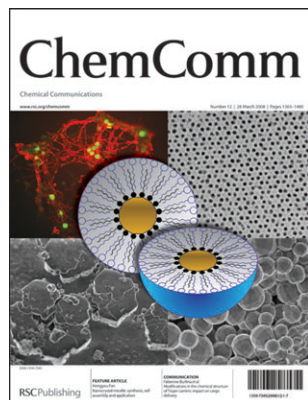


IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS (12) 1365-1480 (2008)



Cover

See Hongyou Fan, page 1383. A soft self-assembly method was developed to synthesize water-soluble and biocompatible nanocrystal-micelles, whose nature represents an ideal building block for ordered arrays and bioapplications. Image reproduced by permission of Hongyou Fan from *Chem. Commun.*, 2008, 1383.

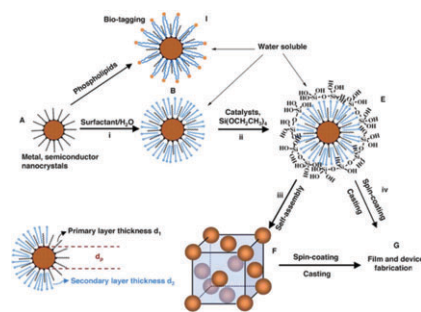
FEATURE ARTICLE

1383

Nanocrystal-micelle: synthesis, self-assembly and application

Hongyou Fan*

This article summarizes the recent advances in the synthesis and self-assembly of a new building block: nanocrystal-micelle. Its applications in bioapplication and formation of ordered arrays for integration of charge transport devices are also discussed.



COMMUNICATIONS

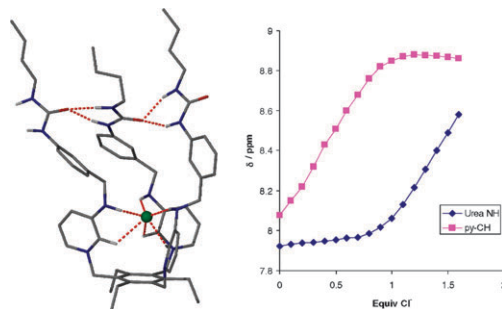


1395

Conformational control by 'zipping-up' an anion-binding unimolecular capsule

David R. Turner, Martin J. Paterson and Jonathan W. Steed*

An anion binding unimolecular capsule exhibiting relatively slow anion exchange kinetics has been prepared in which the tripodal binding site is preorganised by remote urea hydrogen bonding interactions in non-polar solvents.



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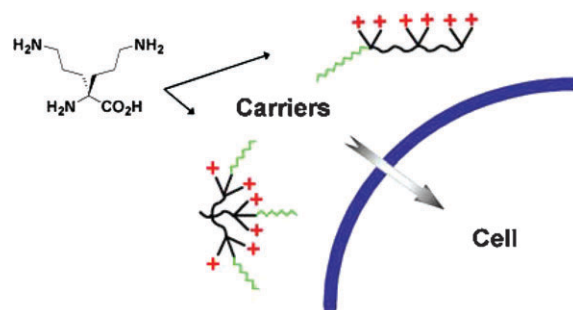
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1398

Modifications in the chemical structure of Trojan carriers: impact on cargo delivery

Baptiste Aussedat,* Edmond Dupont, Sandrine Sagan, Alain Joliot, Solange Lavielle, Gérard Chassaing and Fabienne Burlina*

New linear or dendrimeric carriers bearing different cationic or lipophilic functional groups were synthesized from 'bis-ornithine'. Changing the structure of the carrier led to important differences in the cargo intracellular concentration, degradation and localization.

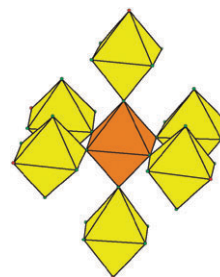


1401

A new hybrid framework based on a 'superoctahedral' $[V_7O_6F_{30}]^{14-}$ polyanion

Thushitha Mahenthirarajah and Philip Lightfoot*

$[CH_3NH_3]_8[Cu(Py)_4]_3[V_7O_6F_{30}]$ is a novel extended inorganic hybrid framework, which features an unusual superoctahedral vanadium oxyfluoride building unit.

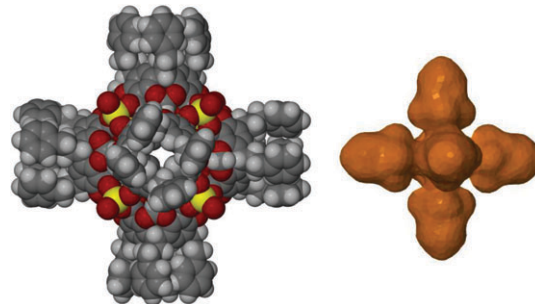


1404

Closed-surface hexameric metal–organic nanocapsules derived from cavitant ligands

Onome Ugono, Jason P. Moran and K. Travis Holman*

Segregated compartments confine seven guest molecules within chiral, closed-surface, metal–organic nanocapsules derived from the assembly of Zn^{2+} ions and upper-rim carboxylate functionalized cavitant ligands.

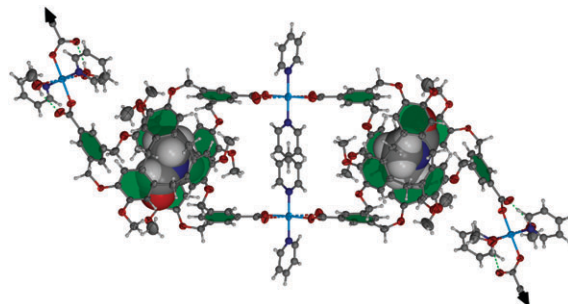


1407

A soft coordination polymer derived from container molecule ligands

Scott T. Mough and K. Travis Holman*

A crystalline coordination polymer derived from container-like, cryptophane ligands is sufficiently flexible allowing monitoring of its partial desolvation by single crystal diffraction.



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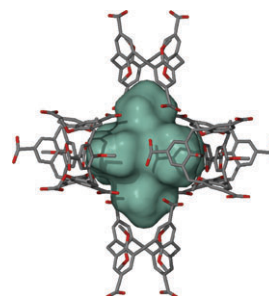
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1410

Interpenetrated nano-capsule networks based on the alkali metal assisted assembly of *p*-carboxylatocalix[4]arene-*O*-methyl ether

Scott J. Dalgarno,* Karla M. Claudio-Bosque, John E. Warren, Timothy E. Glass* and Jerry L. Atwood*

Conformational control over *p*-carboxylatocalix[4]arene-*O*-methyl ether is achieved by reaction with rubidium or caesium hydroxide, resulting in the formation of interpenetrated nano-capsule networks with the calixarene in the 1,3-alternate conformation.

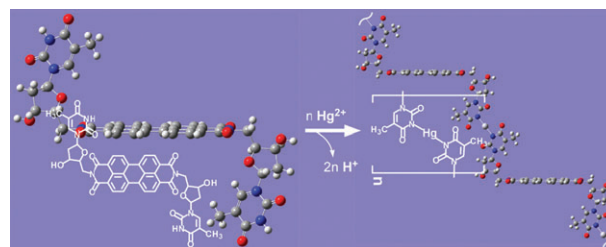


1413

Ultrasensitive fluorescent sensing of Hg²⁺ through metal coordination-induced molecular aggregation

Yanke Che, Xiaomei Yang and Ling Zang*

A new type of fluorescent sensor has been developed from a perylene based molecule. The strong, highly selective binding between the thymine ligand (T) and Hg²⁺ ion enables efficient sensing of mercury ions based on a fluorescence quenching mechanism.

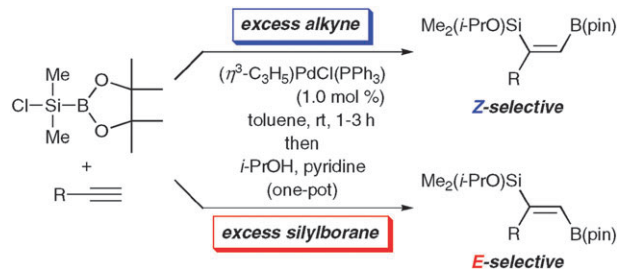


1416

Palladium-catalysed *cis*- and *trans*-silylation of terminal alkynes: complementary access to stereo-defined trisubstituted alkenes

Toshimichi Ohmura, Kazuyuki Oshima and Michinori Suginome*

Palladium-catalysed *cis*- and *trans*-silylation of terminal alkynes has been developed *via* the addition of (chlorodimethylsilyl)pinacolborane, followed by a one-pot conversion of the chloro group on the silicon atom to an isopropoxy group.



1419

The stereochemical course of bromoetherification of enynes

D. Christopher Braddock,* Roshni Bhuvu, Yolanda Pérez-Fuertes, Rebecca Pouwer, Craig A. Roberts, Andrea Ruggiero, Elaine S. E. Stokes and Andrew J. P. White

Enynes undergo stereoselective *syn* intramolecular bromoetherification. The stereochemical course of the reaction was elucidated by X-ray crystallographic studies and by stereospecific synthesis of authentic bromoallenes.



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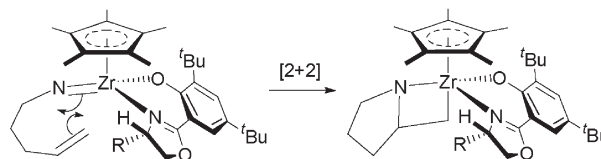
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1422

Catalytic alkene cyclohydroamination via an imido mechanism

Andrew L. Gott, Adam J. Clarke, Guy J. Clarkson and Peter Scott*

Half-sandwich diamide complexes catalyse enantioselective cyclohydroamination of aminoalkenes at unexpectedly high rates given their high coordination number and steric bulk; evidence is presented against the traditional σ -bond insertion process and for an imido [2+2] cycloaddition mechanism.

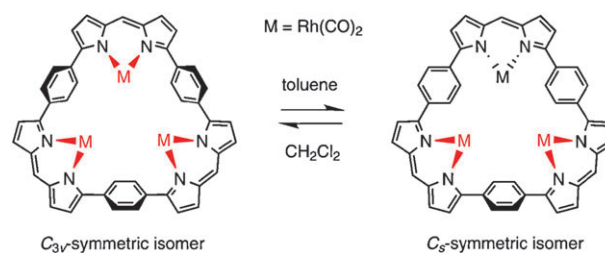


1425

Synthesis and dynamic structure of multinuclear Rh complexes of porphyrinoids

Jun-ichiro Setsune,* Masayuki Toda and Takafumi Yoshida

Dynamic structure of the multi-rhodium complexes of expanded rosarin and octaphyrin having 1,4-phenylene linkers is shown. Three Rh(CO)₂ groups of the rosarin pass through the macrocycle by a two-step mechanism.

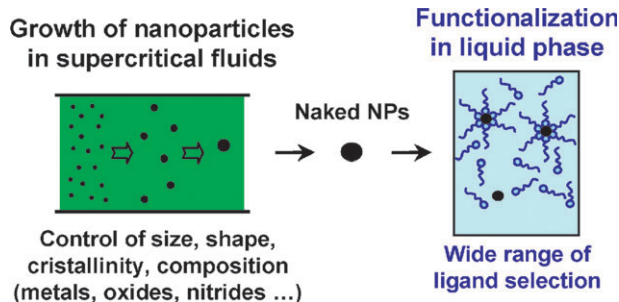


1428

Preparation of functional hybrid palladium nanoparticles using supercritical fluids: a novel approach to detach the growth and functionalization steps

Sandy Moisan, Jean-Daniel Marty, François Cansell and Cyril Aymonier*

A novel and versatile approach to control separately the growth and functionalization steps in preparing functional nanomaterials is presented. The applicability of this method is demonstrated with the fabrication of palladium nanoparticles capped with thiol or stabilized with ionic liquid.

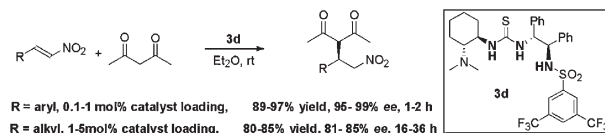


1431

Chiral amine-thioureas bearing multiple hydrogen bonding donors: highly efficient organocatalysts for asymmetric Michael addition of acetylacetone to nitroolefins

Chun-Jiang Wang,* Zhi-Hai Zhang, Xiu-Qin Dong and Xiao-Jun Wu

New bifunctional organocatalysts amine-thioureas bearing multiple hydrogen bonding donors were synthesized and applied in asymmetric Michael addition. The donors play a significant role in accelerating reactions, improving yields and enantioselectivities.



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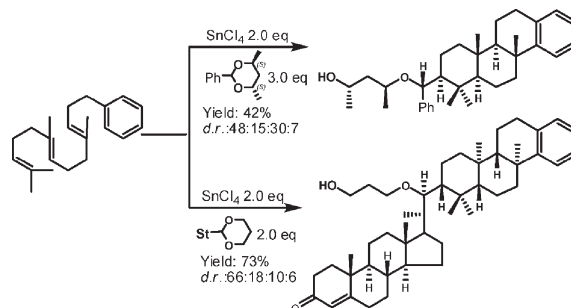
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1434

Bio-inspired polyene cyclization: synthesis of tetracyclic terpenoids promoted by steroidal acetal-SnCl₄

Yu-Jun Zhao and Teck-Peng Loh*

This communication describes a highly efficient intermolecular polyene cyclization method using steroidal acetals as the initiators to synthesize tetracyclic terpenoids. Both good yields and good asymmetric induction were obtained.

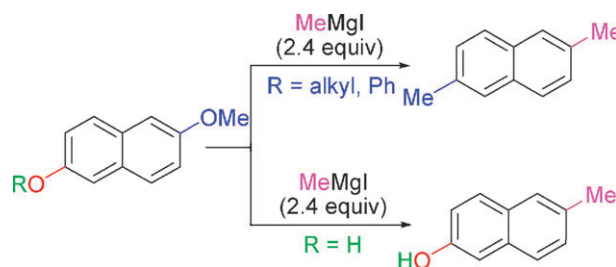


1437

Methylation of arenes via Ni-catalyzed aryl C–O/F activation

Bing-Tao Guan, Shi-Kai Xiang, Tao Wu, Zuo-Peng Sun, Bi-Qin Wang, Ke-Qing Zhao and Zhang-Jie Shi*

Aryl C–O and aryl C–F can be transformed into C–Me via Ni-catalyzed Kumada coupling under mild conditions. Different alkoxy groups on different aromatic rings were differentiated under the same conditions.

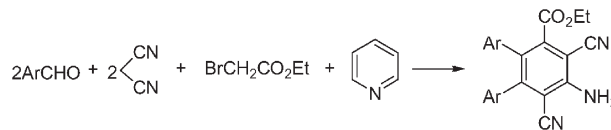


1440

One-step synthesis of polysubstituted benzene derivatives by multi-component cyclization of α -bromoacetate, malonitrile and aromatic aldehydes

Chao Guo Yan,* Xiao Kai Song, Qi Fang Wang, Jing Sun, Ulrich Siemeling* and Clemens Bruhn

Polysubstituted benzene derivatives with an unprecedented substitution pattern are produced in a novel one-pot multi-component cyclization reaction from pyridine, ethyl α -bromoacetate, malonitrile and aromatic aldehyde in refluxing acetonitrile.

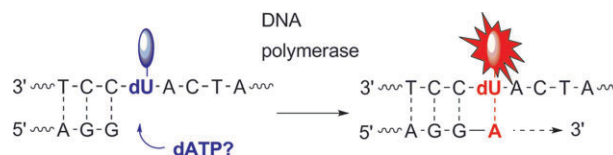


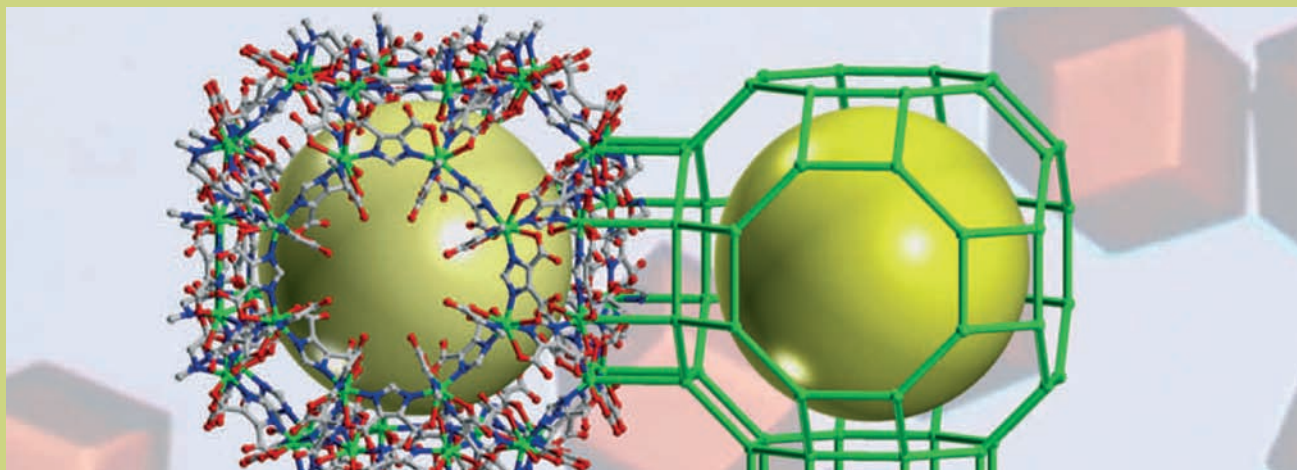
1443

Nucleotide insertion and bypass synthesis of pyrene- and BODIPY-modified oligonucleotides by DNA polymerases

Claudia Wanninger-Weiß, Francesca Di Pasquale, Thomas Ehrenschwender, Andreas Marx* and Hans-Achim Wagenknecht*

DNA polymerases are able to bypass and extend the primer correctly even if pyrene and BODIPY are directly linked to uridine.





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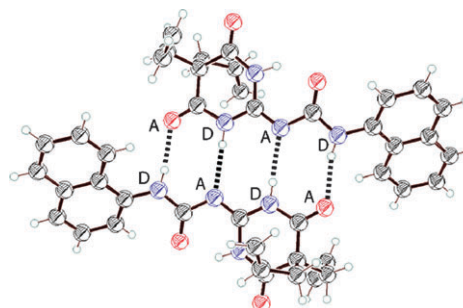
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1446

Dimerization of aromatic ureido pyrimidinedione derivatives: observation of an unexpected tautomer in the solid state

Lu Cui, Suresh Gadde, Atindra D. Shukla, Hao Sun, Joel T. Mague* and Angel E. Kaifer*

In the solid state 1-naphthyl ureido pyrimidinedione dimerizes in an unexpected DADA tautomeric form, while the phenyl and 2-naphthyl analogues dimerize in the expected DDAA forms.

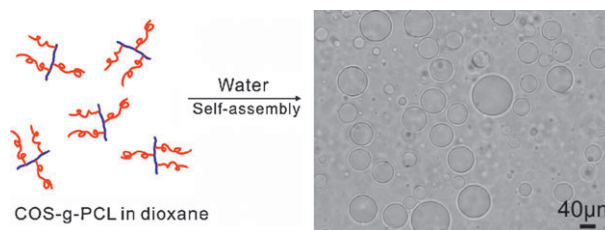


1449

Giant vesicle formation through self-assembly of chitooligosaccharide-based graft copolymers

Ke-Jing Gao, Guangtao Li,* Xinping Lu, Y. G. Wu, Bo-Qing Xu and Jurgen-Hinrich Fuhrhop

A simple approach is described for the preparation of chitooligosaccharide-based giant vesicles with variable size by simply tuning water content in the water–dioxane mixture, by which reactive vesicles with diameters in the range of 0.5–400 μm were easily prepared.

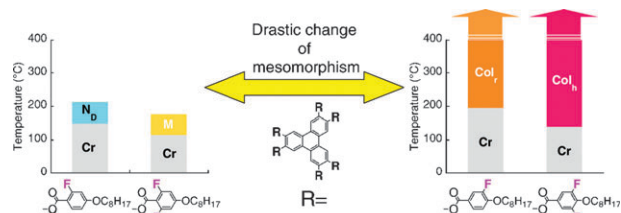


1452

Drastic enhancement of discotic mesomorphism induced by fluorination of the peripheral phenyl groups in triphenylene mesogens

Yasuyuki Sasada,* Hirosato Monobe, Yasukiyo Ueda* and Yo Shimizu*

The alteration of fluorinated positions in the peripheral phenyl rings leads to a drastic change of the mesomorphism involving the thermal stability in hexakis(4-alkoxybenzoyloxy)triphenylene.

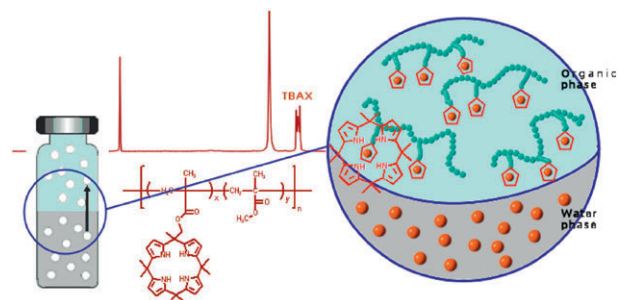


1455

Poly(methyl methacrylate)s with pendant calixpyrroles: polymeric extractants for halide anion salts

Abdullah Aydogan, Daniel J. Coady, Vincent M. Lynch, Ahmet Akar,* Manuel Marquez, Christopher W. Bielawski* and Jonathan L. Sessler*

Poly(methyl methacrylate)s containing pendant octamethylcalix[4]pyrrole subunits were prepared and demonstrated to be capable of extracting tetrabutylammonium chloride and fluoride salts from aqueous media.



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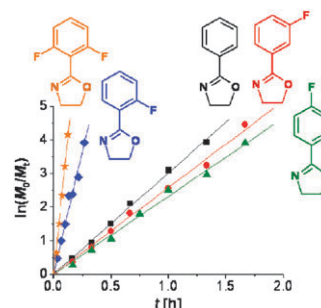
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1458

Synthesis and microwave assisted polymerization of fluorinated 2-phenyl-2-oxazolines: the fastest 2-oxazoline monomer to date

Matthias Lobert, Uwe Köhn, Richard Hoogenboom and Ulrich S. Schubert*

The living cationic ring-opening polymerization of *o*-fluoro substituted 2-phenyl-2-oxazolines was found to be strongly accelerated due to C–F...N⁺ interactions as well as non-planarity of the 2-oxazoline and aromatic rings.

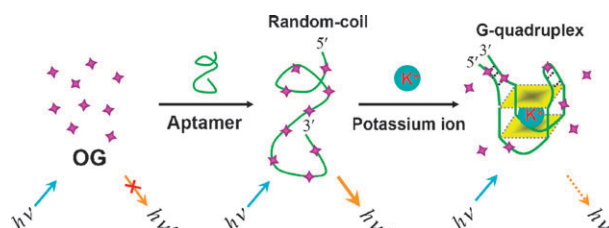


1461

Aptamer-based fluorescence sensor for rapid detection of potassium ions in urine

Chih-Ching Huang and Huan-Tsung Chang*

A new homogeneous assay uses OliGreen (OG) and an ATP-binding aptamer for the highly selective and sensitive detection of potassium ions.

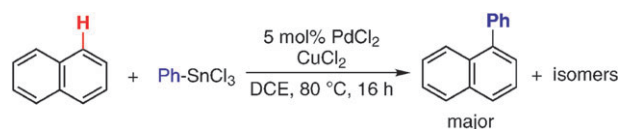


1464

Direct C–H bond arylation of arenes with aryltin reagents catalysed by palladium complexes

Hiroshi Kawai, Yasuhiro Kobayashi, Shuichi Oi* and Yoshio Inoue*

C–H bond arylation of simple arenes with aryltin reagents was successfully catalysed by PdCl₂ in the presence of CuCl₂ which proved to be a palladium intermediate activator and an oxidant.

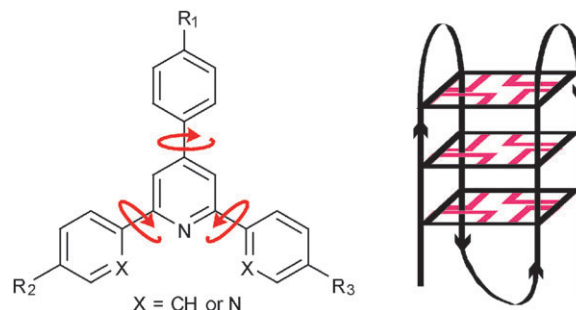


1467

Triarylpyridines: a versatile small molecule scaffold for G-quadruplex recognition

Zoë A. E. Waller, Pravin S. Shirude, Raphaël Rodriguez and Shankar Balasubramanian*

We report the synthesis and DNA binding properties of water-soluble triarylpyridines that bind selectively to quadruplex DNA with no detectable binding to duplex.



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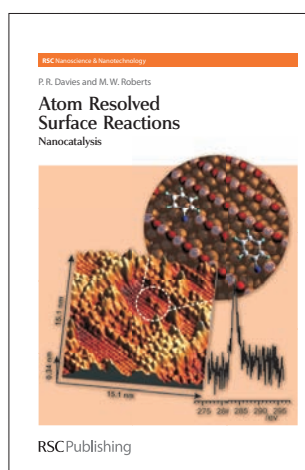
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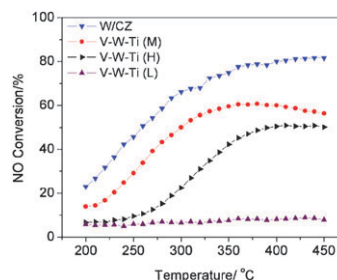
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1470

WO₃/CeO₂-ZrO₂, a promising catalyst for selective catalytic reduction (SCR) of NO_x with NH₃ in diesel exhaust

Ye Li, Hao Cheng, Deyi Li, Yongsheng Qin, Yuming Xie and Shudong Wang*

WO₃/CeO₂-ZrO₂ catalyst shows the highest NO conversion for selective catalytic reduction of NO_x with NH₃ at a space velocity of 135 000 h⁻¹, compared with three kinds of commercial V-W-Ti (L, M and H) catalysts.

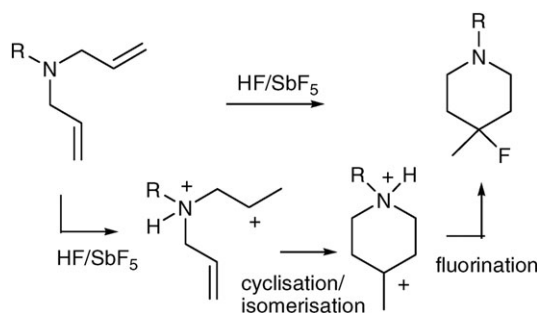


1473

Cyclisation/fluorination of nitrogen containing dienes in superacid HF-SbF₅: a new route to 3- and 4-fluoropiperidines

Emilie Vardelle, Diego Gamba-Sanchez, Agnès Martin-Mingot, Marie-Paule Jouannetaud, Sébastien Thibaudeau* and Jérôme Marrot

Various *N,N*-diallylic amines and amides were rapidly converted to fluorinated piperidines after a novel cyclisation/fluorination reaction in superacid HF-SbF₅.

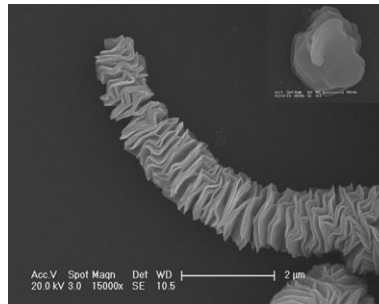


1476

Hydrothermal synthesis and photoluminescent properties of stacked indium sulfide superstructures

Yan Xing, Hongjie Zhang,* Shuyan Song, Jing Feng, Yongqian Lei, Lijun Zhao and Meiyi Li

Unusual hierarchical stacked superstructures of cubic β-In₂S₃ were fabricated hydrothermally in the presence of a surfactant cetyltrimethylammonium bromide CTAB. The 3D superstructures were developed by helical propagation of surface steps from microflakes of 10–20 nm thickness.




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