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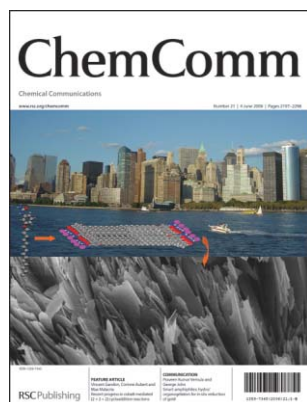
Chemical Communications

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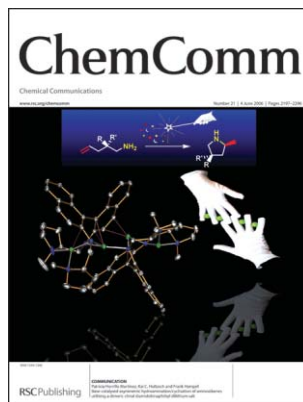
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ISSN 1359-7345 CODEN CHCOFS (21) 2197–2296 (2006)



Cover

See Praveen Kumar Vemula and George John, page 2218. Gold nanoparticles embedded urea gels adopt sheet-like nanostructures, reminiscent of the stacking of buildings in the New York City skyline. Image reproduced by permission of Praveen Kumar Vemula and George John from *Chem. Commun.*, 2006, 2218.



Inside cover

See Kai C. Hultzsch *et al.*, page 2221. An enantiopure diamidobinaphthyl dilithium salt dimer (symbolised by two right hands in the background) catalyses the asymmetric hydroamination of aminoalkenes. Image reproduced by permission of Patricia Horrillo Martínez, Kai C. Hultzsch and Frank Hampel from *Chem. Commun.*, 2006, 2221.

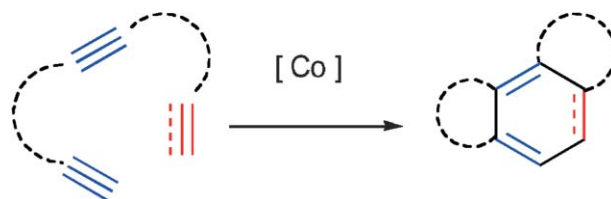
FEATURE ARTICLE

2209

Recent progress in cobalt-mediated [2 + 2 + 2] cycloaddition reactions

Vincent Gandon, Corinne Aubert* and Max Malacria*

Recent achievements by our group in the field of inter- and intramolecular cobalt-mediated [2 + 2 + 2] cyclizations and their synthetic applications are compiled.



COMMUNICATION

2218

Smart amphiphiles: hydro/organogelators for *in situ* reduction of gold

Praveen Kumar Vemula and George John*

Novel urea based amphiphiles have been developed which form gels in water and various organic solvents. These gelators are able to reduce HAuCl_4 solution to form gold nanoparticles embedded in hydro/organogels.



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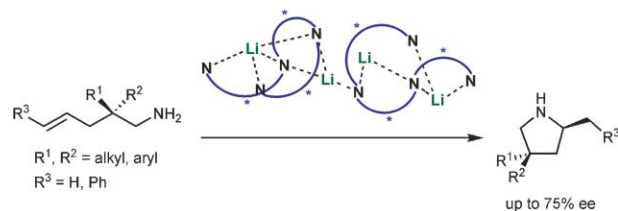
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2221

Base-catalysed asymmetric hydroamination/cyclisation of aminoalkenes utilising a dimeric chiral diamidobinaphthyl dilithium salt

Patricia Horrillo Martínez, Kai C. Hultzsch* and Frank Hampel

Asymmetric hydroamination, a field of catalysis dominated by transition metal complexes, can be achieved using a novel dimeric diamidobinaphthyl dilithium catalyst with enantioselectivities as high as 75% ee in the cyclisation of aminoalkenes.

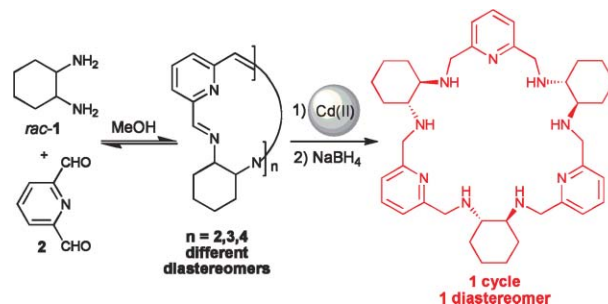


2224

Highly diastereoselective amplification from a dynamic combinatorial library of macrocyclic oligoimines

Almudena González-Álvarez, Ignacio Alfonso* and Vicente Gotor*

The Cd(II) promoted amplification from a dynamic combinatorial library of different sized and stereoisomeric oligoimines allows the efficient synthesis of a new macrocyclic polyamine as a single diastereomer.

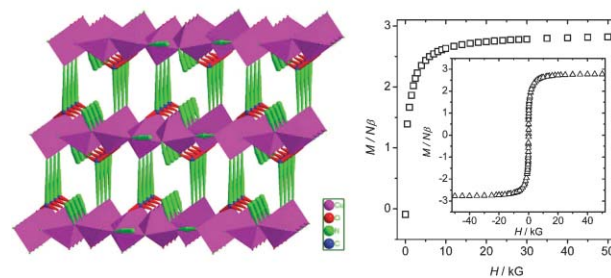


2227

An azido–metal–isonicotinate complex showing long-range ordered ferromagnetic interaction: synthesis, structure and magnetic properties

Yong-Fei Zeng, Fu-Chen Liu, Jiong-Peng Zhao, Shuang Cai, Xian-He Bu* and Joan Ribas

A new 3D Cu^{II} complex [Cu_{1.5}(N₃)₂(isonic)]_n [**1**], which features two types of bridging modes for azide ($\mu_{1,1}$ and the rare asymmetric $\mu_{1,1,3}$), has been synthesized and characterized, and the magnetic measurements indicate that [**1**] experiences long-range ferromagnetic ordering at approximately 6 K.



2230

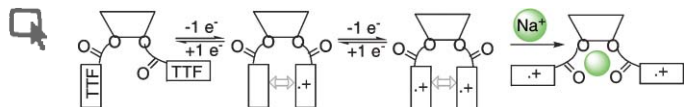
Selective aerobic oxidation in supercritical carbon dioxide catalyzed by the H₅PV₂Mo₁₀O₄₀ polyoxometalate

Galia Maayan, Benjamin Ganchegui, Walter Leitner* and Ronny Neumann*

Selective aerobic oxidation of benzylic alcohols and of activated aromatic hydrocarbons occurs in supercritical CO₂ using H₅PV₂Mo₁₀O₄₀ as a quasi-heterogeneous catalyst without further additives or co-solvents.



2233

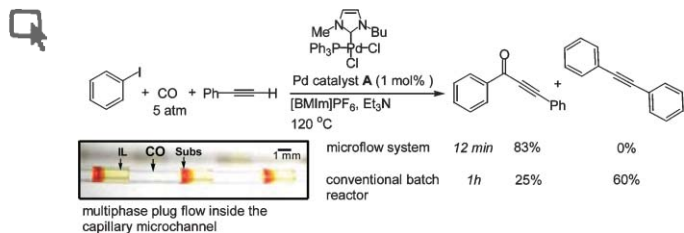


Monitoring the formation of TTF dimers by Na⁺ complexation

Joël Lyskawa, Marc Sallé,* Jean-Yves Balandier, Franck Le Derf, Eric Levillain, Magali Allain, Pascal Viel and Serge Palacin

The formation of the two dimeric species [(TTF)₂]⁺⁺ and (TTF⁺⁺)₂ can be monitored by complexation of Na⁺ on a calix[4]arene–TTF assembly.

2236

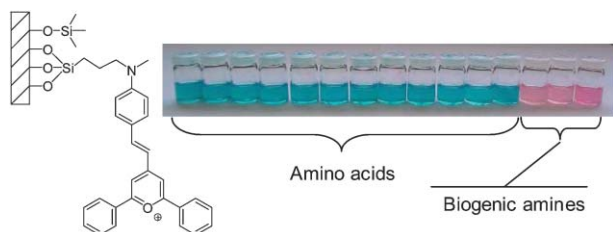


Low pressure Pd-catalyzed carbonylation in an ionic liquid using a multiphase microflow system

Md. Taifur Rahman, Takahide Fukuyama,* Naoya Kamata, Masaaki Sato and Ilhyong Ryu*

A highly efficient microflow system was developed for palladium-catalyzed multiphase carbonylation reactions in an ionic liquid. The microflow system resulted in superior selectivity and higher yields in carbonylative Sonogashira coupling and amidation reactions of aryl iodides compared to the conventional batch system.

2239

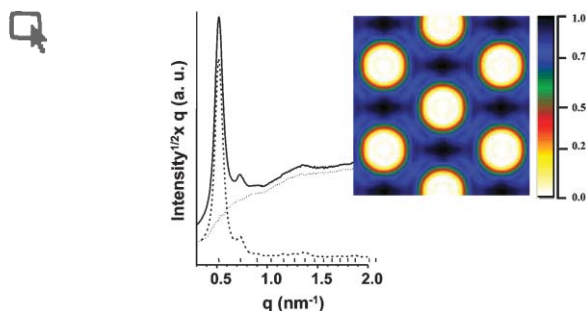


Sensory hybrid host materials for the selective chromo-fluorogenic detection of biogenic amines

Beatriz García-Acosta, María Comes, Julia L. Bricks,* Margarita A. Kudinova, Vladimir V. Kurdyukov, Alexei I. Tolmachev, Ana B. Descalzo, M. Dolores Marcos, Ramón Martínez-Mañez,* Ana Moreno, Félix Sancenón, Juan Soto, Luis A. Villaescusa, Knut Rurack,* José M. Barat, Isabel Escriche and Pedro Amorós

Pyrylium-containing mesoporous materials have been used for the chromo-fluorogenic sensing of biogenic amines in water.

2242



Assessment of ordered and complementary pore volumes in polymer-templated mesoporous silicas and organosilicas

Mietek Jaroniec* and Leonid A. Solovyov

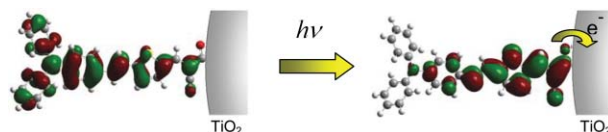
A method to determine the volumes of complementary and ordered pores in polymer-templated ordered mesoporous silicas and organosilicas is proposed by using parameters from nitrogen adsorption and XRD structure modeling.

2245

A novel organic chromophore for dye-sensitized nanostructured solar cells

Daniel P. Hagberg, Tomas Edvinsson,* Tannia Marinado, Gerrit Boschloo, Anders Hagfeldt and Licheng Sun*

A new organic dye with an effective intramolecular charge separation has been synthesized. The overall solar-to-energy conversion efficiency is very promising and the high extinction coefficient together with the triarylamine donor group makes the dye particularly interesting for future use in solid state devices.

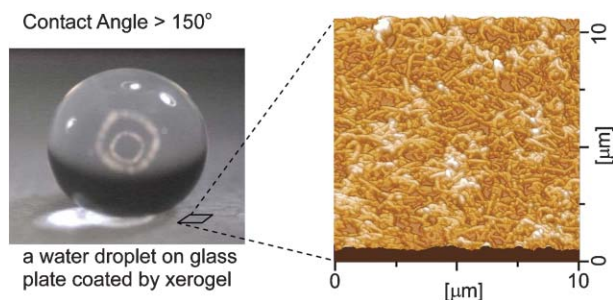


2248

Construction of superhydrophobic surfaces by fibrous aggregation of perfluoroalkyl chain-containing organogelators

Motoshi Yamanaka, Kazuki Sada, Mikiji Miyata, Kenji Hanabusa and Kazunori Nakano*

Superhydrophobic surfaces, characterized by water contact angles of greater than 150°, can be produced by means of intermediate organogels, which were formed by perfluoroalkyl chain-containing organogelators with volatile organic solvents.

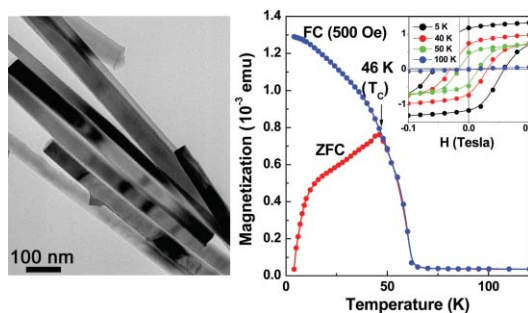


2251

Ferrimagnetic Mn₂SnO₄ nanowires

Chan Woong Na, Doo Suk Han, Jeunghee Park,* Younghun Jo and Myung-Hwa Jung

Single-crystalline Mn₂SnO₄ nanowires were first synthesized by chemical vapor deposition. They have a ferrimagnetic phase below 46 K (T_C) with large hysteresis, probably due to the presence of Mn³⁺ ions at octahedral sites.

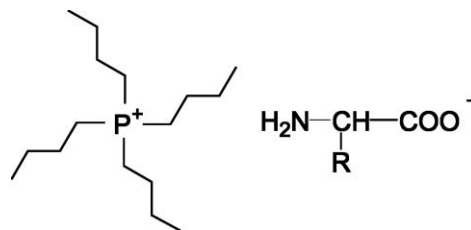


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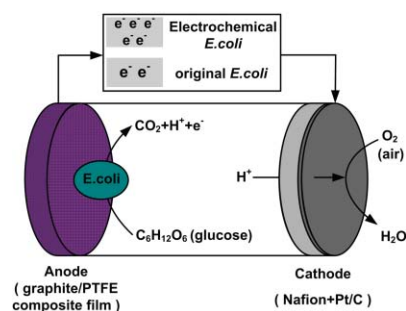
Effect of tetrabutylphosphonium cation on the physico-chemical properties of amino-acid ionic liquids

Junko Kagimoto, Kenta Fukumoto and Hiroyuki Ohno*

Tetraalkylphosphonium-based amino-acid ionic liquids show lower viscosities, lower glass transition temperatures, and higher decomposition temperatures (>300 °C) than previously reported ammonium-based amino-acid ionic liquids.



2257

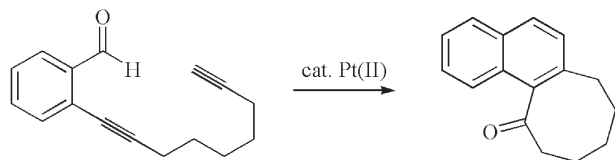


A novel mediatorless microbial fuel cell based on direct biocatalysis of *Escherichia coli*

Tian Zhang, Changzheng Cui, Shengli Chen,* Xinping Ai, Hanxi Yang, Ping Shen and Zhenrong Peng

Electrochemical bacteria that evolve in fuel cell environments, possibly through a Darwin-type of natural selection mechanism, show greatly enhanced bioelectrocatalytic activity towards the oxidation of carbohydrates.

2260

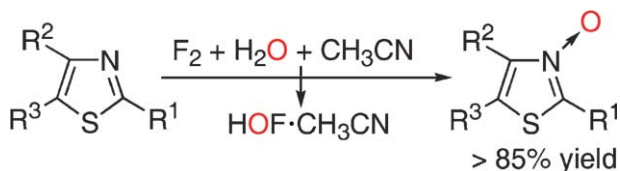


A platinum-catalyzed annulation reaction leading to medium-sized rings

Dirk Hildebrandt, Wiebke Hüggenberg, Matthias Kanthak, Tobias Plöger, Iris M. Müller and Gerald Dyker*

A platinum-catalyzed domino process with intermediate benzopyrylium cations reaches its optimum utility in the formation of 7- and 8-membered rings.

2262

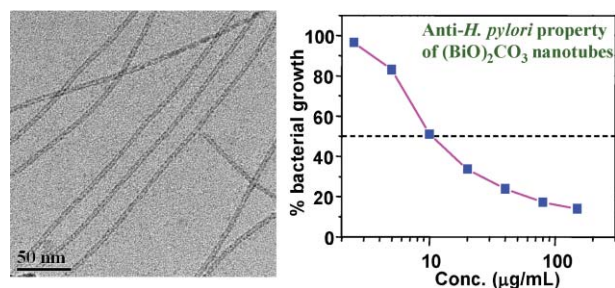


Easy access to the family of thiazole *N*-oxides using HOF·CH₃CN

Elizabeta Amir and Shlomo Rozen*

An efficient, novel route for the preparation of the biologically important thiazole *N*-oxide moiety.

2265



Fabrication of bismuth subcarbonate nanotube arrays from bismuth citrate

Rong Chen, Man Ho So, Jun Yang, Feng Deng, Chi-Ming Che and Hongzhe Sun*

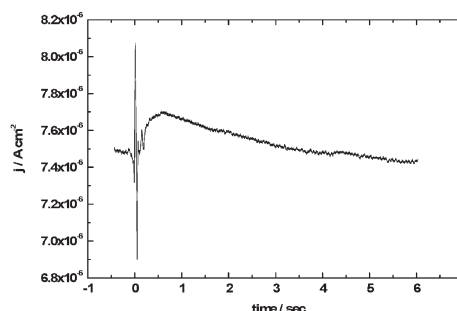
Bismuth subcarbonate nanotubes, fabricated from bismuth citrate by a simple reflux, exhibit potent activities against *H. pylori* at 10 µg mL⁻¹ (50% inhibition), and could be a potential nanomedicine.

2268

Scanning electrochemical microscopy under illumination: an elegant tool to directly determine the mobility of charge carriers within dye-sensitized nanostructured semiconductors

Biljana Bozic and Egbert Figgemeier*

The diffusion constant of the ferrocenium ion in dye-sensitized nanostructured materials has been determined by time-of-flight experiments under working solar cell conditions with scanning electrochemical microscopy.

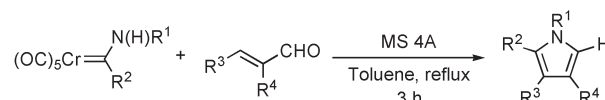


2271

Synthesis of pyrroles: reaction of chromium *N*-alkylaminocarbene complexes with α,β -unsaturated aldehydes

Kohei Fuchibe, Daisuke Ono and Takahiko Akiyama*

N-Alkylaminocarbene complexes of chromium were found to react with α,β -unsaturated aldehydes to give pyrroles in good yields.

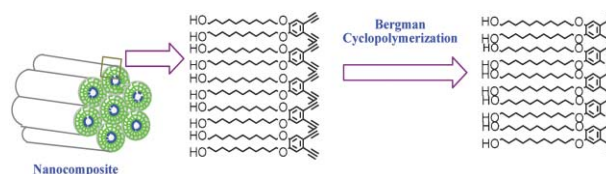


2274

Bergman cyclopolymerization within the channels of functional hybrid nanocomposites formed by co-assembly of silica and polymerizable surfactant monomer

Chetan Jagdish Bhongale, Chung-He Yang and Chain-Shu Hsu*

Bergman cyclopolymerization of the amphiphilic surfactant monomer is carried out within the silica nanocomposites formed by templated co-assembly. This approach could lead to the patterned polymerization of the polymer precursor material directly onto surface, thereby facilitating its use in device fabrication.

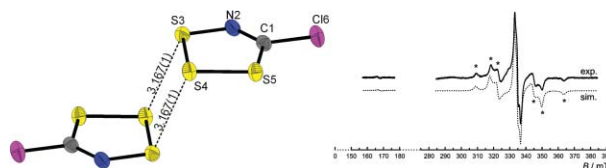


2277

Characterisation of the thermally accessible spin triplet state in dimers of the 7π CICN SSS^{2+} in the solid state

T. Stanley Cameron, Andreas Decken, Radoslaw M. Kowalczyk, Eric J. L. McInnes, Jack Passmore,* Jeremy M. Rawson, Konstantin V. Shuvaev and Laurence K. Thompson

[CICN SSS] $_2^{2+}$ is the first example of a thiazyl radical dimer where population of a thermally excited spin triplet state has been detected, as is proved by VT-powder and single-crystal EPR spectroscopy.

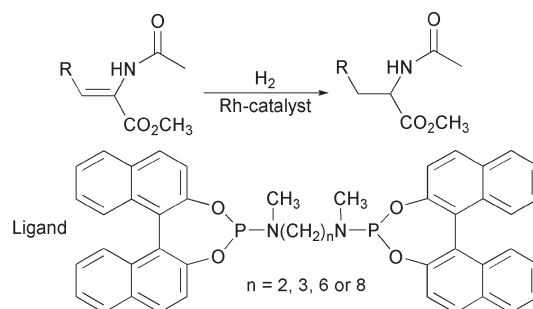


2292

Chiral diphosphites and diphosphoramidites as cheap and efficient ligands in Rh-catalyzed asymmetric olefin hydrogenation

Manfred T. Reetz,* Gerlinde Mehler and Oleg Bondarev

BINOL-derived diphosphites or diphosphoramidites are efficient ligands in Rh-catalyzed olefin hydrogenation, provided the achiral backbone is long, *e.g.* $n = 6$ or 8 (ee = 96–98%), in contrast to $n = 2$ (ee = 80%) or $n = 3$ (ee = 50%).



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