

ChemComm

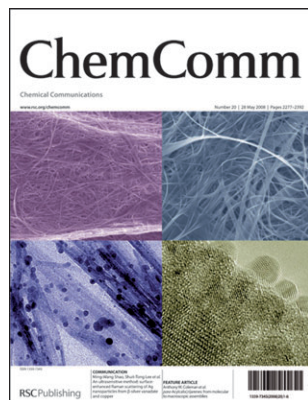
Chemical Communications

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IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS (20) 2277-2392 (2008)



Cover

See Ming-Wang Shao,
Shuit-Tong Lee *et al.*,
pp. 2310–2312.

Layered compounds, a new
substrate for surface-enhanced
Raman scattering.

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Shao, Lei Lu, Hong Wang,
Sheng Wang, Ming-Liang
Zhang, Dorothy-Duo-Duo Ma
and Shuit-Tong Lee from
Chem. Commun., 2008, 2310.

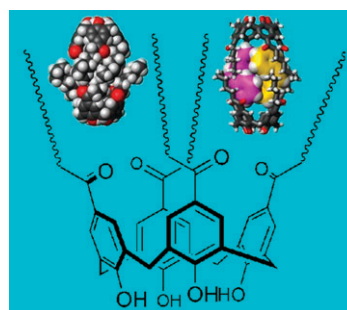
FEATURE ARTICLE

2291

para-Acylcalix[*n*]arenes: from molecular to macroscopic assemblies

Anthony W. Coleman,* Said Jebors, Patrick Shahgaldian,
Gennady S. Ananchenko and John A. Ripmeester

The *para*-acylcalix[*n*]arenes possess a very rich capacity to self-assemble into a wide variety of structures and sizes ranging from molecular assemblies through dimeric capsules, molecular sheets to nanoparticles.



COMMUNICATIONS

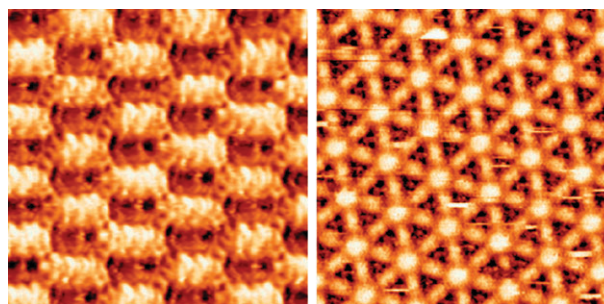


2304

Directing two-dimensional molecular crystallization using guest templates

Matthew Blunt, Xiang Lin, Maria del Carmen Gimenez-Lopez, Martin Schröder, Neil R. Champness* and Peter H. Beton*

The use of a coronene guest template directs the formation of a 2D Kagomé network in preference to alternative close packed and parallel hydrogen-bonded structures of tetracarboxylic acid tectons self-assembled from solution on a graphite surface.



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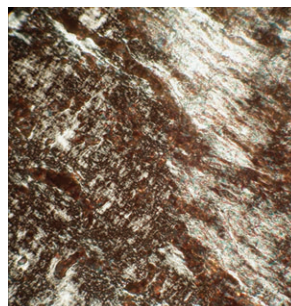
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2307

DNA that is dispersed in the liquid crystalline phases of phospholipids is actively transcribed

Josephine Corsi, Marcus K. Dymond, Oscar Ces, Joscha Muck, Daniele Zink and George S. Attard*

Optical texture of the H_{II} phase of DOPE containing *lin*-T7-Luc DNA. This is the first observation of transcription of DNA that is confined within the aqueous domains of a lyotropic liquid crystalline phase.

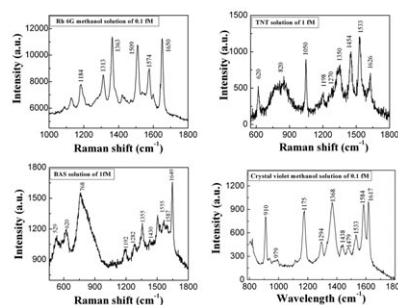


2310

An ultrasensitive method: surface-enhanced Raman scattering of Ag nanoparticles from β-silver vanadate and copper

Ming-Wang Shao,* Lei Lu, Hong Wang, Sheng Wang, Ming-Liang Zhang, Dorothy-Duo-Duo Ma and Shuit-Tong Lee*

Ultrasensitive surface-enhanced Raman scattering signals were observed on Ag nanoparticles from β-silver vanadate and copper with low concentrations of four typical analytes.

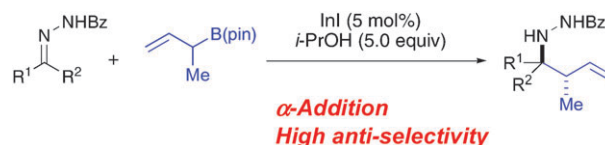


2313

Indium(I) iodide-catalyzed regio- and diastereoselective formal α-addition of an α-methylallylboronate to N-acylhydrazones

Shū Kobayashi,* Hideyuki Konishi and Uwe Schneider

Indium(I)-catalyzed addition of an α-methylallylboronate to N-acylhydrazones proceeded smoothly to give formal α-adducts with high *anti*-selectivity.

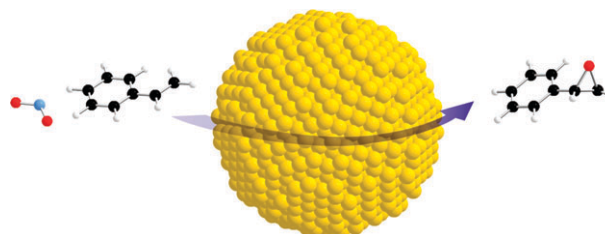


2316

Partial oxidations with NO₂ catalyzed by large gold particles

Mark Turner, Owain P. H. Vaughan and Richard M. Lambert*

Large gold particles catalyze alkene epoxidation by NO₂ under mild conditions, oxygen adatoms being the likely active species.





23rd European Colloquium on HETEROCYCLIC CHEMISTRY

UNIVERSITY OF ANTWERP - SEPTEMBER 9-13, 2008



Lectures

EVENING LECTURE

Lecture on the life, work and personality of Dr. P. Janssen (founder of Janssen Pharmaceutica)

Dr. Paul J. LEWI
Johnson & Johnson PRD, Beerse, Belgium

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University of Barcelona, Spain
Prof. Timothy DONOHOE
University of Oxford, United Kingdom
Dr. Eddy FREYNE

Johnson & Johnson PRD, Beerse, Belgium
Prof. Gordon GRIBBLE
Dartmouth College, Hanover, United States

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ICSN CNRS, Gif-Sur-Yvette, France



Scientific Programme

The scientific programme is structured into **plenary lectures, invited lectures, short oral communications** selected from submitted abstracts, and **posters**.

The Colloquium will start on Tuesday September 9 with the Registration, followed by an evening lecture on the life, work and personality of Dr. P. Janssen (founder of Janssen Pharmaceutica) delivered by Dr. P. Lewi. This day will end by a welcome reception. The scientific programme will finish on Saturday September 13, early in the afternoon.



Registration & Abstract Submission

Registration and abstract submission is available on-line via the symposium website: www.echc08.org

The official symposium language is English.



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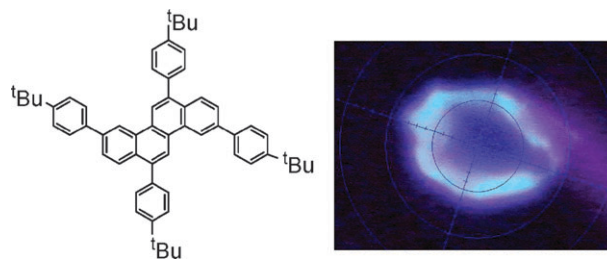
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2319

A tetra-substituted chrysene: orientation of multiple electrophilic substitution and use of a tetra-substituted chrysene as a blue emitter for OLEDs

Alex S. Ionkin,* William J. Marshall, Brian M. Fish, Lois M. Bryman and Ying Wang

The first tetra-substituted non-fused chrysene was synthesized and incorporated in an OLED that shows blue electroluminescence at 450 nm, with radiance of 500 cd m^{-2} .

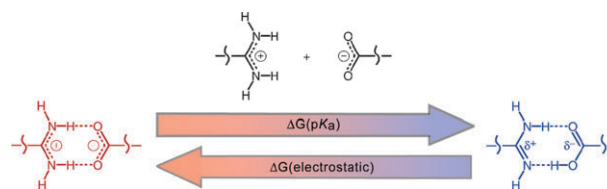


2322

Spectral observation of conversion between ionized vs. non-ionized proton-coupled electron transfer interfaces

Elizabeth R. Young, Joel Rosenthal and Daniel G. Nocera

The balance between the ionized and non-ionized tautomers of an amidinium–carboxylate interface is reported as the pK_a s of the carboxylic acid binding moieties are varied.

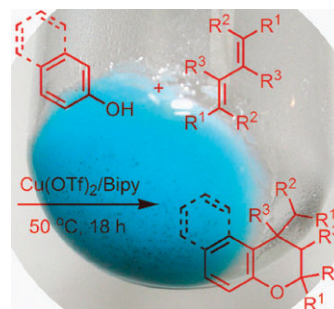


2325

A recyclable copper(II) catalyst for the annulation of phenols with 1,3-dienes

Luis A. Adrio and King Kuok (Mimi) Hii*

$\text{Cu}(\text{OTf})_2$ and 2,2'-bipyridine form an air- and moisture-stable catalyst for the annulation reaction between phenol/naphthol with 1,3-dienes, and can be recycled at least four times without any loss of catalytic activity.

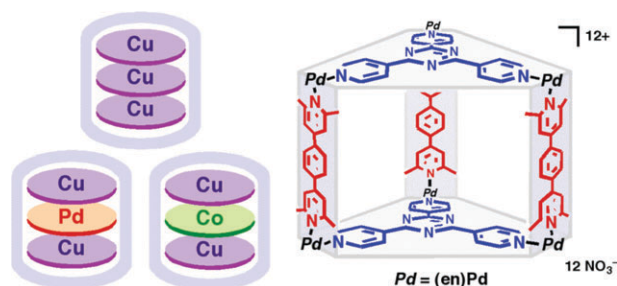


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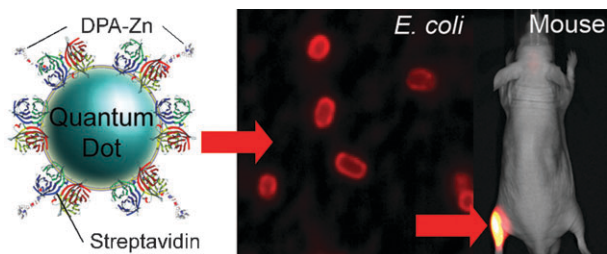
Three-metal-center spin interactions through the intercalation of metal azaporphines and porphines into an organic pillared coordination box

Kosuke Ono, Michito Yoshizawa,* Tatsuhisa Kato* and Makoto Fujita*

Discrete homo Cu–Cu–Cu and hetero Cu–Pd–Cu or Cu–Co–Cu metal arrays are prepared within an organic-pillared coordination box by inserting $M(\text{II})$ -azaporphine/porphine cartridges ($M = \text{Cu}(\text{II}), \text{Pd}(\text{II})$ or $\text{Co}(\text{II})$), where the metal arrays show unique spin interactions in ESR: in particular, $\Delta m_s = 3$ for the Cu–Cu–Cu array.



2331

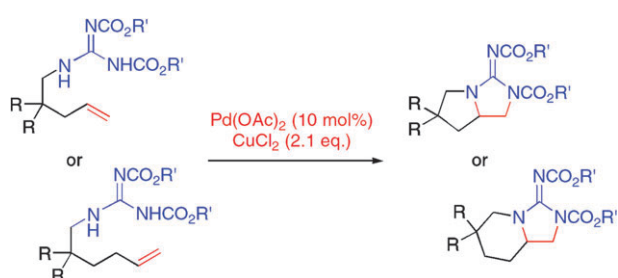


Quantum dot probes for bacteria distinguish *Escherichia coli* mutants and permit *in vivo* imaging

W. Matthew Leevy, Timothy N. Lambert, James R. Johnson, Joshua Morris and Bradley D. Smith*

Fluorescent quantum dots coated with zinc(II)-dipicolylamine coordination complexes can selectively stain a rough *Escherichia coli* mutant that lacks an O-antigen element and permit optical imaging in a mouse leg infection model.

2334

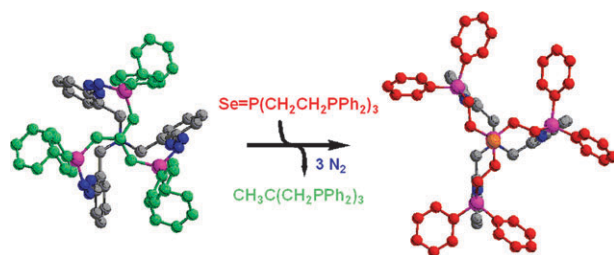


Direct synthesis of bicyclic guanidines through unprecedented palladium(II) catalysed diamination with copper chloride as oxidant

Claas H. Hövelmann, Jan Streuff, Lydia Brelot and Kilian Muñiz*

Palladium catalysed intramolecular guanidine transfer to alkenes can be accomplished with copper chloride as the oxidant to give bicyclic guanidines with complete selectivity and in high yields.

2337

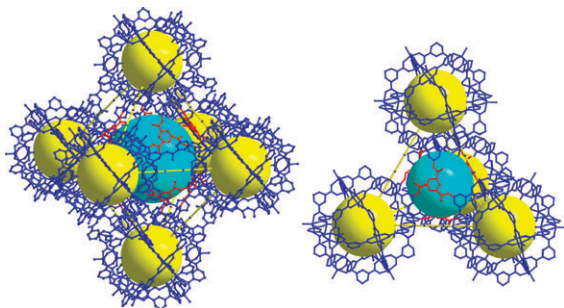


Component exchange as a synthetically advantageous strategy for the preparation of bicyclic cage compounds

Mateo Alajarín,* José Berná,* Carmen López-Leonardo and Jonathan W. Steed

Macrobicyclic triphosphazides are able to reversibly exchange one of their tripodal components by means of a dynamic disassembly–reassembly process. Surprisingly this strategy provides better yields of cage compounds than a direct tripod–tripod coupling.

2340



A designed metal–organic framework based on a metal–organic polyhedron

Yang Zou, Mira Park, Seunghee Hong and Myoung Soo Lah*

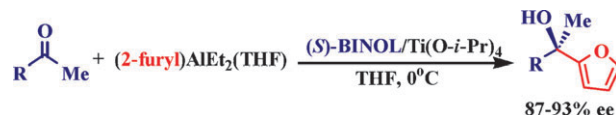
A C_3 symmetric ligand has been used to construct a (3,24)-connected metal–organic framework, where metal–organic cuboctahedra have been incorporated into a covalently networked cubic close packing arrangement, which led to superoctahedral and supertetrahedral cavities.

2343

Chiral tertiary 2-furyl alcohols: diversified key intermediates to bioactive compounds. Their enantioselective synthesis via (2-furyl)aluminium addition to ketones catalyzed by a titanium catalyst of (S)-BINOL

Kuo-Hui Wu, Da-Wei Chuang, Chien-An Chen and Han-Mou Gau*

Novel asymmetric 2-furyl additions to aromatic ketones and one α,β -unsaturated ketone are reported to afford tertiary furyl alcohols in enantioselectivities of 87–93% ee.

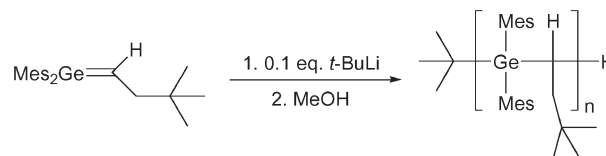


2346

Addition polymerization of 1,1-dimesitylneopentylgermene: synthesis of a polygermene

Laura C. Pavelka, Simon J. Holder and Kim M. Baines*

A new polymer with an alternating germanium–carbon backbone has been synthesized from 1,1-dimesitylneopentylgermene via addition polymerization using an anionic initiator.

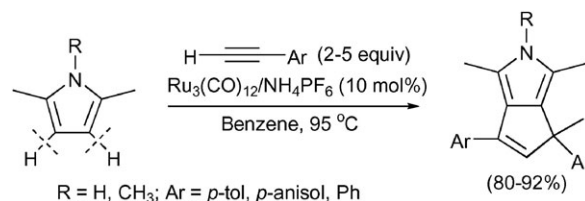


2349

Formation of bicyclic pyrroles from the catalytic coupling reaction of 2,5-disubstituted pyrroles with terminal alkynes, involving the activation of multiple C–H bonds

Chae S. Yi* and Jie Zhang

Substituted bicyclic pyrroles are produced directly from the coupling reaction of pyrroles with terminal alkynes, involving the activation of multiple C–H bonds and regioselective cyclisation.

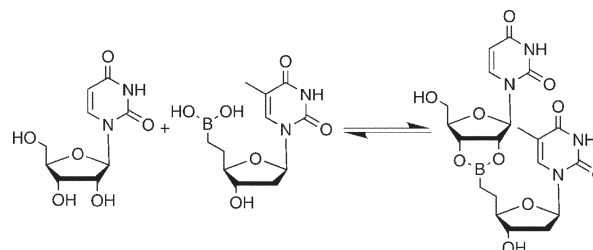


2352

Borononucleotides: synthesis, and formation of a new reversible boronate internucleosidic linkage

Delphine Luvino, Carine Baraguey, Michael Smietana* and Jean-Jacques Vasseur*

The synthesis of a borononucleotide analogue of thymidine and its association towards the formation of new borono-linked dimers is described.





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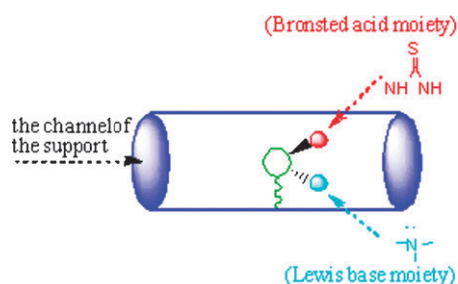
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2355

9-Thiourea *Cinchona* alkaloid supported on mesoporous silica as a highly enantioselective, recyclable heterogeneous asymmetric catalyst

Peng Yu, Jing He* and Canxiong Guo

A highly enantioselective and readily recycled asymmetric catalyst was achieved by immobilizing 9-thiourea *Cinchona* alkaloid in the nano-sized channels of SBA-15 through a bottom-up approach with a mercapto group as a linker.

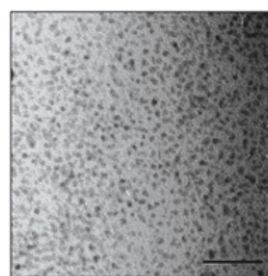


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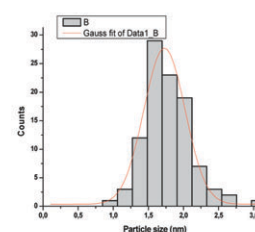
Chiral dendrimer encapsulated Pd and Rh nanoparticles

Michael Pittelkow, Theis Brock-Nannestad, Kasper Moth-Poulsen and Jørn B. Christensen*

Chiral poly(amido amine) PAMAM dendrimers were designed, synthesised and used as macromolecular ligands for metal ions. Monodisperse chiral Pd and Rh particles were prepared inside the 5 largest dendrimers, as shown by TEM. The chiral nature of the metal particles was studied with circular dichroism and a Cotton effect in the region where the metal particle absorbs was observed.



Pd@dendrimer Bar = 25 nm

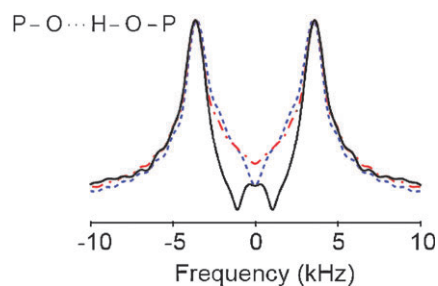


2361

Proton chemical shift anisotropy measurements of hydrogen-bonded functional groups by fast magic-angle spinning solid-state NMR spectroscopy

Luminita Duma, Daniel Abergel, Piotr Tekely* and Geoffrey Bodenhausen

The suitability of fast MAS solid-state NMR spectroscopy for probing ^1H chemical shift anisotropy of hydrogen-bonded species has been demonstrated.

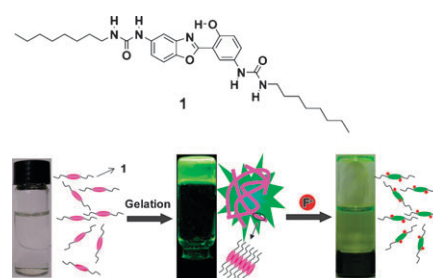


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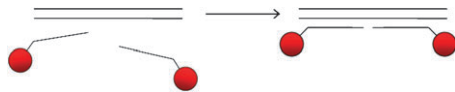
Gelation-induced fluorescence enhancement of benzoxazole-based organogel and its naked-eye fluoride detection

Tae Hyeon Kim, Moon Soo Choi, Byeong-Hyeok Sohn, Soo-Young Park, Won Seok Lyoo and Taek Seung Lee*

The benzoxazole derivative gelator **1** forms a stable DMF/toluene cosolvent gel, which showed naked-eye fluoride anion detection.



2367

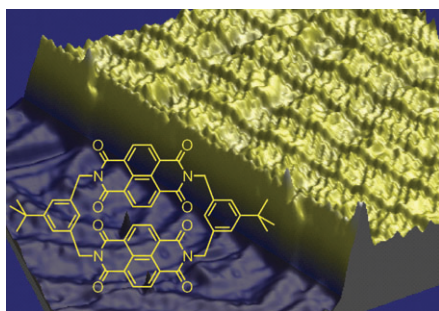


LNA functionalized gold nanoparticles as probes for double stranded DNA through triplex formation

Fiona McKenzie, Karen Faulds and Duncan Graham*

LNA functionalized nanoparticles have been used to target double stranded DNA resulting in triplex formation. Colorimetric detection takes place by addition of the target polypurine–polypyrimidine sequence to the nanoparticle probes at room temperature without prior denaturation of the duplex.

2370

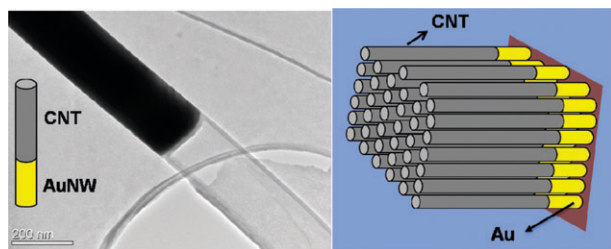


A rigid sublimable naphthalenediimide cyclophane as model compound for UHV STM experiments

Sandro Gabutti, Marco Knutzen, Markus Neuburger, Guillaume Schull, Richard Berndt* and Marcel Mayor*

A cyclophane consisting of two spatially fixed chromophores has been synthesized and its self-assembly on an Au(111) surface has been investigated by low temperature UHV-STM.

2373

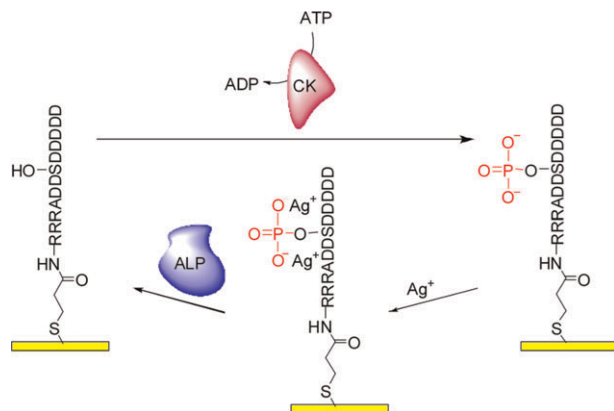


Synthesis of hybrid nanowire arrays and their application as high power supercapacitor electrodes

Manikoth M. Shaijumon, Fung Suong Ou, Lijie Ci and Pulickel M. Ajayan*

Ultra-high power electrochemical double layer capacitors have been fabricated using arrays of multi-segmented hybrid nanowires of carbon nanotube and gold nanowire, synthesized by a combination of electrodeposition and chemical vapour deposition techniques.

2376



Following protein kinase activity by electrochemical means and contact angle measurements

Agnieszka Wieckowska, Di Li, Ron Gill and Itamar Willner*

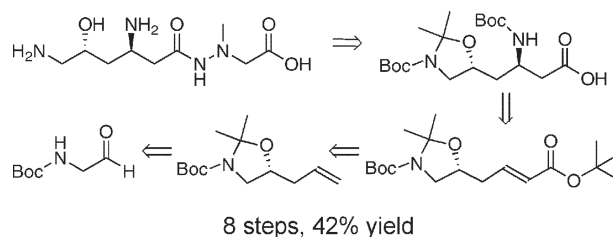
The electrochemical analysis of the protein kinase, casein kinase, is accomplished by the voltammetric response of Ag⁺ ions associated with the phosphorylated product. The sensing surface is regenerated by the cleavage of the phosphorylated product with alkaline phosphatase, and the phosphorylation/de-phosphorylation processes are monitored by XPS and contact angle measurements.

2379

Efficient total synthesis of (+)-negamycin, a potential chemotherapeutic agent for genetic diseases

Yoshio Hayashi,* Thomas Regnier, Shigenobu Nishiguchi, Magne O. Sydnes, Daisuke Hashimoto, Junya Hasegawa, Takahiro Katoh, Tetsuya Kajimoto, Masataka Shiozuka, Ryoichi Matsuda, Manabu Node and Yoshiaki Kiso*

(+)-Negamycin, a potential chemotherapeutic agent for genetic diseases, was synthesized using a highly efficient strategy from commercially available achiral *N*-Boc-2-aminoacetaldehyde with 42% overall yield in only eight steps.

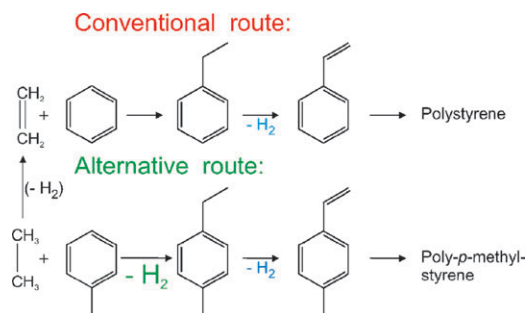


2382

Dehydroalkylation of toluene with ethane in a packed-bed membrane reactor with a bifunctional catalyst and a hydrogen-selective membrane

Seyed Alireza Sadat Rezai and Yvonne Traa*

A new dehydrogenative-type reaction is performed in a membrane reactor. Since the number of moles does not change, improved yields at high pressures are possible in the membrane reactor.

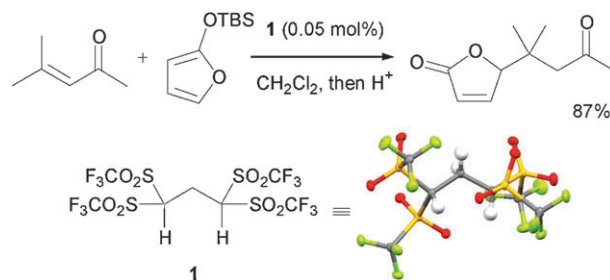


2385

Tetrakis(trifluoromethanesulfonyl)propane: highly effective Brønsted acid catalyst for vinylogous Mukaiyama–Michael reaction of α,β -enones with silyloxyfurans

Arata Takahashi, Hikaru Yanai and Takeo Taguchi*

1,1,3,3-Tetrakis(trifluoromethanesulfonyl)propane was found as an excellent Brønsted acid catalyst for the vinylogous Mukaiyama–Michael reaction of α,β -enones with 2-silyloxyfurans.

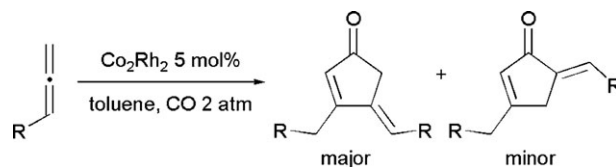


2388

Cobalt/rhodium heterobimetallic nanoparticle-catalyzed carbonylative [2 + 2 + 1] cycloaddition of allenes and bisallenes to Pauson–Khand-type reaction products

Ji Hoon Park, Eunha Kim, Hyeong-Mook Kim, Soo Young Choi and Young Keun Chung*

The first catalytic intra- and intermolecular [2 + 2 + 1] cycloaddition reactions of allenes and carbon monoxide have been developed. In the Co_2Rh_2 heterobimetallic nanoparticle-catalyzed carbonylative [2 + 2 + 1] cycloaddition of allenes and carbon monoxide, the allenes formally serve both as an excellent alkene and alkyne moiety.




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