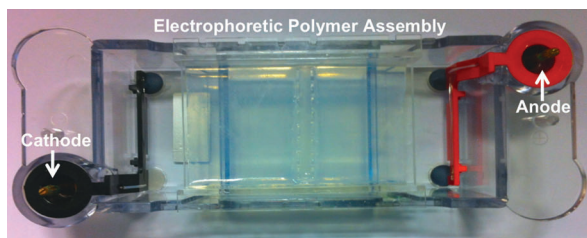
Y.-C. Lin,* Y. Nihongaki, T.-Y. Liu,
S. Razavi, M. Sato,
T. Inoue* 6450–6454



Rapidly Reversible Manipulation of
Molecular Activity with Dual Chemical
Dimerizers

Tell it where to go: Rapamycin induced the relocation of an FRB-fused protein of interest (POI) to the plasma membrane (labeled with the fusion protein GAls–FKBP–C2(LACT)) to activate a signaling event (see picture). Subsequent treatment with a gibberellic acid ester led to the relocation of the whole GAls–FKBP–C2(LACT)/rapamycin/FRB–POI complex to the Tom20–GID1-labeled mitochondria with the termination of POI-dependent signaling.





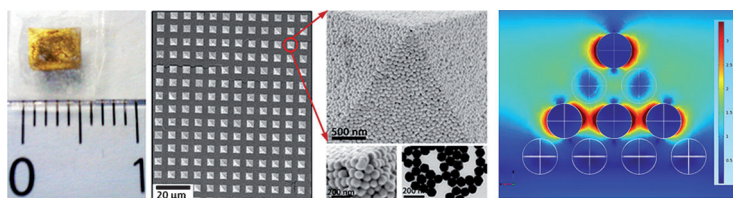
Slipping into a comfortable routine: Multilayered polymer thin films were assembled on particles immobilized in agarose by electrophoresis on the basis of various interactions. Core removal then led to robust capsules with different polymer

compositions (see fluorescence image). This approach enables the versatile and routine assembly of nanometer- and micron-sized capsules and coated particles with very few processing steps.

Polymer Capsules

J. J. Richardson, H. Ejima, S. L. Lörcher, K. Liang, P. Senn, J. Cui, F. Caruso* — 6455 – 6458

Preparation of Nano- and Microcapsules by Electrophoretic Polymer Assembly



Modern-day wonders of the world: Nanostructured films of plasmonic pyramid arrays (see picture) were prepared by the simple stamping of preformed homogeneous nanocolloids. These mate-

rials show very high efficiency as optical enhancers and can be exploited for the design of quantitative, cheap, portable, and ultrasensitive optical sensors with excellent reversibility.

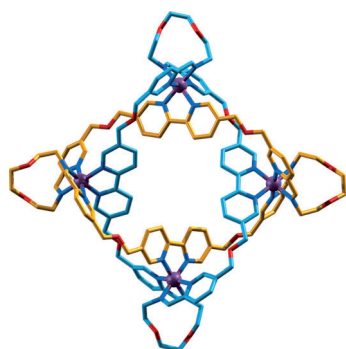
Optical Sensors

M. Alba, N. Pazos-Perez, B. Vaz, P. Formentin, M. Tebbe, M. A. Correa-Duarte, P. Granero, J. Ferré-Borrull, R. Alvarez, J. Pallares, A. Fery,* A. R. de Lera,* L. F. Marsal,* R. A. Alvarez-Puebla* — 6459 – 6463

Macroscale Plasmonic Substrates for Highly Sensitive Surface-Enhanced Raman Scattering



Inside Back Cover



Let's twist again: The one-pot synthesis of a molecular Solomon link assembles four iron(II) cations, four bis(aldehyde) molecules, and four bis(amine) building blocks. The process generates two interwoven 68-membered-ring macrocycles, which feature four crossing points, in 75% yield.

Catenanes

J. E. Beves, C. J. Campbell, D. A. Leigh,* R. G. Pritchard — 6464 – 6467

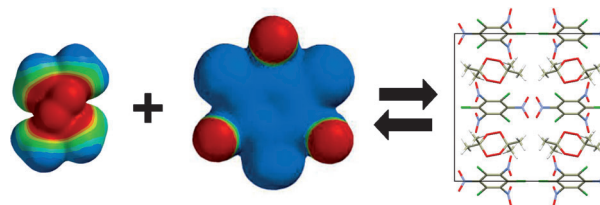
Tetrameric Cyclic Double Helicates as a Scaffold for a Molecular Solomon Link

Inside Cover



Crystal Engineering

K. B. Landenberger, O. Bolton,
A. J. Matzger* 6468–6471

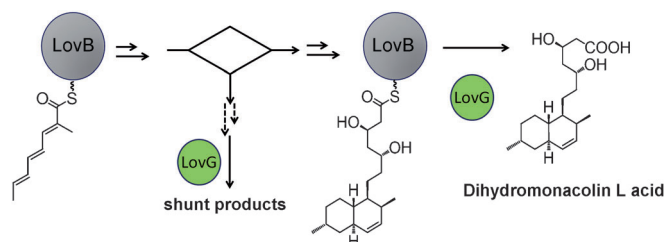


Irreconcilable differences: Electron-rich diacetone diperoxide is paired with the electron-deficient rings of trichloro- and tribromotrinitrobenzene to form energetic

cocrystals by design. Though the two cocrystals are isostructural, the former is very stable while the later exhibits a rare metastability and favors separation.

Biosynthetic Pathway

W. Xu, Y.-H. Chooi, J. W. Choi, S. Li,
J. C. Vederas, N. A. Da Silva,
Y. Tang* 6472–6475

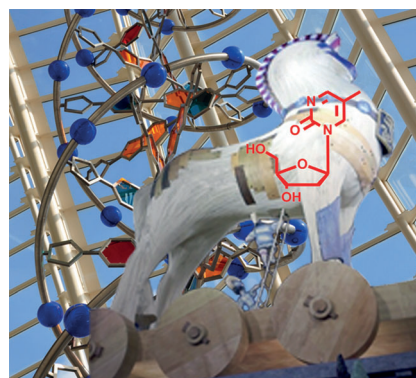


No Lov lost: The cryptic thioesterase LovG was found to be responsible for product release from the lovastatin nonaketide synthase (LNKS or LovB; see

scheme). LovG also helped improve the turnover of LovB through hydrolysis of incorrectly made intermediates, freeing LovB for another round of catalysis.

DNA Photodamage

V. Vendrell-Criado,
G. M. Rodríguez-Muñiz, M. C. Cuquerella,
V. Lhiaubet-Vallet,*
M. A. Miranda* 6476–6479



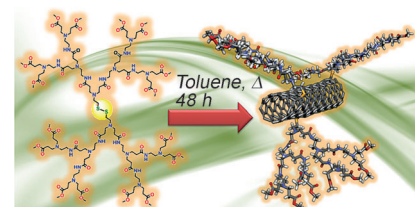
A (photo)sensitive subject: Combined agarose gel electrophoresis and photochemical studies show that 5-methyl-2-pyrimidone (see picture), the main chromophore of (6-4) photoproducts, behaves as a DNA photosensitizer. These results raise the question of whether the (6-4) lesions can act as Trojan horses, enhancing cyclobutane pyrimidine dimer (CPD) formation and oxidative damage.

Front Cover

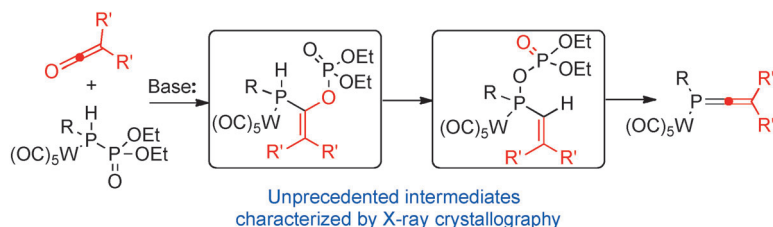
Nanotube Functionalization

Z. Syrgiannis, V. La Parola, C. Hadad,
M. Lucío, E. Vázquez, F. Giacalone,*
M. Prato* 6480–6483

Simple and effective exterior decorating: Single-walled carbon nanotubes were functionalized with disulfides, including cystamine-core polyamidoamine dendrimers, simply upon heating in toluene (see picture). One advantage of this method is that any unreacted disulfide can be recovered by filtration.



An Atom-Economical Approach to Functionalized Single-Walled Carbon Nanotubes: Reaction with Disulfides



Organophosphorus Chemistry

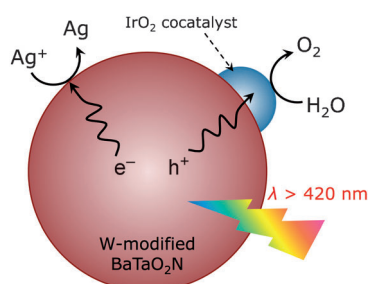
A. I. Arkhypchuk, Y. V. Svyaschenko,
A. Orthaber, S. Ott* 6484 – 6487

Mechanism of the Phospha-Wittig–
Horner Reaction

Doing the phosphate dance: The phospho-Wittig–Horner reaction proceeds through stepwise P–P cleavage of an oxadiphosphetane intermediate, followed by a [2,3]-sigmatropic rearrangement that

paves the way for the final E2 elimination to form 1-phosphaallenes. The mechanism is thus greatly different to that of its carbon analogue, that is, the Horner–Wadsworth–Emmons reaction.

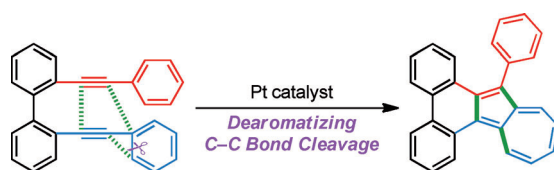
Water splitting: In heterogeneous photocatalysis, it has been believed that doping transition-metal cations having partly filled d orbitals into semiconductor photocatalysts results in a significant drop in photocatalytic activity. Nevertheless, it was found that the activity for the water oxidation of BaTaO₂N could be improved by seven times upon modification by pentavalent W species (see picture).



Heterogeneous Photocatalysis

K. Maeda,* D. Lu,
K. Domen* 6488 – 6491

Oxidation of Water under Visible-Light
Irradiation over Modified BaTaO₂N
Photocatalysts Promoted by Tungsten
Species



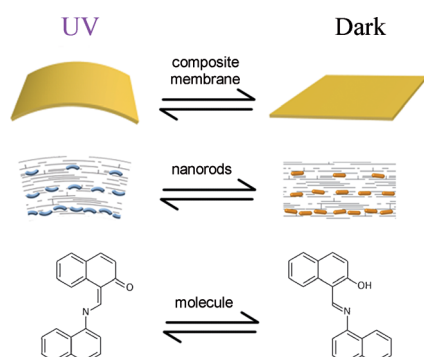
From six to seven: 2,2'-Di(arylethynyl)biphenyls undergo a skeletal rearrangement in the presence of a platinum(II) catalyst to afford polycyclic aromatic compounds

containing an azulene unit. The reaction involves C–C bond cleavage of a benzene ring, which expands into a seven-membered ring.

Azulene Synthesis

T. Matsuda,* T. Goya, L. Liu, Y. Sakurai,
S. Watanuki, N. Ishida,
M. Murakami* 6492 – 6495

Azulenophenanthrenes from 2,2'-
Di(arylethynyl)biphenyls through
C–C Bond Cleavage of a Benzene Ring



Molecule deformation to macroactuation:

In a novel hybrid assembly photoisomerization causes microscale deformation of molecules that is amplified to macroscale bending of a composite membrane. The nanoscale molecular crystals, which are unevenly distributed in a functional polymer matrix, provide a new strategy for designing higher performance actuators that combine the advantages of both molecular crystals and liquid crystal elastomers.

Functional Materials

T. Lan, W. Chen* 6496 – 6500

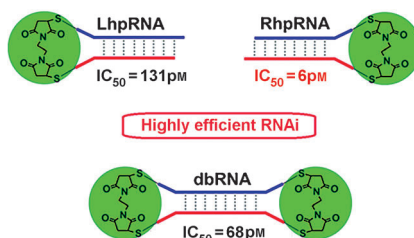
Hybrid Nanoscale Organic Molecular
Crystals Assembly as a Photon-Controlled
Actuator

siRNA Modification

L. Wei, L. Cao, Z. Xi* — 6501–6503



Highly Potent and Stable Capped siRNAs with Picomolar Activity for RNA Interference



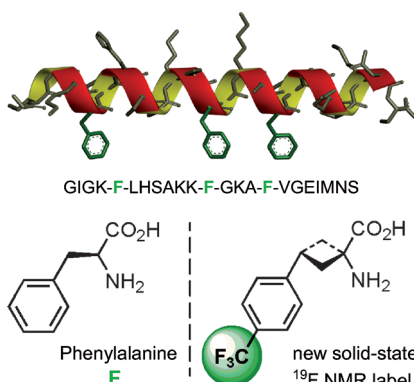
Put a cap on it: Hairpin-shaped RNAs and dumbbell-shaped RNAs were prepared using a thiol–maleimino Michael addition and exhibited good serum and thermal stability. These capped structures were shown to be cleaved by Dicer and RNA interference (RNAi) experiments showed that RhpRNA (see picture, top right) was highly efficient at RNAi with an IC_{50} value of 6 pM.

Amino Acids

A. N. Tkachenko, D. S. Radchenko, P. K. Mykhailiuk,* S. Afonin,* A. S. Ulrich, I. V. Komarov — 6504–6507



Design, Synthesis, and Application of a Trifluoromethylated Phenylalanine Analogue as a Label to Study Peptides by Solid-State ^{19}F NMR Spectroscopy



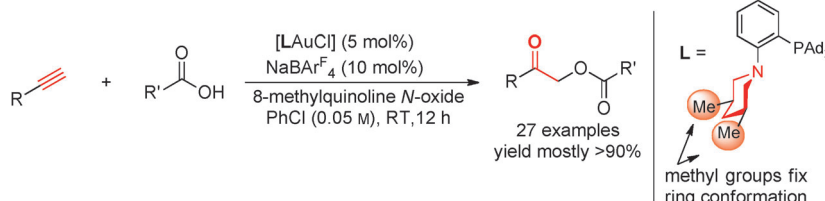
Designer label: A novel α -amino acid was designed as a conformationally restricted analogue of phenylalanine. It was synthesized and incorporated into the representative membrane-active peptide Magainin 2, to demonstrate its suitability for structure analysis in oriented membranes by solid-state ^{19}F NMR spectroscopy.

Ligand Design

K. Ji, Y. Zhao, L. Zhang* — 6508–6512



Optimizing P,N-Bidentate Ligands for Oxidative Gold Catalysis: Efficient Intermolecular Trapping of α -Oxo Gold Carbenes by Carboxylic Acids



Control confirmed: Optimization of P,N-bidentate ligands (L) reveals the importance of conformation control for intermolecular trapping of reactive α -oxo gold carbene intermediates. As a result, the

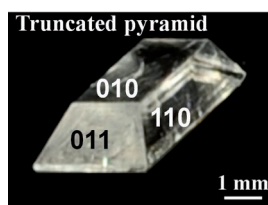
highly efficient and broadly applicable synthesis of carboxymethyl ketones from readily available carboxylic acids and terminal alkynes proceeds under mild reaction conditions.

Pyroelectricity

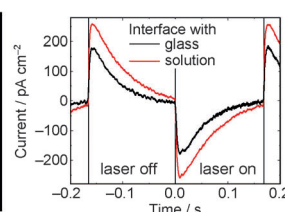
S. Piperno, E. Mirzadeh, E. Mishuk, D. Ehre, S. Cohen, M. Eisenstein, M. Lahav,* I. Lubomirsky* — 6513–6516



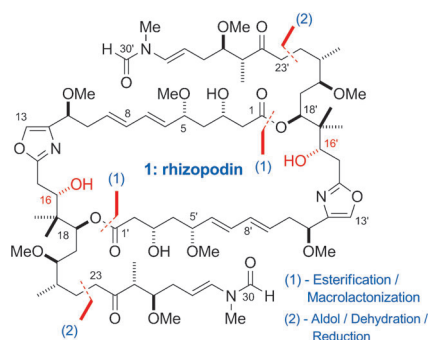
Water-Induced Pyroelectricity from Nonpolar Crystals of Amino Acids



Surface pyroelectricity: Centrosymmetric crystals of α -glycine display an anomalous quadrupole-like pyroelectric current. This observation implies the formation of



water–glycine hybrid polar layers at the (010) faces of the α -glycine crystals (see picture).



Core assembly: The total synthesis of the myxobacterial metabolite rhizopodin, a potent actin-binding anticancer agent, has been achieved. The modular synthesis utilizes a common C1–C22 monomeric unit to assemble the dimeric 38-membered macrodiolide core, which was elaborated by a bidirectional boron-mediated aldol reaction to install the characteristic side-chains. The final global deprotection was critically dependent on the correct choice of silyl protecting groups at C16/C16'.

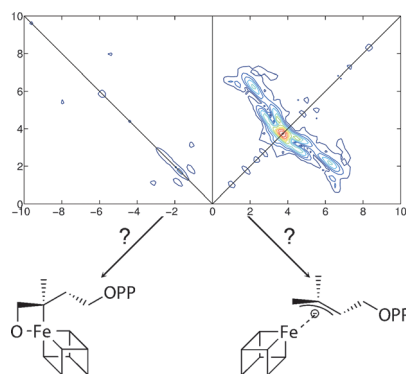
Natural Product Synthesis

S. M. Dalby,* J. Goodwin-Tindall, I. Paterson* _____ 6517–6521

Total Synthesis of (–)-Rhizopodin



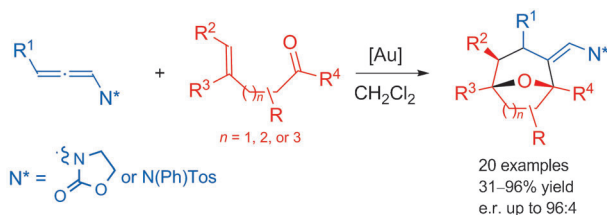
The catalytic mechanism of the enzyme IspH, involved in formation of isopentenyl diphosphate and dimethylallyl diphosphate, was investigated by using HYS-CORE spectroscopy combined with DFT. The results indicate the formation of an allyl anion bound to a HiPIP-like oxidized 4Fe–4S cluster, rather than formation of a cyclic, ferraooxetane intermediate, as has been proposed elsewhere.



Organometallobiochemistry

J. Li, K. Wang, T. I. Smirnova, R. L. Khade, Y. Zhang, E. Oldfield* _____ 6522–6525

Isoprenoid Biosynthesis: Ferraooxetane or Allyl Anion Mechanism for IspH Catalysis?



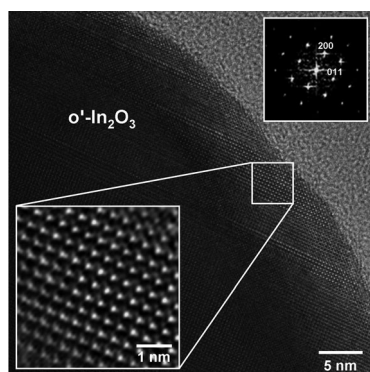
Gold standard: Allenamides react with aldehydes or ketones having γ , δ , or ϵ alkenyl groups, upon activation with suitable gold catalysts, to provide oxa-bridged systems containing seven- to nine-membered carbocycles, in a formal

cascade cycloaddition. By using chiral phosphoramidite/gold or bisphosphine/gold catalysts it is possible to obtain the oxa-bridged seven- and eight-membered rings with good to high enantioselectivity.

Gold Catalysis

H. Faustino, I. Alonso, J. L. Mascareñas,* F. López* _____ 6526–6530

Gold(I)-Catalyzed Cascade Cycloadditions between Allenamides and Carbonyl-Tethered Alkenes: An Enantioselective Approach to Oxa-Bridged Medium-Sized Carbocycles



The way is open for the physical and chemical characterization and single-crystal growth of the orthorhombic o'-In₂O₃ polymorph. Orthorhombic In₂O₃ is synthesized from rhombohedral corundum-type rh-In₂O₃ under moderately high-pressure and high-temperature conditions (8–9 GPa, 600–1100 °C) followed by recovery to ambient pressure and temperature. The crystal-structure data at ambient conditions confirm unambiguously the Rh₂O₃(II)-type structure.

Metastable Materials

M. F. Bekheet, M. R. Schwarz, S. Lauterbach, H.-J. Kleebe, P. Kroll, R. Riedel, A. Gurlo* _____ 6531–6535

Orthorhombic In₂O₃: A Metastable Polymorph of Indium Sesquioxide



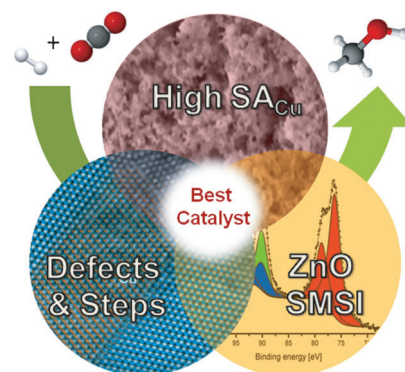
Catalyst Design

S. Zander, E. L. Kunkes, M. E. Schuster, J. Schumann, G. Weinberg, D. Teschner, N. Jacobsen, R. Schlögl, M. Behrens* — 6536–6540



The Role of the Oxide Component in the Development of Copper Composite Catalysts for Methanol Synthesis

The design of solid catalysts for industrial processes remains a major challenge in synthetic materials chemistry. Based on the investigation of the industrial Cu/ZnO/Al₂O₃ catalyst, a modular concept is introduced that helps to develop novel methanol synthesis catalysts that operate in different feed gas mixtures. SA = surface area, SMSI = strong metal–support interaction.



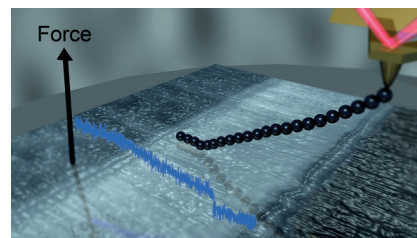
Polymer Friction

B. N. Balzer, M. Gallei, M. V. Hauf, M. Stallhofer, L. Wiegler, A. Holleitner, M. Rehahn, T. Hugel* — 6541–6544



Nanoscale Friction Mechanisms at Solid–Liquid Interfaces

There's the rub: Friction of single polymers on solid bodies in a liquid environment was investigated. Apart from expected mechanisms, such as slip and stick, a third nanoscale friction mechanism exists that is independent of normal force, velocity, and adsorbed polymer length. A model is proposed for this mechanism that is based on measurements with various polymers on topographically and chemically nanostructured surfaces.



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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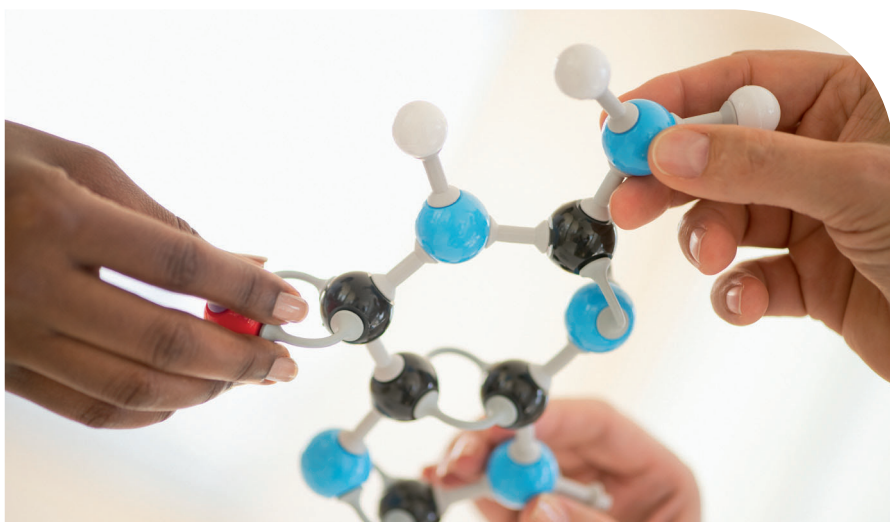
This article is accompanied by a cover picture (front or back cover, and inside or outside).

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