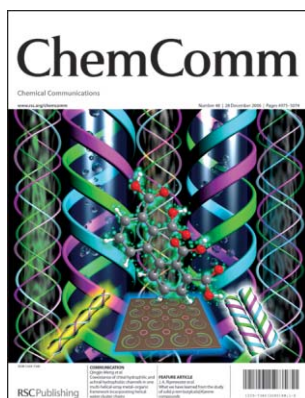


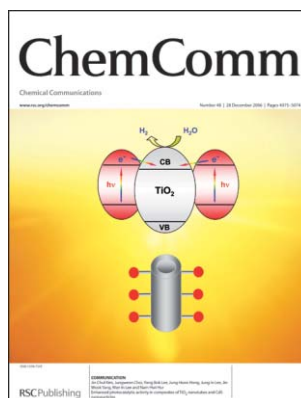
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ISSN 1359-7345 CODEN CHCOFS (48) 4975-5074 (2006)



Cover

See Qingjin Meng *et al.*, page 4997.
Large triple-stranded helical channels incorporate chirally ordered streams of water clusters, meanwhile interweaved quadruple-stranded helical chains lead to the small achiral channels. Image reproduced by permission of Shuangquan Zang, Yang Su, Chungying Duan, Yizhi Li, Huizhen Zhu and Qingjin Meng, *Chem. Commun.*, 2006, 4997.



Inside cover

See Nam Hwi Hur *et al.*, page 5024.
Enhanced photocatalytic activity in composites of TiO₂ nanotubes and CdS nanoparticles. Image reproduced by permission of Jin Chul Kim, Jungweon Choi, Yong Bok Lee, Jung Hoon Hong, Jung In Lee, Jin Wook Yang, Wan In Lee and Nam Hwi Hur from *Chem. Commun.*, 2006, 5024.

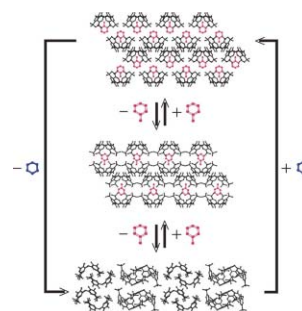
FEATURE ARTICLE

4986

What we have learned from the study of solid *p*-*tert*-butylcalix[4]arene compounds

J. A. Ripmeester,* G. D. Enright, C. I. Ratcliffe, K. A. Udachin and I. L. Moudrakovski

p-*tert*-Butylcalix[4]arene, a relatively simple host molecule, has provided both challenges and opportunities in defining its guest–host properties, and may well serve as a paradigm for materials that show both flexibility and robustness as attested by single crystals that survive both guest transport and crystal transformations.



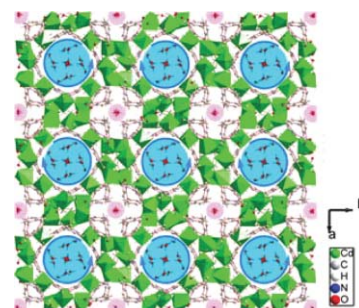
COMMUNICATIONS

4997

Coexistence of chiral hydrophilic and achiral hydrophobic channels in one multi-helical-array metal–organic framework incorporating helical water cluster chains

Shuangquan Zang, Yang Su, Chungying Duan, Yizhi Li, Huizhen Zhu and Qingjin Meng*

A novel biporous (chiral hydrophilic + achiral hydrophobic) metal–organic framework incorporating clustered helical water streams.



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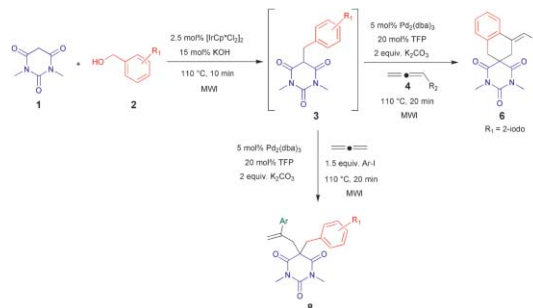
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5000

Sequential one-pot bimetallic Ir(III)/Pd(0) catalysed mono-/bis-alkylation and spirocyclisation processes of 1,3-dimethylbarbituric acid and allenes

Christian Löfberg, Ronald Grigg,* Ann Keep, Andrew Derrick, Visuvanathar Sridharan and Colin Kilner

Microwave assisted indirect functionalization of alcohols with 1,3-dimethylbarbituric acid followed by spirocyclisation employing a sequential one-pot Ir(III)/Pd(0) catalysed process is described.

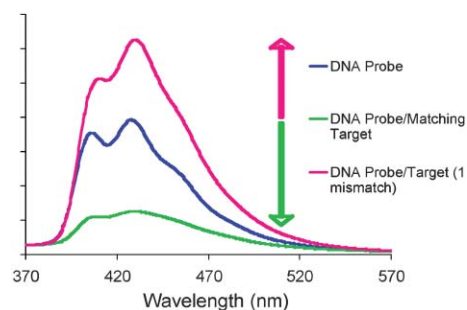


5003

Detection of a single DNA base-pair mismatch using an anthracene-tagged fluorescent probe

Nina Moran, Dario M. Bassani,* Jean-Pierre Desvergne, Sonja Keiper, Philip A. S. Lowden, Joseph S. Vyle* and James H. R. Tucker*

An anthracene-tagged DNA probe can discriminate between a matching strand and one with a single base mismatch through duplex formation leading to a decrease and increase in emission intensity respectively.

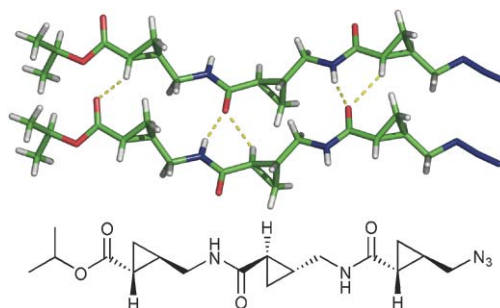


5006

Parallel sheet structure in cyclopropane γ -peptides stabilized by C–H \cdots O hydrogen bonds

M. Khurram N. Qureshi and Martin D. Smith*

A three-residue *trans*-cyclopropane γ -peptide adopts an infinite parallel sheet structure in the solid state stabilized by intermolecular C–H \cdots O hydrogen bonds.

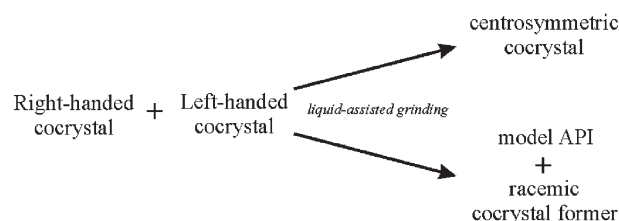


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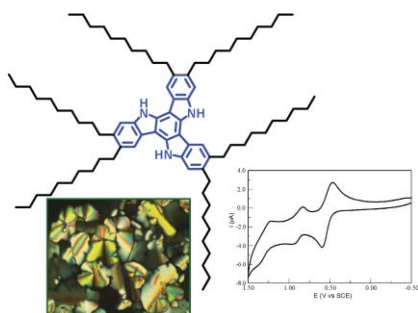
Exploring cocrystal–cocrystal reactivity via liquid-assisted grinding: the assembling of racemic and dismantling of enantiomeric cocrystals

Tomislav Friščić, László Fábián, Jonathan C. Burley, William Jones* and W. D. Samuel Motherwell

Liquid-assisted grinding of pairs of enantiomeric cocrystals results either in a racemic solid or dismantling of the cocrystals.



5012

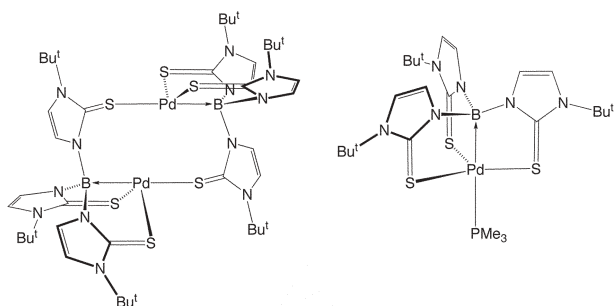


Electroactive C_3 symmetric discotic liquid-crystalline triindoles

Berta Gómez-Lor,* Beatriz Alonso, Ana Omenat and José Luis Serrano

Redox-active C_3 -symmetric triindole has been introduced as a central core for the construction of discotic liquid crystals. Its electron-rich character renders this platform an attractive candidate for uniaxial hole transport processes.

5015

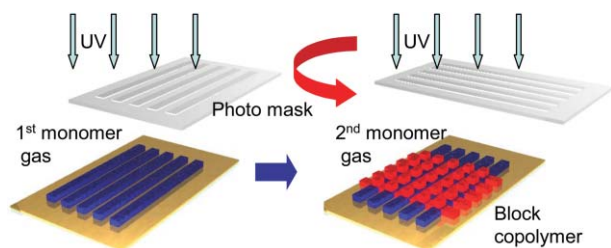


Palladium complexes with Pd→B dative bonds: Analysis of the bonding in the palladaboratrane compound $[\kappa^4\text{-B}(\text{mim}^{\text{Bu}^t})_3]\text{Pd}(\text{PMe}_3)$

Keliang Pang, Stephanie M. Quan and Gerard Parkin*

The dinuclear complex $\{[\mu\text{-}\kappa^1, \kappa^3\text{-B}(\text{mim}^{\text{Bu}^t})_3]\text{Pd}\}_2$, which features a Pd→B dative bond, may be obtained by the reaction of $[\text{Tm}^{\text{Bu}^t}]\text{K}$ with $\text{Pd}(\text{OAc})_2$; treatment of $\{[\mu\text{-}\kappa^1, \kappa^3\text{-B}(\text{mim}^{\text{Bu}^t})_3]\text{Pd}\}_2$ with PMe_3 affords the mononuclear boratrane derivative $[\kappa^4\text{-B}(\text{mim}^{\text{Bu}^t})_3]\text{Pd}(\text{PMe}_3)$.

5018

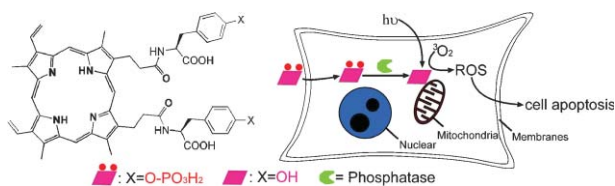


Designed surface construction by photo-induced vapor-phase assisted surface polymerization of vinyl monomers using immobilized free radical initiators

Yoshito Andou, Haruo Nishida* and Takeshi Endo*

Finely designed patterns consisting of grafted block copolymers were built up on solid surfaces by consecutive vapor-phase assisted surface photo-polymerization of methyl methacrylate and styrene.

5021



Using enzymatic reactions to enhance the photodynamic therapy effect of porphyrin dityrosine phosphates

Gaolin Liang, Ling Wang, Zhimou Yang, Hokee Koon, Naiki Mak, Chi K. Chang* and Bing Xu*

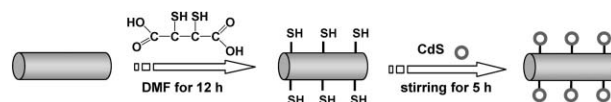
The enzymatic conversion of porphyrin dityrosine phosphates promises a new, useful approach to enhance the photodynamic therapy (PDT) effect for the treatment of cancers.

5024

Enhanced photocatalytic activity in composites of TiO₂ nanotubes and CdS nanoparticles

Jin Chul Kim, Jungkweon Choi, Yong Bok Lee, Jung Hoon Hong, Jong In Lee, Jin Wook Yang, Wan In Lee and Nam Hwi Hur*

A new composite of CdS nanoparticles and TiO₂ nanotubes linked through bi-functional molecules shows enhanced catalytic activity under visible-light irradiation.

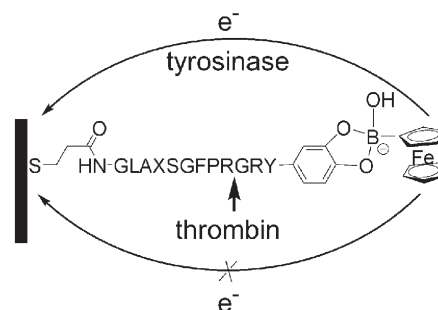


5027

Probing of enzyme reactions by the biocatalyst-induced association or dissociation of redox labels linked to monolayer-functionalized electrodes

Di Li, Ron Gill, Ronit Freeman and Itamar Willner*

The activities of the enzymes tyrosinase and thrombin are probed by the association of the ferrocene boronic acid label to the enzyme-generated catechol ligand, and by the cleavage of the ligand-redox complex tethered to a peptide, respectively.



5030

π -Conjugation in donor-substituted cyanoethynylethenes: an EDA study

Israel Fernández* and Gernot Frenking*

π -Conjugation in several donor-substituted cyanoethynylethenes (CEEs) was estimated using energy decomposition analysis (EDA). Very good linear correlations between the ΔE_{π} values and experimental data are found.

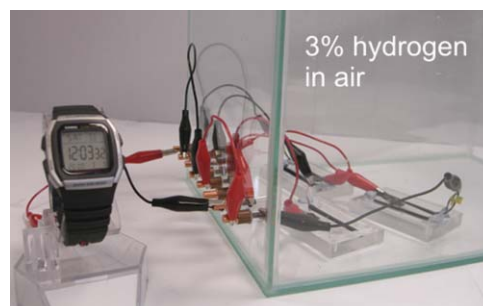


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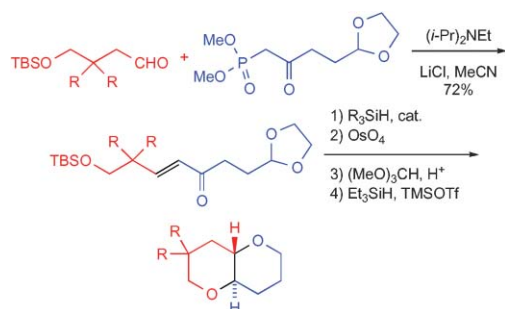
Electricity from low-level H₂ in still air – an ultimate test for an oxygen tolerant hydrogenase

Kylie A. Vincent, James A. Cracknell, Jeremy R. Clark, Marcus Ludwig, Oliver Lenz, Bärbel Friedrich and Fraser A. Armstrong*

An extreme test for oxygen-tolerant hydrogen-cycling enzymes (hydrogenases) is an ability to function as a selective anodic electrocatalyst in a membraneless fuel cell producing electricity from just 3% hydrogen in air (below the combustion limit).



5036

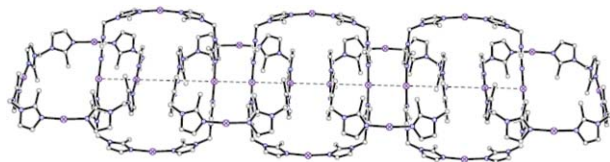


Construction of fused bis(pyran) units from enones via a hydrosilylation–dihydroxylation–acetalization–reduction sequence

Xuan Liu and F. G. West

HWE coupling of two simple bifunctional fragments provides enones that can be subjected to a four-step sequence to furnish *trans*-fused bis(pyrans) in good overall yield.

5039

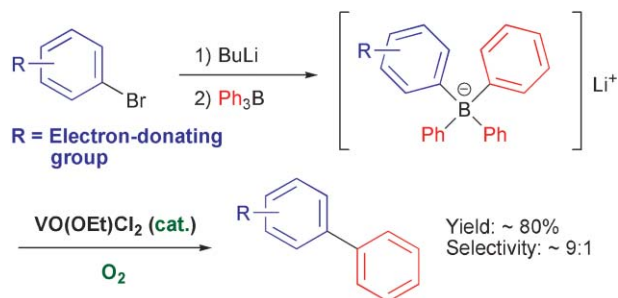


A new infinite inorganic $[n]$ catenane from silver and bis(2-methylimidazolyl)methane ligand

Chuan-Ming Jin,* Huan Lu, Ling-Yan Wu and Jing Huang

A new type of 1D infinite inorganic $[n]$ catenane framework was self-assembled by reaction of silver nitrate and bis(2-methylimidazolyl)methane.

5042

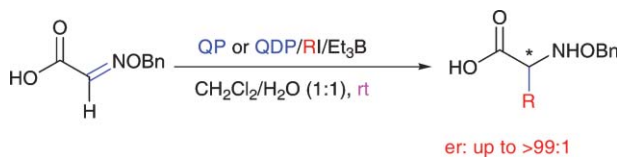


Oxovanadium(v)-catalyzed oxidative biaryl synthesis from organoborate under O_2

Hidenori Mizuno, Hidehiro Sakurai, Toru Amaya and Toshikazu Hirao*

Oxidative ligand coupling of organoborates was catalyzed by $\text{VO}(\text{OEt})\text{Cl}_2$ under oxygen atmosphere, which provides a versatile method for the selective synthesis of symmetrical or unsymmetrical biaryls.

5045



Enantioselective radical addition reactions to the C=N bond utilizing chiral quaternary ammonium salts of hypophosphorous acid in aqueous media

Dae Hyan Cho and Doo Ok Jang*

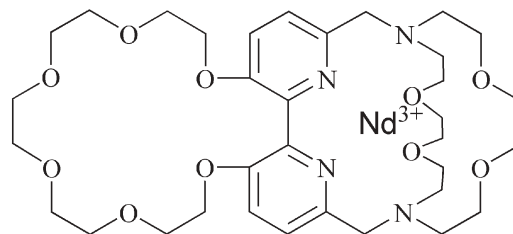
An enantioselective addition of alkyl radicals to glyoxylate oxime ether mediated by *Cinchona* alkaloid derived chiral ammonium salts of hypophosphorous acid, QP and QDP, has been developed.

5048

Barium induced modulation of NIR emission in a neodymium cryptate complex

Jonathan B. Coldwell, Cara E. Felton, Lindsay P. Harding, Ryan Moon, Simon J. A. Pope* and Craig R. Rice*

The ligand **L** contains both cryptate and crown ether binding domains and reacts with $\text{Nd}(\text{CF}_3\text{SO}_3)_3$ to give the cryptate-coordinated neodymium complex $[\text{NdL}]^{3+}$. The NIR fluorescence at 1055 nm is significantly reduced upon coordination of the crown ether unit by barium ions.

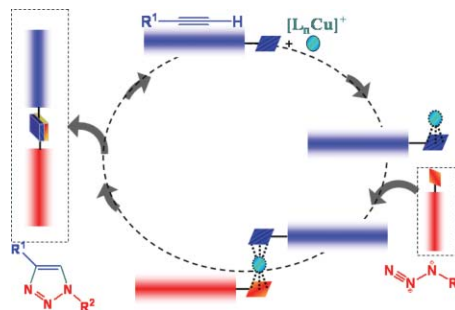


5051

RAFT and click chemistry: A versatile approach to well-defined block copolymers

Damien Quémener, Thomas P. Davis, Christopher Barner-Kowollik* and Martina H. Stenzel*

The combination of reversible chain transfer chemistry with highly orthogonal [2 + 3] cycloadditions ('click chemistry') allows for the synthesis of well-defined block copolymers of monomers with extremely disparate reactivities.

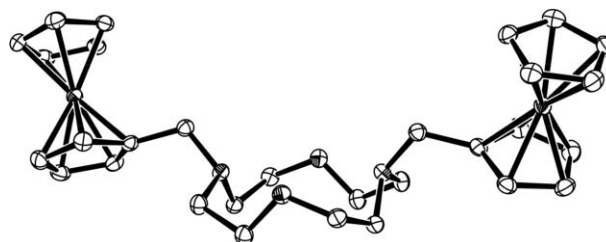


5054

An easy route towards regioselectively difunctionalized cyclens and new cryptands

Fanny Chaux, Franck Denat,* Enrique Espinosa and Roger Guilard*

A one-pot procedure involving the reductive amination of aldehydes for the synthesis of various 1,7-difunctionalized cyclens, as well as new cryptands, is reported.

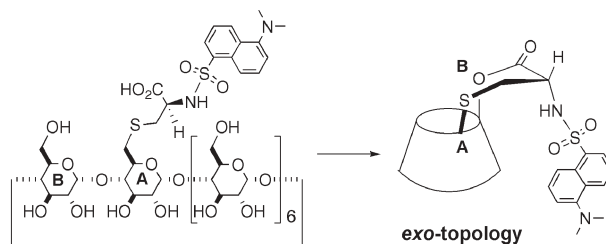


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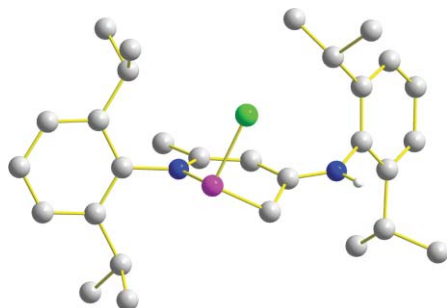
Clockwise–counterclockwise differentiation on the upper rim of a monofunctional γ -cyclodextrin: efficient topological control in the syntheses of capped cyclodextrins

Hua Yu, De-Qi Yuan,* Yuji Makino, Makoto Fukudome, Ru-Gang Xie and Kahee Fujita*

Only 6^B-OH reacts to afford the capped cyclodextrin with an *exo*-topology.



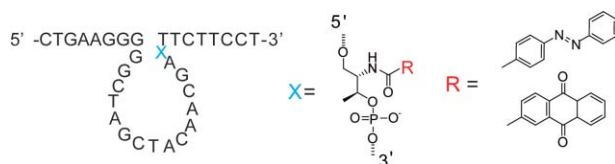
5060

**N,C-bonded β -diketiminato phosphonium cations**

Zheng Lu, Gregor Reeske, Jennifer A. Moore and Alan H. Cowley*

The triflate and tetrachloroaluminate salts of the first N,C-bonded β -diketiminato phosphonium cations have been prepared.

5062



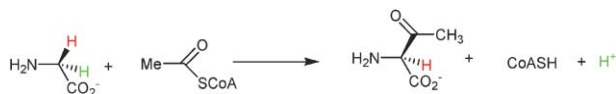
DNAzyme is activated by introducing intercalator at X position.

Enhancement of RNA cleavage activity of 10–23 DNAzyme by covalently introduced intercalator

Hiroyuki Asanuma,* Hiroyuki Hayashi, Jing Zhao, Xingguo Liang, Akira Yamazawa, Takeshi Kuramochi, Daijiro Matsunaga, Yuichiro Aiba, Hiromu Kashida and Makoto Komiyama

By introducing an intercalator through D-threoninol to the 10–23 DNAzyme at the junction between its catalytic loop and the binding arm, the RNA cleavage activity was greatly improved.

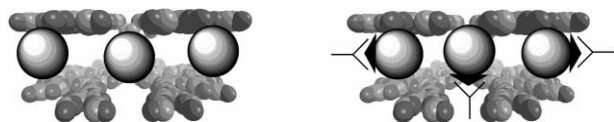
5065

**Mechanism and substrate stereochemistry of 2-amino-3-oxobutyrate CoA ligase: implications for 5-aminolevulinate synthase and related enzymes**

Qamar Bashir, Naem Rashid and Muhammad Akhtar*

The condensation process catalysed by 2-amino-3-oxobutyrate CoA ligase involves the loss of the *pro-R* hydrogen atom of glycine and occurs with the inversion of stereochemistry.

5068

**Immunoassay based on the antibody-conjugated PAMAM-dendrimer-gold quantum dot complex**

Robert C. Triulzi, Miodrag Micic,* Silvia Giordani, Michael Serry, Wen-An Chiou and Roger M. Leblanc*

This work presents an immunoassay platform based on photoluminescence quenching of dendrimer-encapsulated gold quantum dots conjugated to anti-human IgG for the detection of human IgG in solution.

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