

# ChemComm

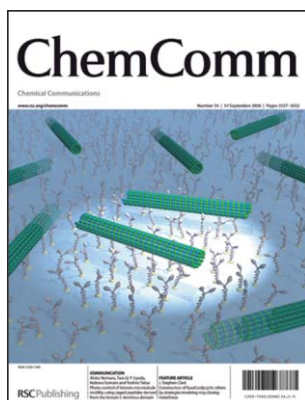
Chemical Communications

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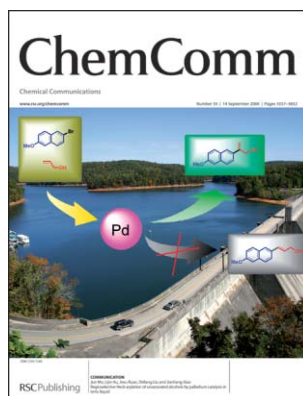
## IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS (34) 3557-3652 (2006)



### Cover

See Yoshiro Tatsu *et al.*, page 3588.  
The schematic illustration depicts the microtubules gliding across the kinesin-coated glass surface. UV-irradiation ceased the movement, through the activation of the caged inhibitory peptide. Image reproduced by permission of Akiko Nomura, Taro Q. P. Uyeda, Noboru Yumoto and Yoshiro Tatsu from *Chem. Commun.*, 2006, 3588.



### Inside cover

See Jianliang Xiao *et al.*, page 3591.  
Promoting one reaction pathway for regiocontrol of the Heck reaction using ionic liquid. Image reproduced by permission of Jun Mo, Lijin Xu, Jiwu Ruan, Shifang Liu and Jianliang Xiao from *Chem. Commun.*, 2006, 3591.

## CHEMICAL TECHNOLOGY

T33

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## Chemical Technology

September 2006/Volume 3/Issue 9

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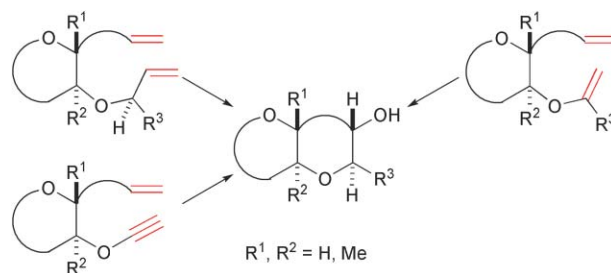
## FEATURE ARTICLE

3571

### Construction of fused polycyclic ethers by strategies involving ring-closing metathesis

J. Stephen Clark

Polycyclic ethers of the type found in marine natural products can be synthesised by short sequences of reactions involving ring-closing metathesis. Substrate synthesis and ring formation can be performed two-directionally resulting in an efficient strategy for the rapid construction of large polyether arrays.



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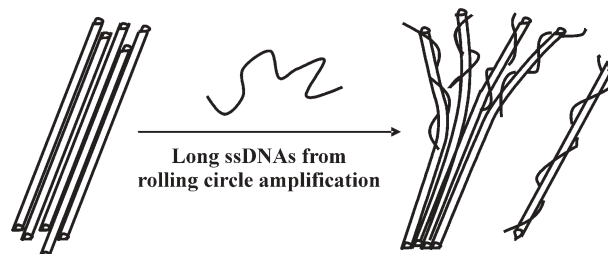
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3582

### Wrapping single-walled carbon nanotubes with long single-stranded DNA molecules produced by rolling circle amplification

Weian Zhao, Yan Gao, Michael A. Brook\* and Yingfu Li\*

Single-walled carbon nanotubes can be readily wrapped in and dispersed by long single-stranded DNA molecules (ssDNAs) synthesized by a biochemical technique known as “rolling circle amplification”.

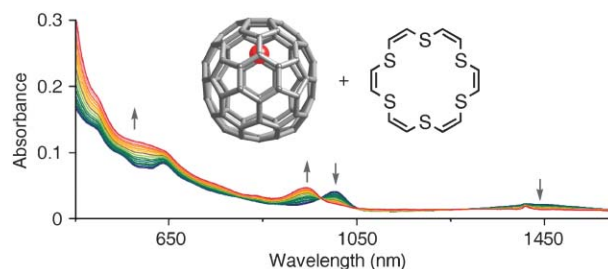


3585

### Supramolecular complexes of La@C<sub>82</sub> with unsaturated thiocrown ethers

Takahiro Tsuchiya, Hiroki Kurihara, Kumiko Sato, Takatsugu Wakahara, Takeshi Akasaka,\* Toshio Shimizu, Nobumasa Kamigata, Naomi Mizorogi and Shigeru Nagase

The paramagnetic La@C<sub>82</sub>-A(C<sub>2v</sub>) with unsaturated thiocrown ethers forms 1 : 1 host-guest complexes of [La@C<sub>82</sub>-A(C<sub>2v</sub>)]<sup>-</sup>[D]<sup>+</sup> in solution as a result of electron transfer.

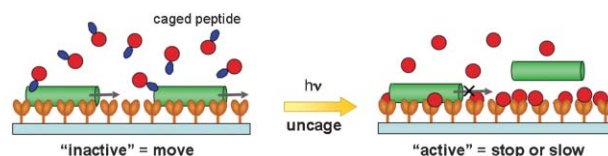


3588

### Photo-control of kinesin-microtubule motility using caged peptides derived from the kinesin C-terminus domain

Akiko Nomura, Taro Q. P. Uyeda, Noboru Yumoto and Yoshiro Tatsu\*

To design a nanoscale biodevice that can be controlled by an external stimulus, photochemical switching peptides were introduced into the kinesin-microtubule *in vitro* motility system.

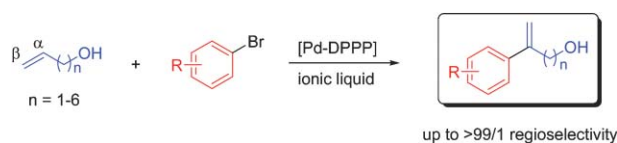


3591

### Regioselective Heck arylation of unsaturated alcohols by palladium catalysis in ionic liquid

Jun Mo, Lijin Xu, Jiwu Ruan, Shifang Liu and Jianliang Xiao\*

In contrast to almost all the known examples, the Heck arylation of unsaturated alcohols reported herein leads preferentially to substitution at the  $\alpha$  carbon, providing an easy pathway to this valuable class of olefins.



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*Soft Matter*, 2006, DOI: 10.1039/b605052b

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Henry Hess,  
*Soft Matter*, 2006, **2**, 669

### Communications

#### Spontaneous formation of stable aligned wrinkling patterns

Edwin P. Chan and Alfred J. Crosby,  
*Soft Matter*, 2006, **2**, 324

#### Chemical force microscopy for hot-embossing lithography release layer characterization

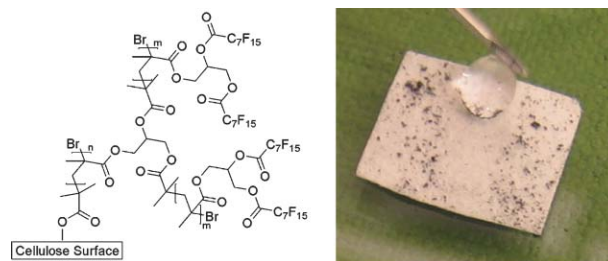
Neil S. Cameron *et al.*,  
*Soft Matter*, 2006, **2**, 553

3594

### Superhydrophobic bio-fibre surfaces *via* tailored grafting architecture

Daniel Nyström, Josefina Lindqvist, Emma Östmark, Anders Hult and Eva Malmström\*

Superhydrophobic bio-fibre surfaces with a micro-nano-binary surface structure have been achieved *via* the surface-confined grafting of glycidyl methacrylate, using a branched “graft-on-graft” architecture, followed by post-functionalisation to obtain fluorinated brushes.

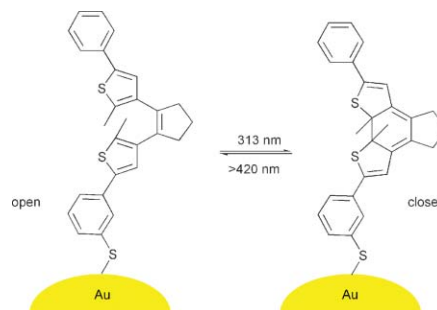


3597

### Uni- and bi-directional light-induced switching of diarylethenes on gold nanoparticles

Tibor Kudernac, Sense Jan van der Molen, Bart J. van Wees and Ben L. Feringa\*

Photochromic studies of diarylethenes with their switching unit linked to the surface of gold nanoparticles *via* a conjugated aromatic spacer show linker-dependent switching behavior.

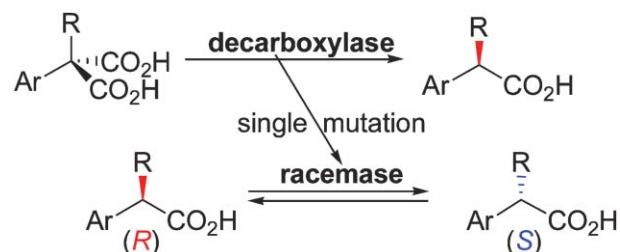


3600

### Introduction of single mutation changes arylmalonate decarboxylase to racemase

Yosuke Terao, Kenji Miyamoto and Hiromichi Ohta\*

The introduction of only one mutation based on the estimated reaction mechanism endowed arylmalonate decarboxylase with a racemase activity, which catalyses racemisation of  $\alpha$ -arylpropionates.

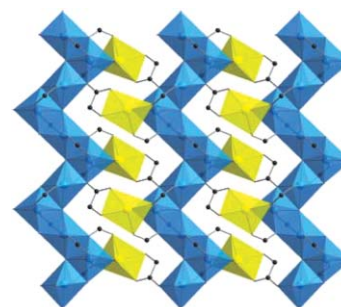


3603

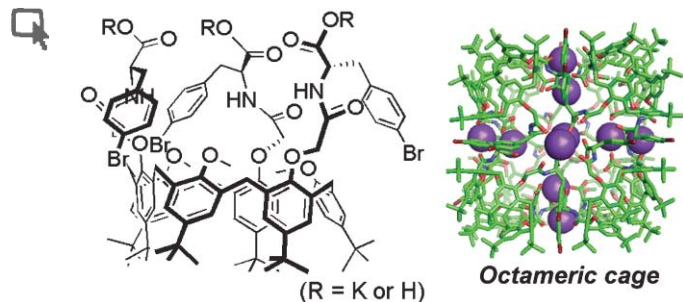
### The slow magnetic relaxation observed in a mixed carboxylate/hydroxide-bridged compound $[\text{Co}_2\text{Na}(\text{4-cpa})_2(\mu_3\text{-OH})(\text{H}_2\text{O})]_\infty$ featuring magnetic $\Delta$ -chains

Xiao-Ning Cheng, Wei-Xiong Zhang, Yan-Zhen Zheng and Xiao-Ming Chen\*

A novel three-dimensional compound  $[\text{Co}_2\text{Na}(\text{4-cpa})_2(\mu_3\text{-OH})(\text{H}_2\text{O})]_\infty$  (4-cpa = 4-carboxylphenoxyacetate), comprising magnetic  $\Delta$ -chains separated by  $\text{Na}^+$  ions and organic spacers, exhibits the magnetic behaviour of  $\Delta$ -chain topology and slow magnetic relaxation.



3606

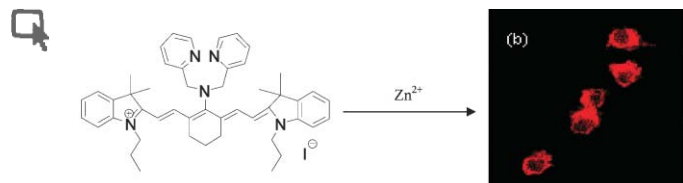


### Self-assembled octameric cage constructed by the potassium salt of *p*-*tert*-butylcalix[6]arene *p*-bromophenylalanine derivative in the solid state

Koji Tsukamoto, Hirofumi Ohishi,\* Yoichi Hiyama, Naoyoshi Maezaki,\* Tetsuaki Tanaka\* and Toshimasa Ishida

Two kinds of potassium salts of *p*-*tert*-butylcalix[6]arene *p*-bromophenylalanine derivative formed octameric cages in the solid state which was demonstrated by X-ray crystallographic analysis.

3609

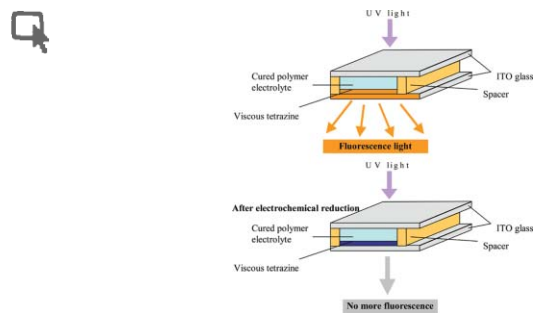


### Highly sensitive and selective near-infrared fluorescent probe for zinc and its application to macrophage cells

Bo Tang,\* Hui Huang, Kehua Xu, Lili Tong, Guiwen Yang, Xia Liu and Liguo An

DPA-Cy, the first near-infrared fluorescence probe for imaging zinc ions in biological samples was designed and synthesized based on a PET mechanism.

3612

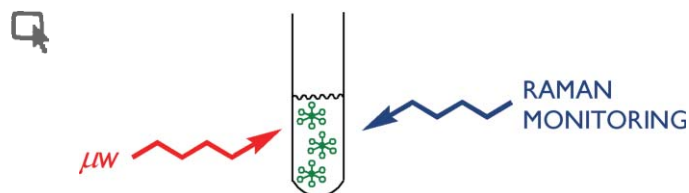


### New tetrazine-based fluoro-electrochromic window; modulation of the fluorescence through applied potential

Yuna Kim, Eunyoung Kim,\* Gilles Clavier and Pierre Audebert\*

A new electrofluorescent switch was prepared with an electroactive fluorescent tetrazine blend of polymer electrolyte.

3615



### Real-time monitoring of microwave-promoted organometallic ligand-substitution reactions using *in situ* Raman spectroscopy

Thomas M. Barnard and Nicholas E. Leadbeater\*

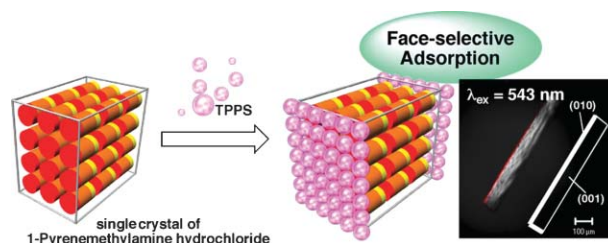
One major problem with performing a reaction in a scientific microwave apparatus is monitoring its progress. We present an apparatus for real-time monitoring organometallic reactions under microwave irradiation using *in situ* Raman spectroscopy and show its applicability for monitoring ligand substitution reactions of  $\text{Mo}(\text{CO})_6$ .

3617

### Face-selective decoration of an organic single crystal toward photochemical devices

Nami Tokunaga, Yuzo Fujiki, Seiji Shinkai and Kazuki Sada\*

Decorating specific surfaces of an organic single crystal by a functional dye is described.

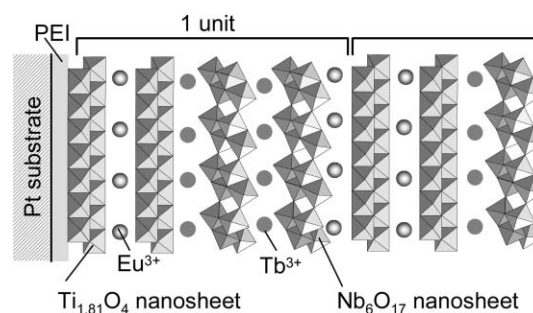


3619

### Photoluminescence properties of multilayer oxide films intercalated with rare earth ions by the layer-by-layer technique

Shintaro Ida,\* Kazuhiko Araki, Ugur Unal, Kazuyoshi Izawa, Ozge Altuntasoglu, Chikako Ogata and Yasumichi Matsumoto

Multilayer oxide films consisting of a  $\text{TiO}-\text{Eu}^{3+}-\text{TiO}-\text{Tb}^{3+}-\text{NbO}-\text{Tb}^{3+}-\text{NbO}-\text{Eu}^{3+}$  unit which was prepared by the layer-by-layer technique, showed photoluminescence with a high intensity containing both red and green lights.

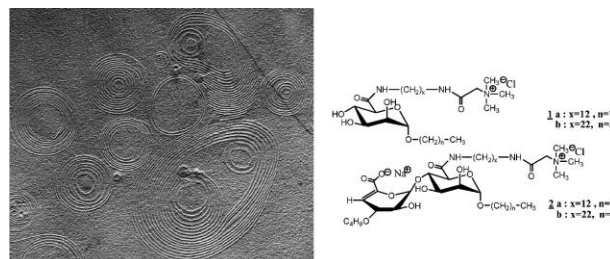


3622

### Monolayer lipid membrane-forming dissymmetrical bolaamphiphiles derived from alginate oligosaccharides

M. Roussel, V. Lognoné, D. Plusquellec and T. Benvegna\*

New dissymmetrical neutral-cationic or anionic-cationic  $\alpha,\omega$ -bolaamphiphiles have been synthesized in which the polar headgroups are derived from alginate and glycine betaine and which exhibit monolayer lipid membrane vesicles, large lamellae and rods.

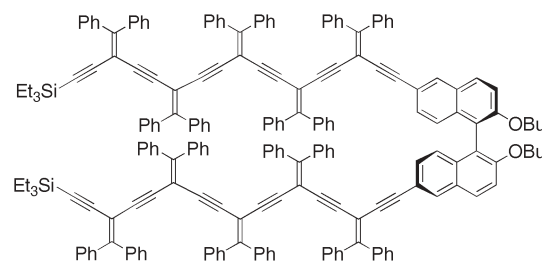


3625

### Chiral, cross-conjugated isopolydiacetylenes

Chad A. Lewis and Rik R. Tykwinski\*

A series of chiral, monodisperse enyne oligomers (isopolydiacetylenes) based on a 1,1'-binaphthyl core has been synthesized and characterized by UV-vis and CD spectroscopy.



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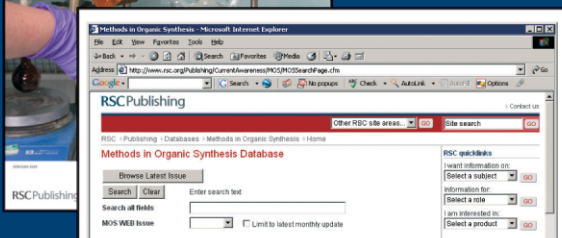


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J.-H. Liao; N. Maulide; B. Augustyns; I. E. Marko\*

*Org. Biomol. Chem.*, 2006, 4(8), 1464-1467



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3628

### First highly stereoselective synthesis of *anti*- $\alpha$ -trifluoromethyl- $\beta$ -amino acid derivatives

Taichi Shimada, Masamitsu Yoshioka, Tsutomu Konno and Takashi Ishihara\*

The Reformatsky-type reaction of 2-bromo-3,3,3-trifluoropropanoic imide with imines provides Evans *anti*-coupling products in a highly stereoselective manner.

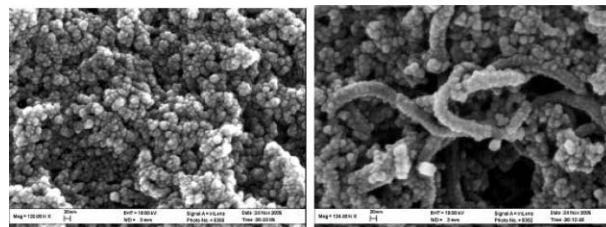


3631

### Enhanced solid-state electrochemiluminescence of CdS nanocrystals composited with carbon nanotubes in H<sub>2</sub>O<sub>2</sub> solution

Shou-Nian Ding, Jing-Juan Xu and Hong-Yuan Chen\*

CdS nanoparticles composited with carbon nanotubes not only enhances their electrochemiluminescent intensity but also decreases their ECL starting potential; such a property would promote the application of quantum dots in fabricating sensors for chemical and biochemical analysis.

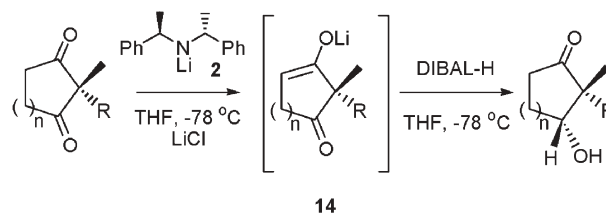


3634

### Chiral base mediated transformation of cyclic 1,3-diketones

Benjamin Butler, Thomas Schultz and Nigel S. Simpkins\*

Treatment of certain 1,3-diketones with a chiral lithium amide base results in the formation of a non-racemic lithium mono-enolate. These intermediates can be transformed directly into chiral hydroxyketone products by reduction with DIBAL-H in high yield and with selectivities of up to 99% ee.

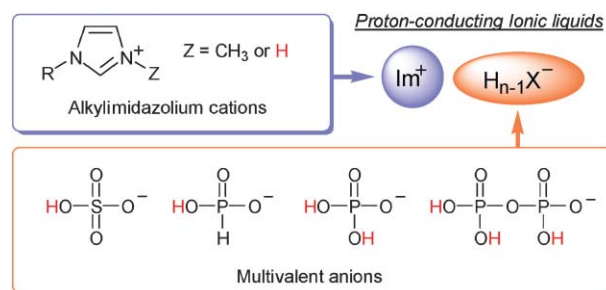


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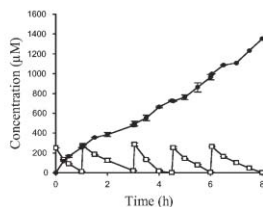
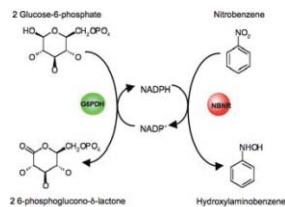
### Proton-conducting ionic liquids based upon multivalent anions and alkylimidazolium cations

Wataru Ogihara, Hiroyuki Kosukegawa and Hiroyuki Ohno\*

Proton-conducting ionic liquids were prepared using multivalent anions and imidazolium cations. Hydrogensulfate was found the best for preparing highly ion conductive and thermally stable ionic liquids.



3640

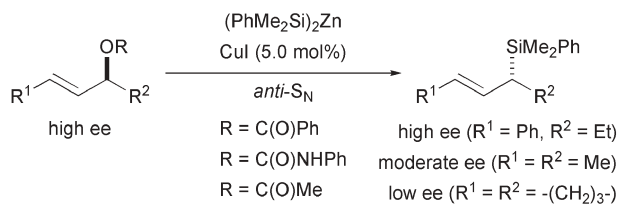


### Coimmobilization of a redox enzyme and a cofactor regeneration system

Lorena Betancor, Cécile Berne, Heather R. Luckarift and Jim C. Spain\*

The coimmobilization of nitrobenzene nitroreductase and glucose-6-phosphate dehydrogenase in silica particles enables the continuous conversion of nitrobenzene to hydroxylaminobenzene with NADPH recycling.

3643

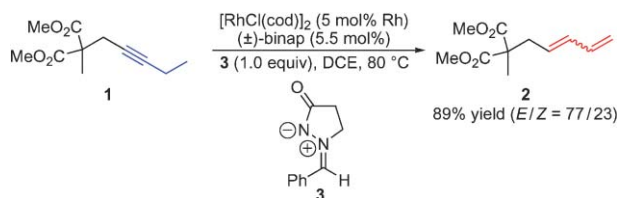


### Mechanistic insight into copper-catalyzed allylic substitutions with bis(triorganosilyl) zincs. Enantiospecific preparation of $\alpha$ -chiral silanes

Eric S. Schmidtman and Martin Oestreich\*

A question of substituents: The stereochemical course of copper-catalyzed allylic silylation was elucidated by isotopic desymmetrisation and chemical correlation.

3646

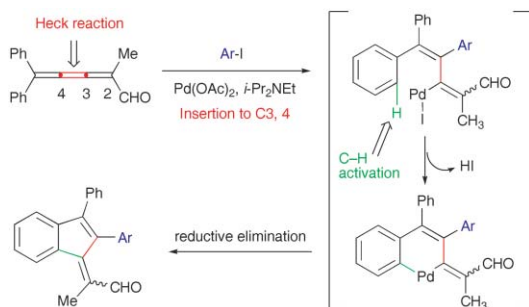


### Rhodium-catalyzed isomerization of unactivated alkynes to 1,3-dienes

Ryo Shintani, Wei-Liang Duan, Soyoung Park and Tamio Hayashi\*

A rhodium/binap complex has been found to effectively catalyze the isomerization of unactivated internal alkynes to the corresponding 1,3-dienes in the presence of an azomethine imine as the reaction promoter.

3648



### Domino Heck–C–H activation reaction of unsymmetrically substituted [3]cumulene

Takumi Furuta,\* Tomohiro Asakawa, Mie Inuma, Satoshi Fujii, Kiyoshi Tanaka and Toshiyuki Kan\*

The arylpalladium species selectively inserts into the C3–4 double bond, and a subsequent C–H activation reaction with a neighboring phenyl group gives the indene derivatives with a tetrasubstituted olefin moiety.

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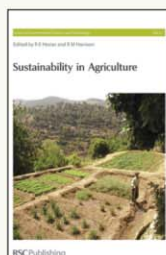
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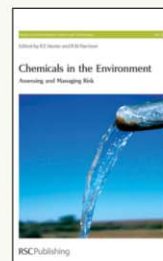
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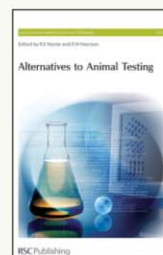
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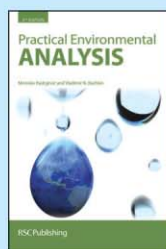


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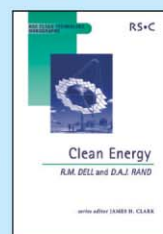
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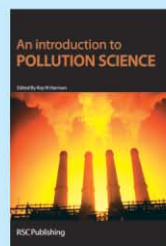


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