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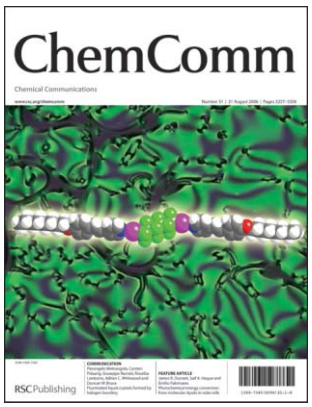
IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS (31) 3257–3356 (2006)



Cover

See Pierangelo Metrangolo, Carsten Präsang, Giuseppe Resnati, Rosalba Liantonio, Adrian C. Whitwood and Duncan W. Bruce, page 3290. Fluorinated mesogens can be prepared through a supramolecular approach based on halogen bonding. Surprisingly, the microphase separation associated with perfluoroalkyl chains is absent in the mesophase. Image reproduced by permission of Duncan W. Bruce *et al.* from *Chem. Commun.*, 2006, 3290.

Inside cover

See Thomas Brasey, Rosario Scopelliti and Kay Severin, page 3308. The addition of K^+ ions promotes the rearrangement of a hexanuclear [(cymene)Ru(pyridine-3,5-dicarboxylate)]$_6$ complex into a dodecanuclear coordination cage with an icosahedral geometry. Image reproduced by permission of Kay Severin *et al.* from *Chem. Commun.*, 2006, 3308.

CHEMICAL SCIENCE

Drawing together the research highlights and news from all RSC publications, *Chemical Science* provides a 'snapshot' of the latest developments across the chemical sciences showcasing newsworthy articles, as well as the most significant scientific advances.

Chemical Science

August 2006/Volume 3/Issue 8

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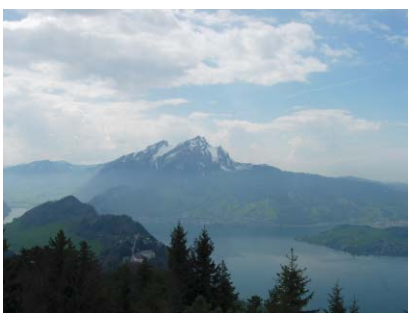
CONFERENCE REPORT



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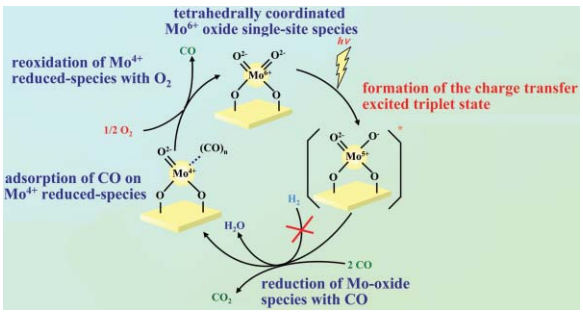
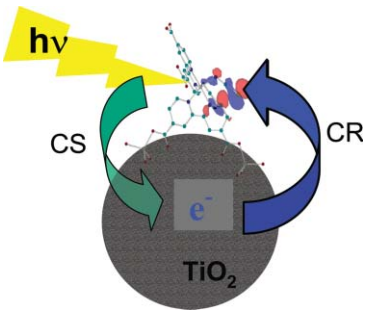


FEATURE ARTICLE



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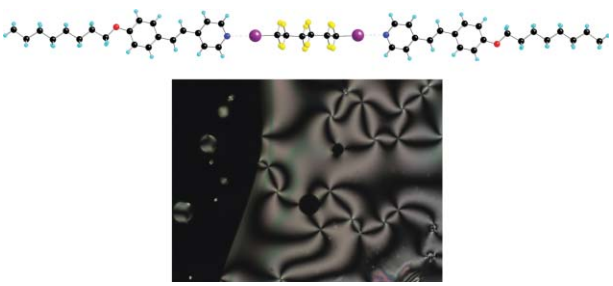
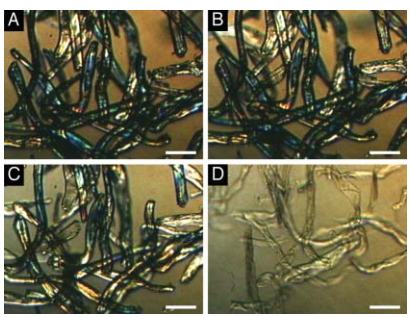
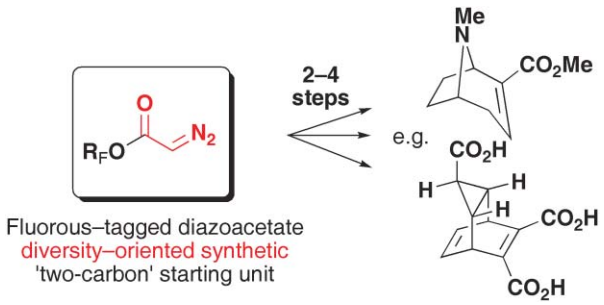


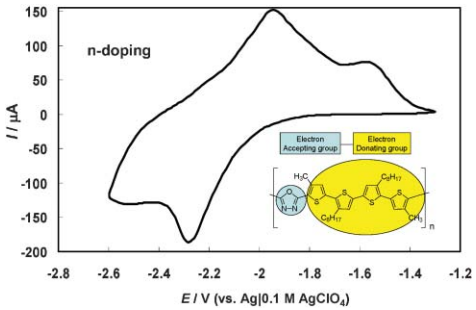




Skeletal diversity construction *via* a branching synthetic strategy

Emma E. Wyatt, Suzanne Fergus, Warren R. J. D. Galloway, Andreas Bender, David J. Fox, Alleyn T. Plowright, Alan S. Jessiman, Martin Welch and David R. Spring*

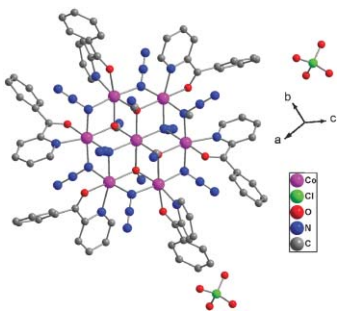
A branching synthetic strategy was used to efficiently generate structurally diverse scaffolds, which span a broad area of chemical descriptor space, and their biological activity against MRSA was demonstrated.



Unusually high stability of a poly(alkylquaterthiophene-*alt*-oxadiazole) conjugated copolymer in its n and p-doped states

Mikhael D. Levi,* Alexander S. Fisyuk, Renaud Demadrille, Elena Markevich, Yossi Gofer, Doron Aurbach and Adam Pron*

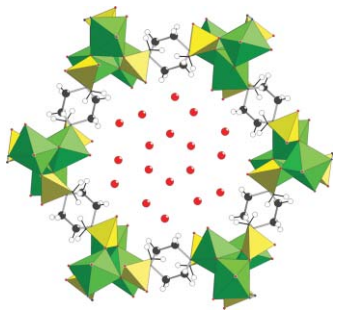
Incorporation of electron accepting units (oxadiazole) into the 2,5-thienylene conjugated chain leads to a significant improvement in the n-doping/undoping redox stability of the resulting polymer.



An azido-bridged disc-like heptanuclear cobalt(II) cluster: towards a single-molecule magnet

Yuan-Zhu Zhang, Wolfgang Wernsdorfer, Feng Pan, Zhe-Ming Wang and Song Gao*

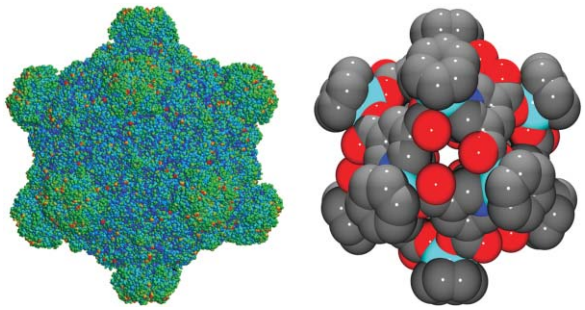
A novel disc-like heptanuclear Co(II)-cluster, $[Co_7(bzp)_6(N_3)_9(CH_3O)_3]\cdot 2ClO_4\cdot 2H_2O$ (**1**) (bzp = 2-benzoyl pyridine), mixed-bridged by 3/4 azides ($\mu_{1,1}$ and $\mu_{1,1,1}$) and 1/4 $\mu_{1,1,1}$-methanol, shows slow relaxation at static zero and non-zero fields below 6 K, towards single molecule magnet behavior.

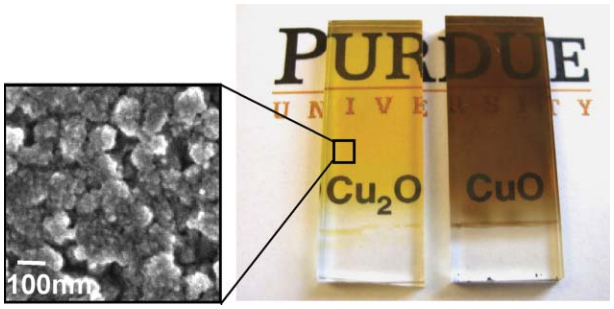


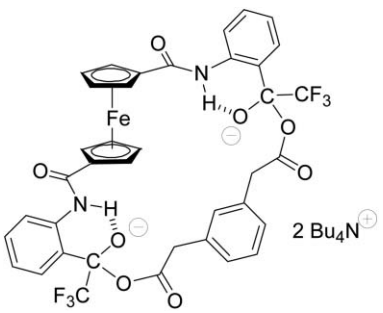
The first route to large pore metal phosphonates

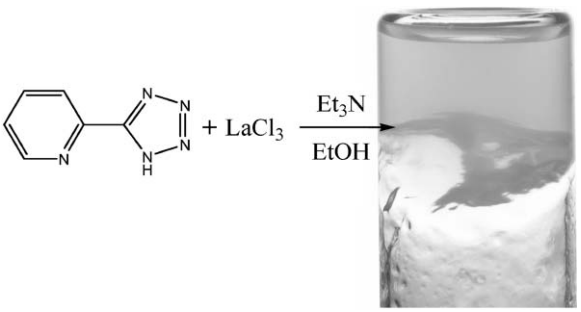
John A. Groves, Stuart R. Miller, Stewart J. Warrender, Caroline Mellot-Draznieks, Philip Lightfoot and Paul A. Wright*

New open framework *N*,*N*′-piperazinebis(methylenephosphonate)s of Fe(II), Co(II) and Ni(II) show coordination of the ligand to the metal cations *via* both oxygen and nitrogen atoms. One structure shows high micropore volume and large pores and the framework cations display reversible coordination by water.









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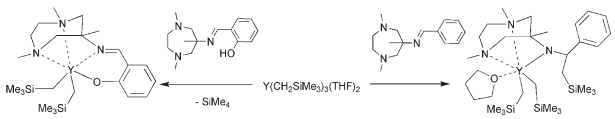
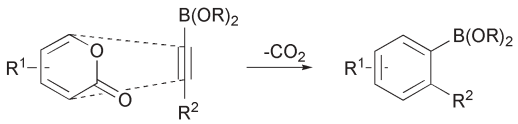


The 6-amino-6-methyl-1,4-diazepine group as an ancillary ligand framework for neutral and cationic scandium and yttrium alkyls

Shaozhong Ge, Sérgio Bambirra, Auke Meetsma and Bart Hessen*

The 6-amino-6-methyl-1,4-diazepine framework is a readily available neutral 6-electron ligand moiety, suitable to support cationic group 3 metal alkyl catalysts; it also provides convenient access to tri- and tetradentate monoanionic ligand derivatives.

3323

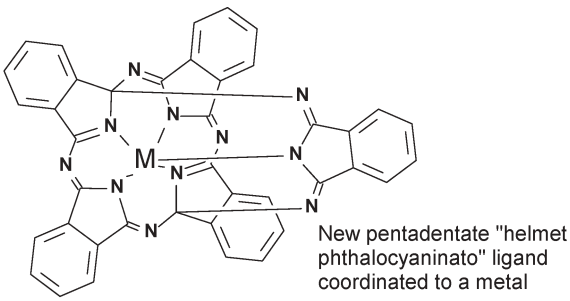


An alkynylboronic ester cycloaddition route to functionalised aromatic boronic esters

Patrick M. Delaney, Jane E. Moore and Joseph P. A. Harrity*

A series of functionalised aromatic boronic esters have been prepared *via* the regioselective cycloaddition of 2-pyrones with alkynylboronates.

3326

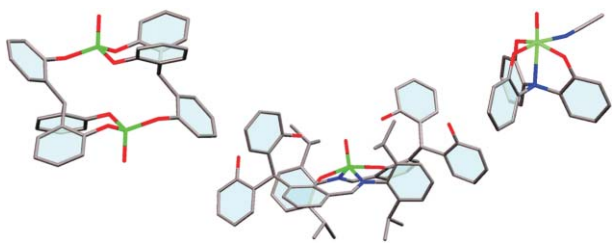


Racemic iron(III) and cobalt(III) complexes containing a new pentadentate "helmet" phthalocyaninato ligand

Heidi M. Kieler, Matthew J. Bierman, Ilia A. Guzei, Peter J. Liska and Robert W. McGaff*

Iron(III) and cobalt(III) complexes of an unprecedented "helmet" phthalocyaninato ligand are obtained as racemic mixtures in reactions of 1,2-dicyanobenzene with iron(II) acetate tetrahydrate and cobalt(II) acetate tetrahydrate, respectively.

3329



Vanadyl C and N-capped tris(phenolate) complexes: influence of pro-catalyst geometry on catalytic activity

Carl Redshaw,* Michael A. Rowan, Damien M. Homden, Sophie H. Dale, Mark R. J. Elsegood, Shigekazu Matsui and Sadahiko Matsuura

Tetrahedral vanadyl complexes of C or N-capped tripodal ligands serve as extremely active, thermally robust pro-catalysts for ethylene homo- and ethylene/propylene copolymerisation; related octahedral complexes produce far lower activities.

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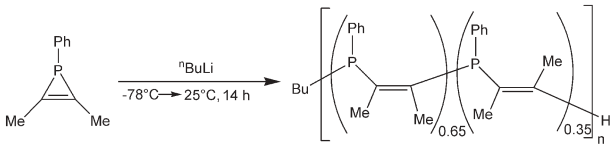
Anionic ring-opening polymerization of a strained phosphirene: A route to polyvinylenephosphines

Lawrence A. Vanderark, Timothy J. Clark, Eric Rivard, Ian Manners,* J. Chris Slootweg and Koop Lammertsma*

An unsaturated organophosphorus polymer has been synthesized by the anionic ring-opening polymerization of 1-phenyl-2,3-dimethylphosphirene.



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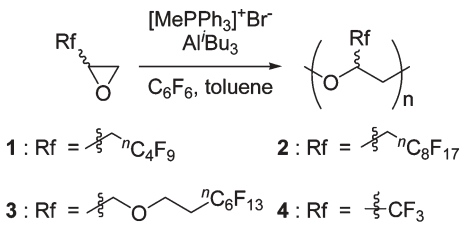
Regio-controlled ring-opening polymerization of perfluoroalkyl-substituted epoxides

Ken Sakakibara, Koji Nakano and Kyoko Nozaki*

Various fluorinated epoxides were efficiently polymerized under mild conditions and the obtained polymers had an exclusive regioregular structure. When optically pure epoxides were used, isotactic polymers were obtained.



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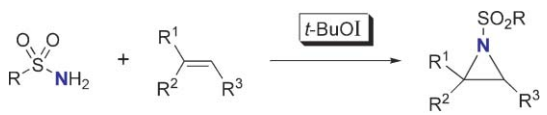
Novel aziridination of olefins: direct synthesis from sulfonamides using *t*-BuOI

Satoshi Minakata,* Yoshinobu Morino, Yoji Oderaotoshi and Mitsuo Komatsu*

tert-Butyl hypoiodite (*t*-BuOI) was found to be a powerful reagent for synthesis of aziridines from readily accessible olefins and sulfonamides. This method of aziridination was superior in many aspects, for example, the use of commercially available starting materials, metal free synthesis and high stereoselectivity.



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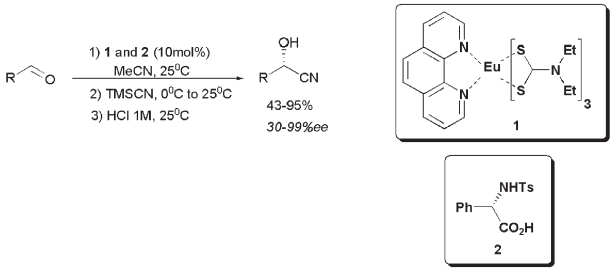
Eu(III) dithiocarbamate complex and *N*-*p*-tolylsulfonylphenylalanine as a novel chiral catalyst for the asymmetric synthesis of cyanohydrins

Juliana A. Vale,* Wagner M. Faustino, Paulo H. Menezes and Gilberto F. de Sá

A new chiral lanthanide complex was used as a chiral Lewis acid in the enantioselective addition of TMSCN to aldehydes. In some cases, high enantioselectivities were observed.



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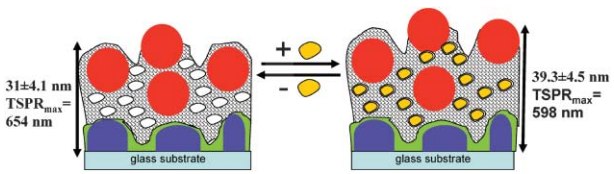
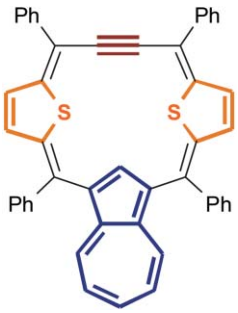


Ultrathin molecularly imprinted polymer sensors employing enhanced transmission surface plasmon resonance spectroscopy

Iryna Tokareva, Ihor Tokarev, Sergiy Minko,*
Eliza Hutter and Janos H. Fendler*

A 31.5 ± 4.1 nm thick nanosensor, employing a molecularly imprinted polymer (MIP) for recognition of cholesterol and the use of gold nanoparticle enhanced transmission surface plasmon resonance (T-SPR) spectroscopy for detection is described.

3346

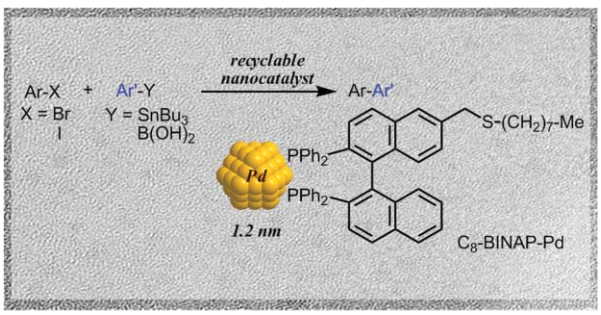


Dithiaethyneazuliporphyrin - a contracted heterocarbaporphyrin

Anna Berlicka, Natasza Sprutta and
Lechosław Latos-Grażyński*

Fusion of three different structural motifs: acetylene, azulene and thiophene moieties in the [18]dithiacarbatriphyrin(4.1.1) frame yields the contracted carbaporphyrinoid dithiaethyneazuliporphyrin.

3349

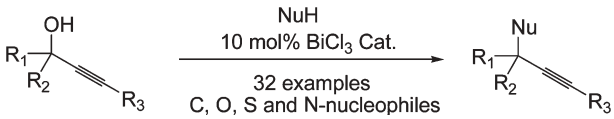


Synthesis of small palladium nanoparticles stabilized by bisphosphine BINAP bearing an alkyl chain and their palladium nanoparticle-catalyzed carbon–carbon coupling reactions under room-temperature

Ryouta Tatumi, Tomoki Akita and Hisashi Fujihara*

A new protecting ligand, C_8-BINAP, induced the formation of remarkably stable palladium nanoparticles (C_8-BINAP–Pd). C_8-BINAP–Pd catalyzed carbon–carbon coupling reactions at room temperature.

3352



$BiCl_3$-Catalyzed propargylic substitution reaction of propargylic alcohols with C-, O-, S- and N-centered nucleophiles

Zhuang-ping Zhan,* Wen-zhen Yang, Rui-feng Yang,
Jing-liang Yu, Jun-ping Li and Hui-juan Liu

A general and efficient $BiCl_3$-catalyzed substitution reaction of propargylic alcohols with carbon and heteroatom-centerd nucleophiles such as allyl trimethylsilane, alcohols, aromatic compounds, thiols and amides, leading to the construction of C–C, C–O, C–S and C–N bonds, has been developed.

AUTHOR INDEX

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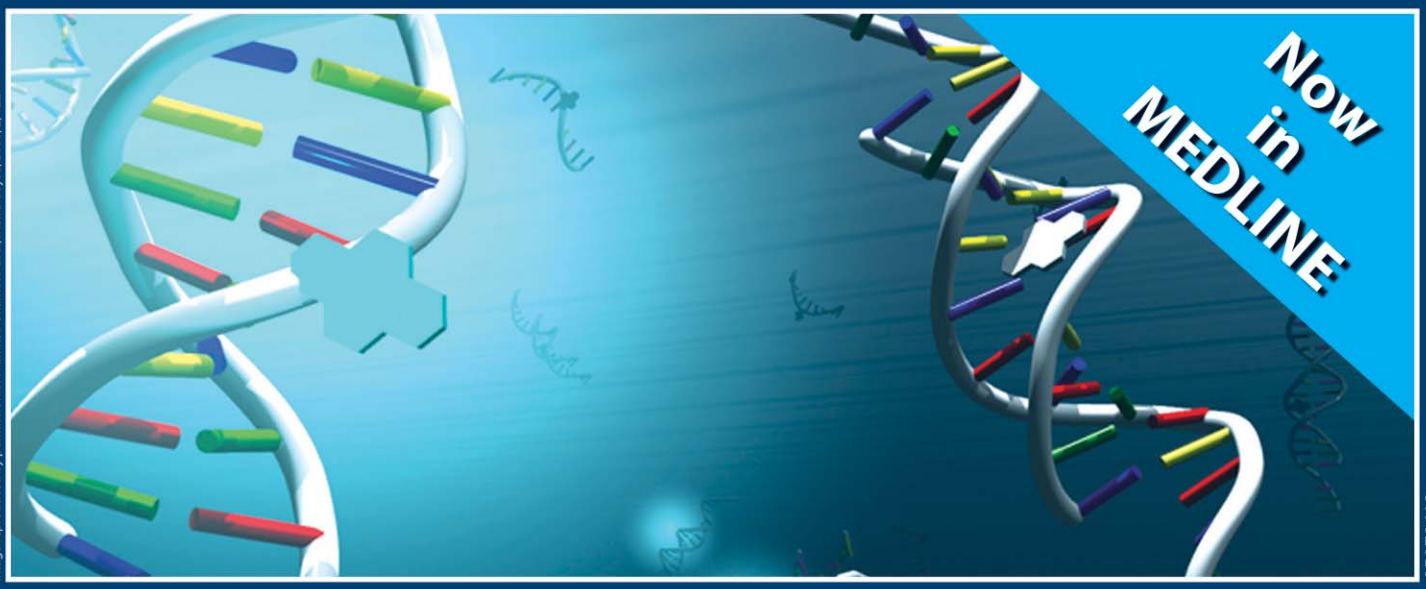

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