

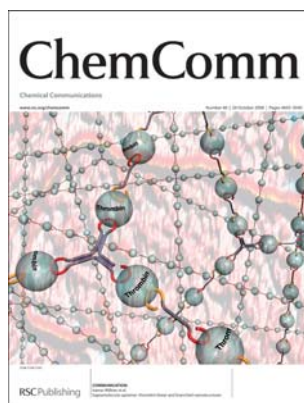
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ISSN 1359-7345 CODEN CHCOFS (40) 4845-5040 (2008)



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See Chunhai Fan *et al.*, pp. 4885–4887.
A novel gold nanoprobe for the rapid detection of environmentally toxic Hg^{2+} in a power-free microfluidic device with the naked eye. Image reproduced by permission of Shijiang He, Di Li, Changfeng Zhu, Shiping Song, Lihua Wang, Yitao Long and Chunhai Fan from *Chem. Commun.*, 2008, 4885.



Inside cover

See Itamar Willner *et al.*, pp. 4888–4890.
Bifunctional and trifunctional aptamer units act as glues for the synthesis of linear or branched nanowires consisting of thrombin. Image reproduced by permission of Yossi Weizmann, Adam B. Braunschweig, Ofer I. Wilner, Zoya Cheglakov and Itamar Willner from *Chem. Commun.*, 2008, 4888.

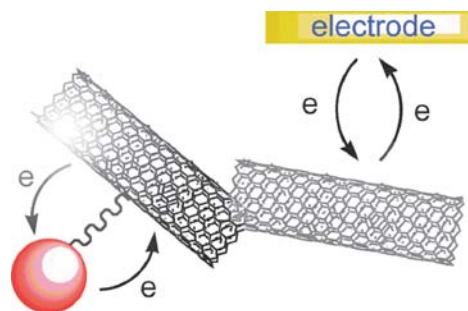
FEATURE ARTICLES

4867

Electron transfer in pristine and functionalised single-walled carbon nanotubes

Matteo Iurlo, Demis Paolucci, Massimo Marcaccio and Francesco Paolucci*

Electron transfer has always played a special role in carbon nanotubes science and technology: from advanced electrochemical devices, to molecular-sized electrodes and photofunctional nanosystems in efficient light energy conversion devices.

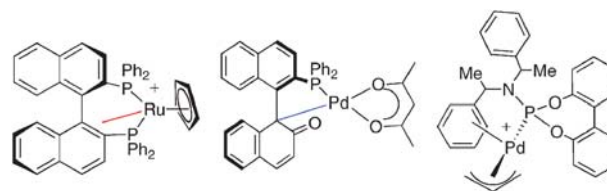


4875

Phosphorus–olefin chelation in coordinated atropisomeric chiral auxiliaries

Paul S. Pregosin

The atropisomeric chelating auxiliaries MeO-Biphep, Binap, MOP and selected monodentate phosphoramidite type ligands are all capable of using differing aromatic fragments as donors to stabilize coordinatively unsaturated 14- or 16-electron species *via* π -olefin or M–C σ -bonds.



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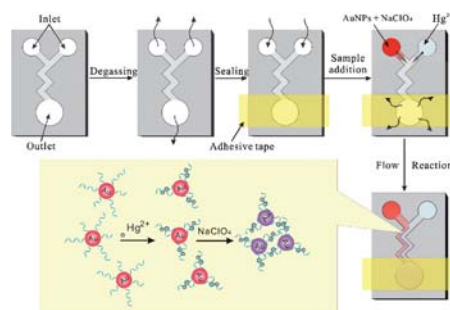
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4885

Design of a gold nanoprobe for rapid and portable mercury detection with the naked eye

Shijiang He, Di Li, Changfeng Zhu, Shiping Song,*
Lihua Wang, Yitao Long and Chunhai Fan*

A novel gold nanoprobe for the rapid detection of environmentally toxic Hg^{2+} in a power-free microfluidic device with the naked eye.

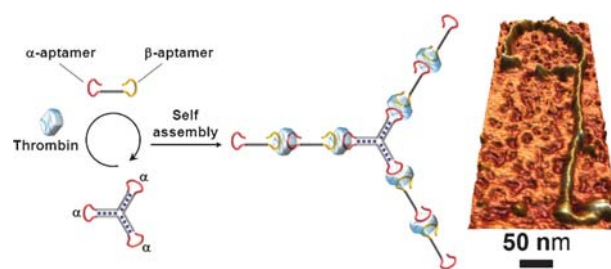


4888

Supramolecular aptamer–thrombin linear and branched nanostructures

Yossi Weizmann, Adam B. Braunschweig, Ofer I. Wilner,
Zoya Cheglakov and Itamar Willner*

α and β conjugated bis-aptamers against thrombin act as bidentate “glue” for the self-assembly of thrombin nanowires. Mixing the bidentate aptamer with a tripodal tridentate α aptamer construct yields branched thrombin nanowire structures.

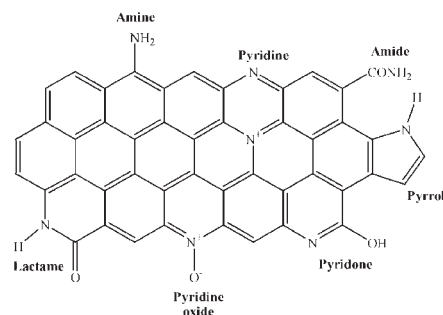


4891

Dynamic surface rearrangement and thermal stability of nitrogen functional groups on carbon nanotubes

Rosa Arrigo, Michael Hävecker, Robert Schlögl and
Dang Sheng Su*

Dynamic surface rearrangement and thermal stability of N-functional groups on carbon nanotubes were studied by temperature-programmed XPS and MS. A link between the stability of the functional group and decomposition temperature has been established and a conversion into graphitic nitrogen was observed.

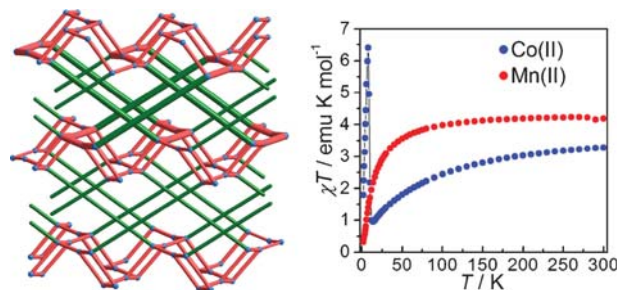


4894

Isomorphous Co^{II} and Mn^{II} materials of tetrazolate-5-carboxylate with an unprecedented self-penetrating net and distinct magnetic behaviours

Qin-Xiang Jia, Yan-Qin Wang, Qi Yue, Qing-Lun Wang
and En-Qing Gao*

The title compounds exhibit an unprecedented 3,4-connected self-penetrating 3D net; a combination of canted antiferromagnetism and metamagnetism was observed in the Co^{II} compound, whereas the Mn^{II} compound shows typical antiferromagnetic behaviours.



Chem Soc Rev

Chemical Society Reviews

Volume 37 | Number 9 | September 2008 | Pages 1745-2140

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THEMATIC ISSUE: GOLD: CHEMISTRY, MATERIALS AND CATALYSIS

Guest editors: Graham J Hutchings, Matthias Brust and Hubert Schmidbaur



0300-0012(200809)37:9:1-4

Gold: Chemistry, Materials and Catalysis theme issue

This collection of reviews sets out the state of the art with respect to gold catalysis, the synthesis and application of gold nanoparticles and gold chemistry. As such the issue takes a very broad approach to the topic, which has now become a hot topic in chemistry as a whole. We hope the reviews will inspire new discoveries and new researchers into this exciting field. The issue is timely as the field is expanding rapidly and hence these articles allow us to take stock of the great progress already achieved, as well as highlighting the remaining challenges.

Reviews include:

The relevance of shape and size of Au₅₅ clusters

Günter Schmid

The chemistry of gold as an anion

Martin Jansen

Catalytically active gold on ordered titania supports

Mingshu Chen and D. Wayne Goodman

Biological applications of gold nanoparticles

Ralph A. Sperling, Pilar Rivera Gil, Feng Zhang, Marco Zanella and Wolfgang J. Parak

Shape control in gold nanoparticle synthesis

Marek Grzelczak, Jorge Pérez-Juste, Paul Mulvaney and Luis M. Liz-Marzán

The use of aurophilic and other metal-metal interactions as crystal engineering design elements to increase structural dimensionality

Michael J. Katz, Ken Sakai and Daniel B. Leznoff

Supported gold nanoparticles as catalysts for organic reactions

Avelino Corma and Hermenegildo Garcia

Guest editor



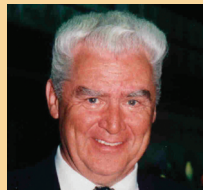
Graham J Hutchings
Cardiff University

Guest editor



Matthias Brust
University of Liverpool

Guest editor



Hubert Schmidbaur
Technische Universität München

'Catalysis is reaching a golden age, as gold is finding many new applications as a catalyst for selective oxidations and hydrogenations. It is a really exciting time to be working in the field of catalysis'

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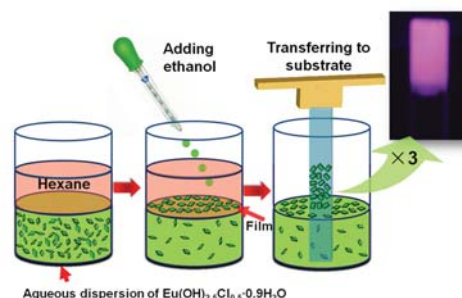
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4897

Oriented films of layered rare-earth hydroxide crystallites self-assembled at the hexane/water interface

Linfeng Hu, Renzhi Ma, Tadashi C. Ozawa, Fengxia Geng, Nobuo Iyi and Takayoshi Sasaki*

Layered rare-earth hydroxide crystallites trapped at the hexane/water interface could be transferred onto a substrate to produce an oriented monolayer film, exhibiting excellent anion-exchange and photoluminescence properties.

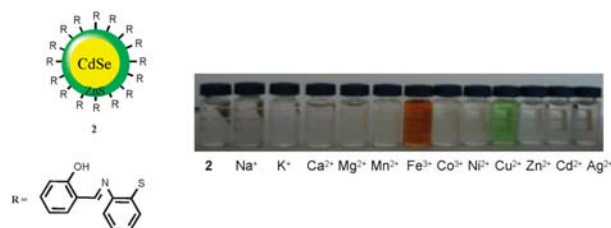


4900

A nanoparticle based chromogenic chemosensor for the simultaneous detection of multiple analytes

Narinder Singh, Ray C. Mulrooney, Navneet Kaur and John F. Callan*

Quantum Dot–Schiff base conjugate **2** displays selectivity for Cu^{2+} and Fe^{3+} enabling the simultaneous detection of these ions in semi-aqueous solution. In contrast, the Schiff base itself displayed no selectivity.

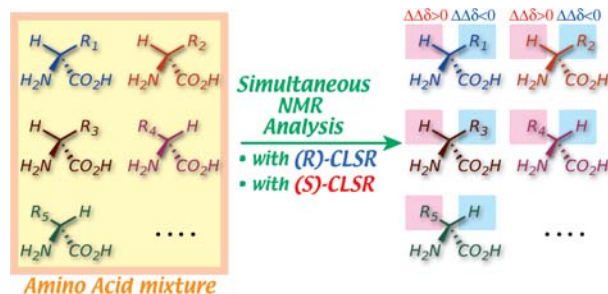


4903

Use of Sm(III) -{1,2-propanediamine- N,N,N',N' -tetra(α,α -dideuterioacetate)} complex for NMR determination of absolute configuration of each α -amino acid in peptide hydrolysate mixtures

Kenji Omata,* Mika Fujioka, Kuninobu Kabuto and Yoichi Sasaki

Highly consistent correlation was observed between absolute configurations of α -amino acids in their mixture and the shifts induced by the Sm(III) -(pdda- d_8) in D_2O .

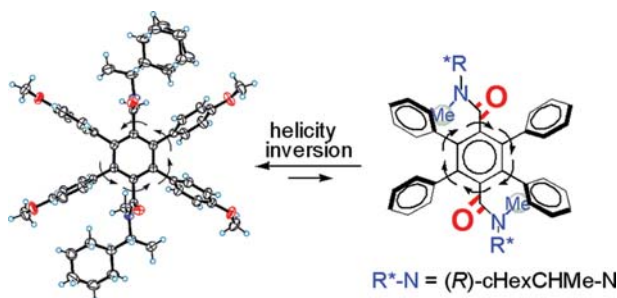


4906

Designed molecular propellers based on tetraarylterephthalamide and their chiroptical properties induced by biased helicity through transmission of point chirality

Ryo Katoono,* Hidetoshi Kawai, Kenshu Fujiwara and Takanori Suzuki*

Chiral sense of mobile helicity in propeller-shaped persubstituted benzenes are successfully controlled through transmission of point chiralities on the bis(tertiaryamide) moieties.



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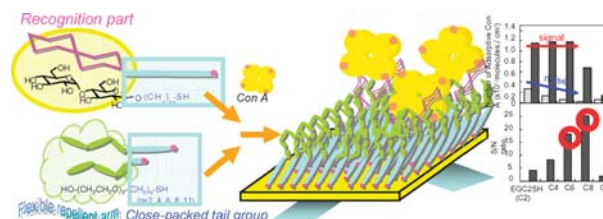
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4909

Recognition of lectin with a high signal to noise ratio: carbohydrate-tri(ethylene glycol)-alkanethiol co-adsorbed monolayer

Yukari Sato,* Kyoko Yoshioka, Mutsuo Tanaka, Teiichi Murakami, Miho Neide Ishida and Osamu Niwa

Lectin sensing interface with a high signal to noise ratio on an ultra thin mono molecular layer constructed with nano flexible barrier molecules and capturing Con A molecules.

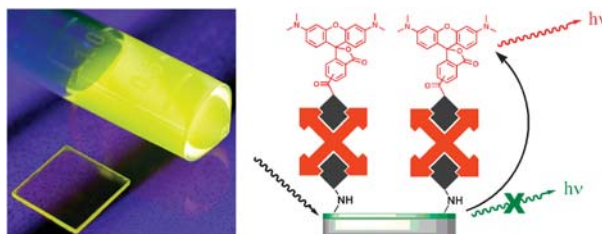


4912

Photostable and luminescent ZnO films: synthesis and application as fluorescence resonance energy transfer donors

Hsiao-hua Yu, Mark Kei Fong Wong, Emril Mohamed Ali and Jackie Y. Ying*

Photostable and luminescent ZnO films are effectively engineered from the corresponding nanocrystalline ZnO solutions, and they successfully demonstrated their capability as fluorescence resonance energy transfer (FRET) donors.

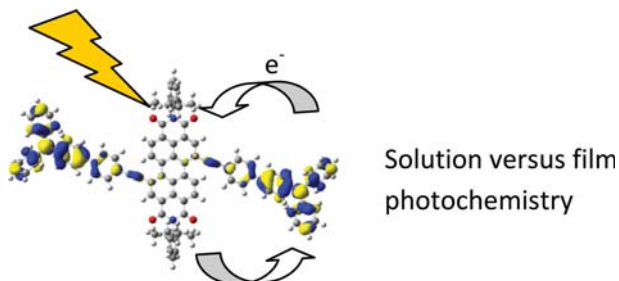


4915

Inter versus intra-molecular photoinduced charge separation in solid films of donor-acceptor molecules

Safa Shoaee, Mattias P. Eng, Zesheng An, Xuan Zhang, Stephen Barlow, Seth R. Marder* and James R. Durrant*

We report on photoinduced charge separation in solid films of two perylene diimides. Intramolecular charge separation and recombination is correlated with a reduction in the yield of long-lived, intermolecular charge-separated species.

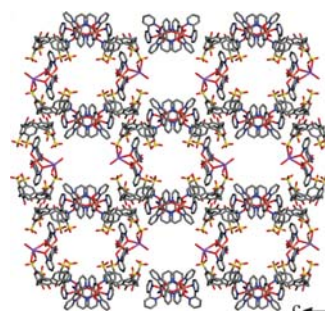


4918

Constructing channel structures based on the assembly of *p*-sulfonatocalix[4]arene nanocapsules and [M(bpdo)₃]²⁺ (M = Cu, Zn)

Guo-li Zheng, Yin-Yan Li, Hua-Dong Guo, Shu-Yan Song and Hong-Jie Zhang*

Novel channel structures based on [M(bpdo)₃]²⁺ and *p*-sulfonatocalix[4]arene nanocapsules have been established. These are sustained exclusively by charge-assisted $\pi \cdots \pi$ interactions and sorption experiments show the porous materials have selective guest sorption properties.



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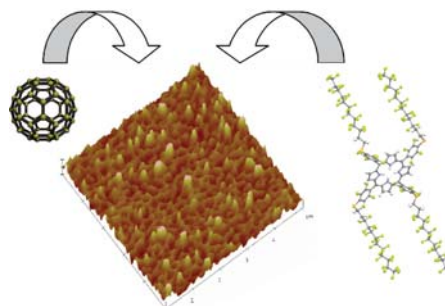
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4921

Self-organization of a new fluoros porphyrin and C₆₀ films on indium-tin-oxide electrode

Alessandro Varotto, Louis Todaro, Mikki Vinodu, Jessica Koehne, Gang-yu Liu and Charles M. Drain*

Porphyrin fluorescence is quenched in self-organized thin films cast from a solution containing a Teflon® porphyrin and C₆₀, but neither does the hydrocarbon analogue form similar films nor is the fluorescence quenched to the same extent.

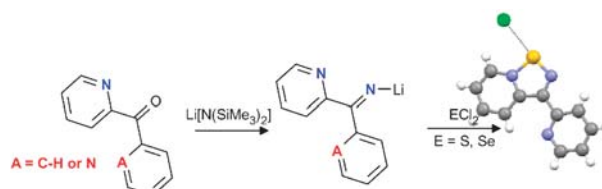


4924

Formation of *N*-bridgehead 1,2,5-thiadiazolium and selenadiazolium rings through an intramolecular cyclisation reaction

Catherine E. Bacon, Dana J. Eisler, Rebecca L. Melen and Jeremy M. Rawson*

Treatment of 2-pyridyl-*N*-lithioacetimide derivatives with ECl₂ (E = S, Se) affords the fused *N*-bridgehead thia- and selenadiazolium cations in good yield through intramolecular coordination of the pyridyl N atom.

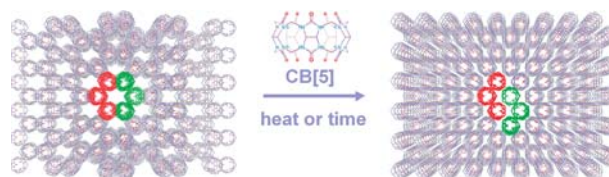


4927

Single-crystal to single-crystal phase transition of cucurbit[5]uril hydrochloride hydrates: large water-filled channels transforming to layers of unusual stability

D. Bardelang,* K. A. Udachin, R. Anedda, I. Moudrakovski, D. M. Leek, J. A. Ripmeester* and C. I. Ratcliffe

Cucurbit[5]uril hydrochloride hydrate crystals with large water-filled channels are observed to transform to a highly stable layer structure *via* a single-crystal to single-crystal mechanism.

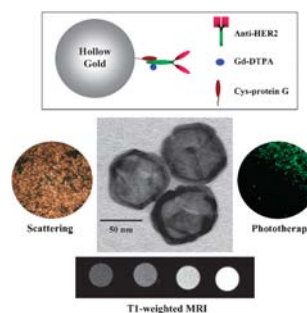


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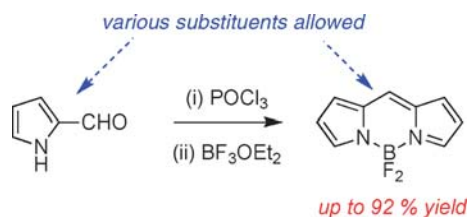
Paramagnetic gold nanostructures for dual modal bioimaging and phototherapy of cancer cells

Yong Taik Lim, Mi Young Cho, Bang Sil Choi, Jung Min Lee and Bong Hyun Chung*

The authors synthesized paramagnetic gold nanostructures by combining the paramagnetism of gadolinium with the plasmonic properties of gold nanoparticles and used them for dual modal (MRI and optical) imaging and phototherapy of breast cancer cells.



4933

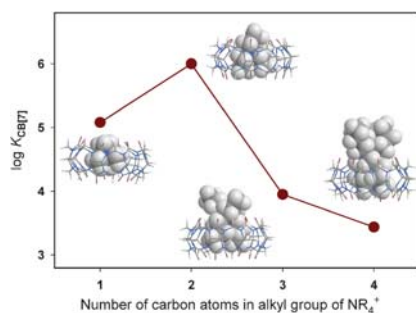


A new synthesis of symmetric boraindacene (BODIPY) dyes

Liangxing Wu and Kevin Burgess*

BODIPY dyes were synthesized from pyrrole-2-carbaldehyde derivatives in high yields; this constitutes a new approach to this dye framework.

4936

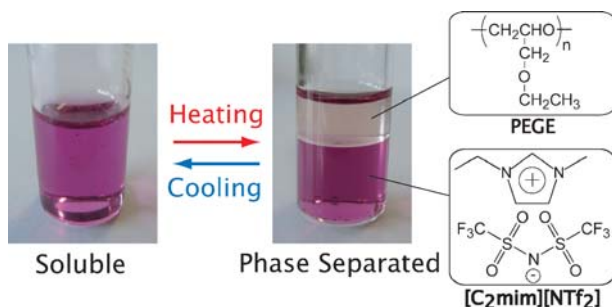


Encapsulation of charge-diffuse peralkylated onium cations in the cavity of cucurbit[7]uril

Antony D. St-Jacques, Ian W. Wyman and Donal H. Macartney*

Cucurbit[7]uril binds, with considerable size selectivity, NR_4^+ , PR_4^+ , and SR_3^+ cations ($\text{R} = \text{Me}, \text{Et}, ^i\text{Pr}, ^t\text{Bu}$), with the smaller guests *inside* its cavity, rather than at the carbonyl-lined portals.

4939

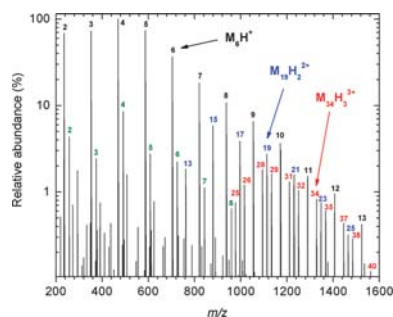


LCST-type liquid–liquid phase separation behaviour of poly(ethylene oxide) derivatives in an ionic liquid

Ryohei Tsuda, Koichi Kodama, Takeshi Ueki, Hisashi Kokubo, Shin-ichiro Imabayashi and Masayoshi Watanabe*

We present a new series of polymer–ionic liquid solutions exhibiting LCST-type liquid–liquid phase separation behaviour, and reveal their phase behaviour and intermolecular interactions based on phase diagrams and NMR analysis.

4942



Multiply protonated betaine clusters are stable in the gas phase

Linda Feketeová and Richard A. J. O'Hair*

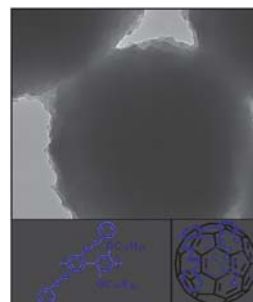
Multiply protonated clusters of betaine are formed *via* electrospray ionisation and fragment *via* competitive betaine neutral loss and charge separation; theoretical calculations suggest the $[\text{M}_n + 2\text{H}]^{2+}$ ions consist of a $[\text{M}_2 + 2\text{H}]^{2+}$ core based on the hydrogen bonded carboxylic acid dimer.

4945

Cross-conjugated poly(*p*-phenylene) aided supramolecular self-organization of fullerene nanocrystallites

Muhammad Hanafiah Nurmawati,
Parayil Kumaran Ajikumar, Lili Amanda Heng,
Hairong Li and Suresh Valiyaveetil*

Significant structural control and characterization of nanocrystallite spheres from a hybrid of functionalized cross-conjugated poly(*p*-phenylene) and C₆₀ are reported. Strong polymer and C₆₀s interactions were used to tailor aggregate size and dispersions.

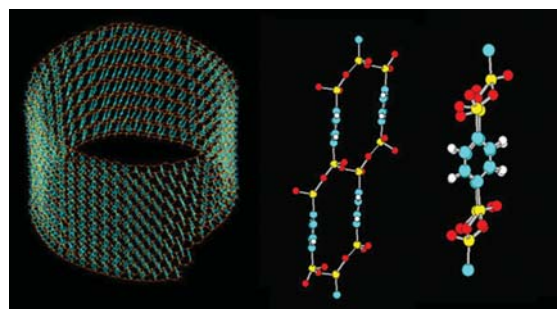


4948

Hybrid silica nanotubes with chiral walls

Yuanli Chen, Baozong Li, Xiaojian Wu, Xiulin Zhu,
Masahiro Suzuki, Kenji Hanabusa and Yonggang Yang*

Hybrid silica nanotubes with chiral aromatic rings in the walls were prepared using self-assemblies of a low molecular weight amphiphile as a template.

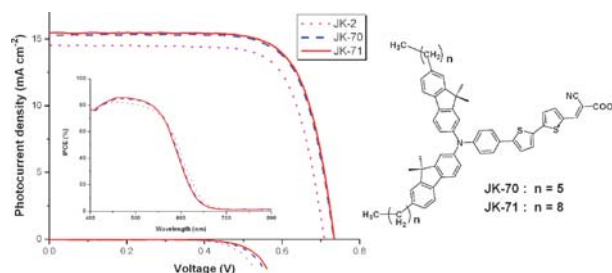


4951

Enhanced photovoltaic performance and long-term stability of quasi-solid-state dye-sensitized solar cells via molecular engineering

Sanghoon Kim, Duckhyun Kim, Hyunbong Choi,
Moon-Sung Kang, Kihyung Song, Sang Ook Kang* and
Jaejung Ko*

Organic dyes with long alkyl chains have been synthesized and demonstrated to be highly efficient sensitizers for liquid and quasi-solid-state solar cells, giving power conversion efficiencies of 8.31–8.39% and 7.03–7.31% under AM 1.5 G irradiation, respectively.

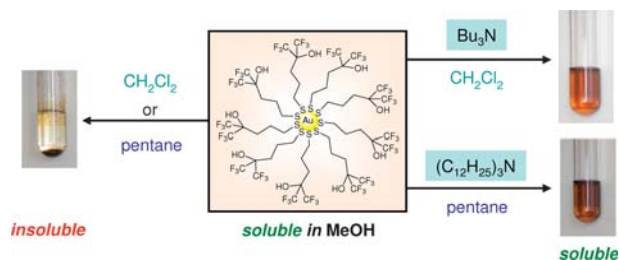


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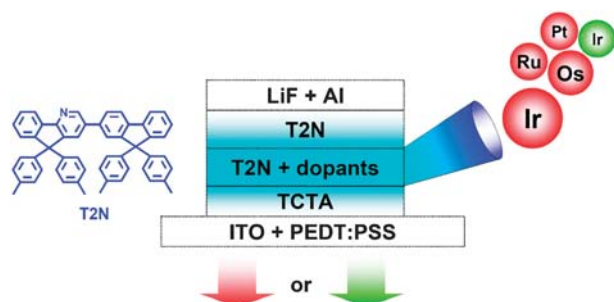
Solubility switch of gold nanoparticles through hydrogen bond association

Daniela Vuluga, Julien Legros,* Benoit Crousse* and
Danièle Bonnet-Delpon

Gold nanoparticles (AuNPs) coated with hexafluoroisopropanol moieties were prepared, and their surface was changed through simple hydrogen bond association with various amines, which allow orientation of the solubility of these AuNPs in determined organic solvents.



4956

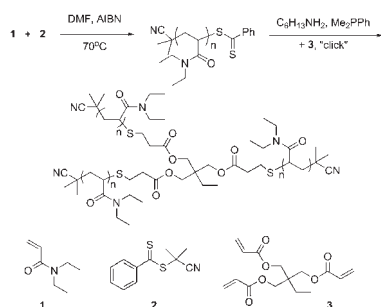


An electron-transporting host material compatible with diverse triplet emitters used for highly efficient red- and green-electrophosphorescent devices

Tsyr-Yuan Hwu, Tsung-Cheng Tsai, Wen-Yi Hung,* Sheng-Yuan Chang, Yun Chi,* Mei-Hsin Chen, Chih-I Wu, Ken-Tsung Wong* and Liang-Chen Chi

A bifluorene analogue, T2N, serves as both a host and an efficient electron-transporting material that is compatible with Ir, Ru, Os, and Pt containing red and Ir-based green phosphors for high-efficiency phosphorescent OLEDs.

4959

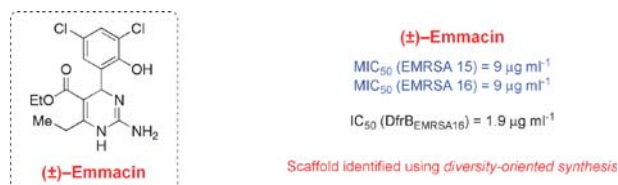


Convergent synthesis of 3-arm star polymers from RAFT-prepared poly(*N,N*-diethylacrylamide) via a thiol-ene click reaction

Justin W. Chan, Bing Yu, Charles E. Hoyle* and Andrew B. Lowe*

A novel convergent route to 3-arm star polymers is described that takes advantage of RAFT-synthesized homopolymers serving as masked macromolecular terminal thiol-containing materials capable of undergoing thiol-ene reactions.

4962

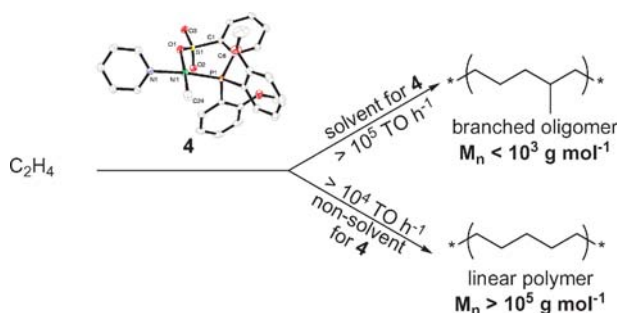


Identification of an anti-MRSA dihydrofolate reductase inhibitor from a diversity-oriented synthesis

Emma E. Wyatt, Warren R. J. D. Galloway, Gemma L. Thomas, Martin Welch, Olivier Loiseleur, Alleyn T. Plowright and David R. Spring*

Emmacin, an anti-MRSA agent, was discovered from a diversity-oriented synthesis, and represents a new structural sub-class of bacterial dihydrofolate reductase inhibitors.

4965



Control of molecular weight in Ni(n)-catalyzed polymerization via the reaction medium

Damien Guironnet, Thomas Rünzi, Inigo Göttker-Schnetmann and Stefan Mecking*

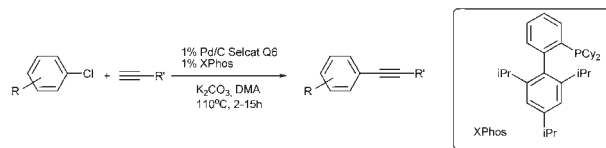
The reaction medium controls polymerization with highly active (κ^2 -*P,O*)-phosphinesulfonato nickel methyl complexes to afford polyethylenes ranging from low molecular weight (M_n) branched material to high molecular weight (M_n) strictly linear polymer.

4968

Efficient copper-free Sonogashira coupling of aryl chlorides with palladium on charcoal

Anna Komáromi and Zoltán Novák*

Palladium on charcoal serves as an efficient and reusable solid supported catalyst for the Sonogashira coupling of aryl chlorides with terminal acetylenes in the presence of a bulky, electron-rich biphenyl type ligand (XPhos) without copper co-catalyst.

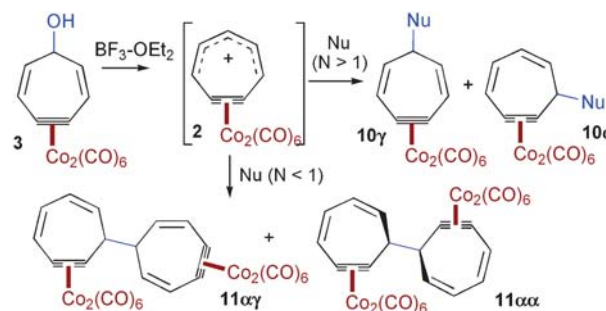


4971

Generation and reactivity of the dehydropyrylium- $\text{Co}_2(\text{CO})_6$ ion

Sheida Amiralaie and James R. Green*

Dehydropyrylium- $\text{Co}_2(\text{CO})_6$ ion (**2**) has been generated by the Lewis acid mediated ionization of alcohol (**3**); it is attacked by relatively strong nucleophiles ($N > 1$), but undergoes a radical homocoupling in the presence of weak nucleophiles ($N < 1$).

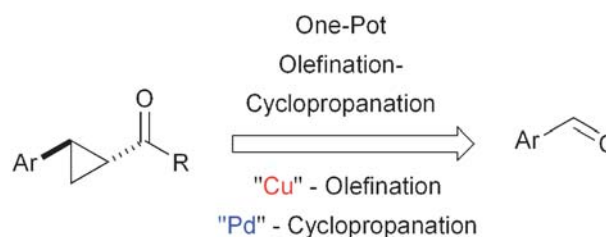


4974

One-pot approach for the synthesis of *trans*-cyclopropyl compounds from aldehydes. Application to the synthesis of GPR40 receptor agonists

Michaël Davi and Hélène Lebel*

A novel multicatalytic one-pot process providing *trans*-cyclopropyl compounds from corresponding aldehydes has been developed and applied to the synthesis of GPR40 small molecule agonists.

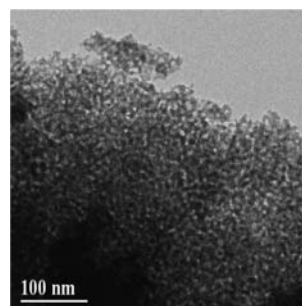


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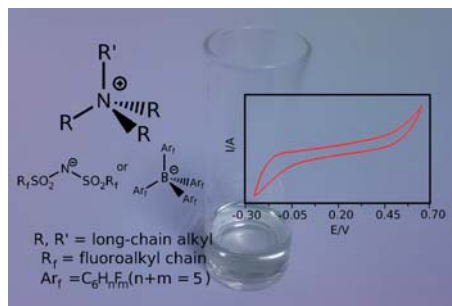
Mesoporous bismuth titanate with visible-light photocatalytic activity

Lingdong Kong, Haihan Chen, Weiming Hua, Shicheng Zhang and Jianmin Chen*

Visible-light-driven mesoporous bismuth titanate photocatalyst with wormlike channels has been successfully prepared for the first time. This work will provide a new pathway to design and fabricate novel mesoporous materials.



4980

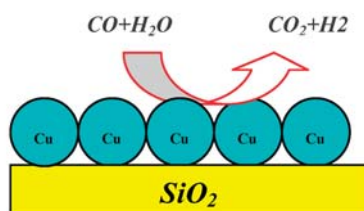
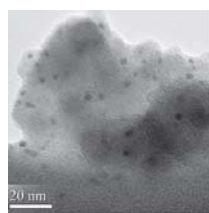


Immiscible electrolyte systems based on asymmetric hydrophobic room temperature ionic liquids

Andrew D. Ballantyne, Alan K. Brisdon* and Robert A. W. Dryfe*

By generating asymmetric tetraalkylammonium salts new hydrophobic room temperature ionic liquids suitable for liquid/liquid electrochemistry have been prepared; one of these has the largest electrochemical window observed to date for a biphasic room-temperature ionic liquid system.

4983

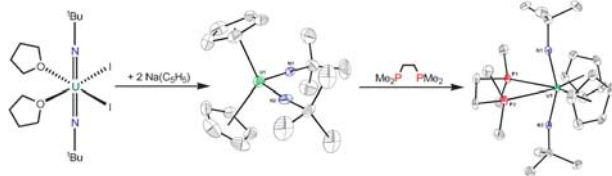


Low-temperature water gas shift reaction on Cu/SiO₂ prepared by an atomic layer epitaxy technique

Ching-Shiun Chen,* Jarrn-Horng Lin and Tzn-Wen Lai

The copper nanoparticles with diameters of 2.9 to 3.4 nm dispersed on a silica support showed surprisingly high activity for the water gas shift reaction, in comparison with 5.6 wt% Pt/SiO₂ and 10.3 wt% Cu/SiO₂.

4986

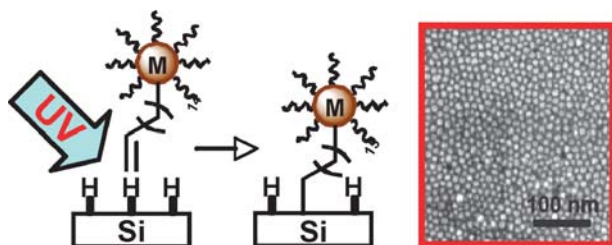


Synthesis and reactivity of bis(imido) uranium(vi) cyclopentadienyl complexes

Liam P. Spencer, Robyn L. Gdula, Trevor W. Hayton, Brian L. Scott and James M. Boncella*

The first structurally characterized bis(imido) uranium(vi)-C₅H₅ complexes have been synthesized and their reactivity towards several soft Lewis bases has been investigated.

4989



Facile synthesis, assembly, and immobilization of ordered arrays of monodisperse magnetic nanoparticles on silicon substrates

Gyu Leem, Andrew C. Jamison, Shishan Zhang, Dmitri Litvinov and T. Randall Lee*

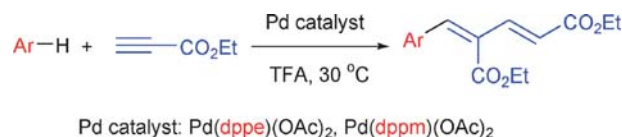
This paper outlines the preparation of monodisperse MnFe₂O₄ nanoparticles modified with ω-alkenyl moieties, followed by deposition of the resulting surfactant-coated nanoparticles onto hydrogen-terminated silicon and covalent anchoring to the surface *via* UV-initiated bonding, creating a stable 2D array of monodisperse magnetic nanoparticles.

4992

Drastic effect of bidentate phosphine ligands on Pd-catalyzed hydroarylation of ethyl propiolate: a simple route to arylbutadienes

Juzo Oyamada and Tsugio Kitamura*

A direct route to arylbutadienes was developed by using Pd catalysts with bidentate phosphine ligands.

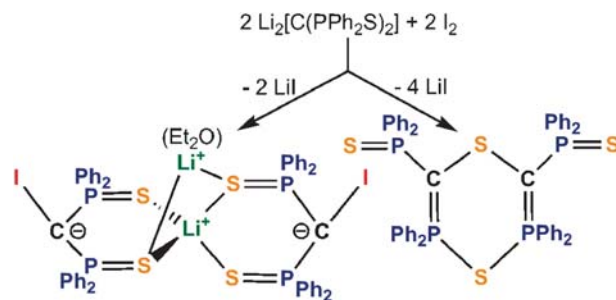


4995

Formation of a stable dicarbenoid and an unsaturated C₂P₂S₂ ring from two-electron oxidation of the [C(PPh₂S)₂]²⁻ dianion

Jari Konu and Tristram Chivers*

Two-electron oxidation of the [C(PPh₂S)₂]²⁻ dianion with iodine afforded an unanticipated mixture of a dimeric Li–I carbenoid [(Et₂O)(μ-Li)][(μ₄-Li){IC(PPh₂S)₂}]₂ with nonplanar carbon centers and a novel, unsaturated six-membered C₂P₂S₂ ring in [(SPh₂P)₂C₂(PPh₂)₂S₂].

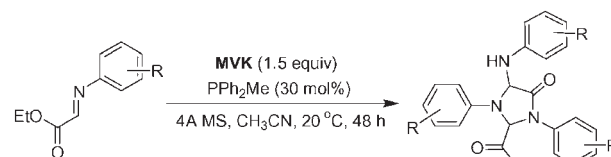


4998

Phosphine-catalyzed annulation of ethyl (arylimino)acetates: synthesis of highly functionalized oxoimidazolidines

Guang-Ning Ma, Fei-Jun Wang, Jun Gao and Min Shi*

This paper describes an unexpected and novel nucleophilic phosphine-catalyzed annulation of ethyl (arylimino)acetates to give polysubstituted oxoimidazolidine derivatives in moderate to good yields from simple and easily available starting materials under mild conditions. In this reaction, the addition of methyl vinyl ketone (MVK) is essential to induce the formation of oxoimidazolidines.

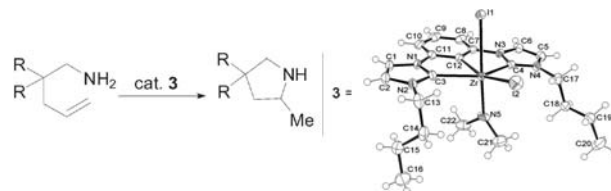


5001

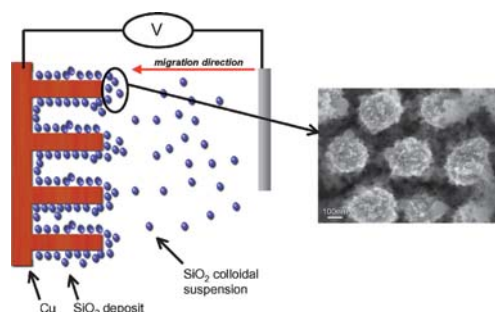
An improved method for the synthesis of zirconium (CCC-*N*-heterocyclic carbene) pincer complexes and applications in hydroamination

Joon Cho, T. Keith Hollis,* Theodore R. Helgert and Edward J. Valente*

Upon heating Zr(NMe₂)₄, 1,3-bis(*N*-butyl-imidazolium)benzene diiodide and toluene analytically pure Zr pincer complex was obtained, which was found to be an intramolecular hydroamination catalyst.



5004

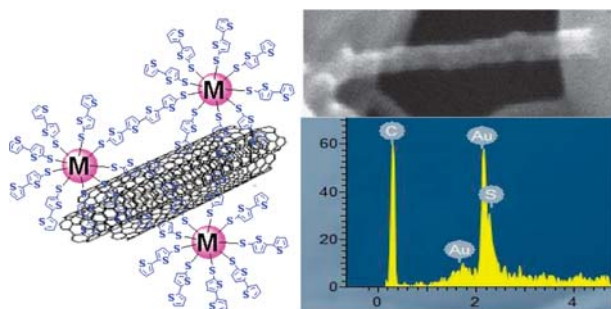


Electrophoretic silica-coating process on a nano-structured copper electrode

Laurent Bazin, Marie Gressier, Pierre-Louis Taberna, Marie-Joëlle Menu and Patrice Simon*

A copper nano-structure was successfully coated with a thin silica layer using EPD of a silica nanoparticle dispersion (10 nm). Functionalization of the silica nanoparticles' surface with an aminopropyl ligand switched its charge from negative to positive and thus allowed deposition on the cathode instead of the anode.

5007

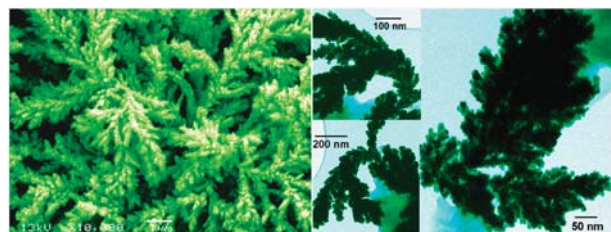


Photopolymerization of metal nanoparticles on multiwall carbon nanotubes

Xichen Cai, Kelechi C. Anyaogu and Douglas C. Neckers*

A facile method for the functionalization of multiwall carbon nanotubes (MWCNT) by photopolymerization of 5-mercapto-2,2'-bithiophene modified metal (Au or Ag) nanoparticles on the surface of MWCNT is developed.

5010



Direct growth of novel alloyed PtAu nanodendrites

Jingpeng Wang, Dan F. Thomas and Aicheng Chen*

A novel PtAu nanostructure, alloyed nanodendrites, has been synthesized *via* a reproducible single-step hydrothermal co-reduction of Pt and Au inorganic precursors and shows exceptionally high catalytic activity towards the electro-oxidation of formic acid.

5013



Copper-catalyzed three-component coupling of arynes, terminal alkynes and activated alkenes

Sivakolundu Bhuvaneshwari, Masilamani Jeganmohan and Chien-Hong Cheng*

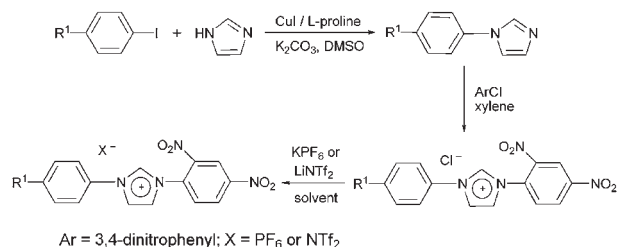
The three-component coupling of benzynes with terminal alkynes and activated alkenes in the presence of CuI, PCy₃ and CsF in a 1 : 1 mixture of CH₃CN and THF at 50 °C for 5 h gave 1-alkyl-2-alkynylbenzenes in good to moderate yields.

5016

Novel low-melting salts with donor–acceptor substituents as targets for second-order nonlinear optical applications

Zhi-Qiang Zhu, Shaoji Xiang, Qing-Yun Chen, Chaosen Chen, Zhuo Zeng, Yi-Ping Cui* and Ji-Chang Xiao*

We synthesized several novel low-melting ionic salts with donor–acceptor substituents and investigated their possible applications as second-order nonlinear optical materials.

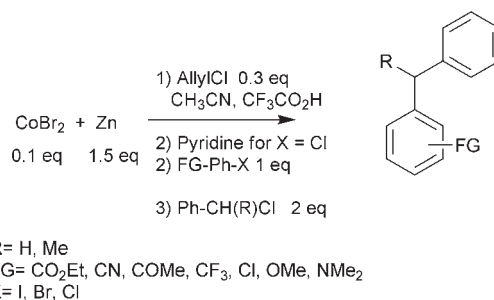


5019

Synthesis of functionalised diarylmethanes *via* a cobalt-catalysed cross-coupling of arylzinc species with benzyl chlorides

Muriel Amatore and Corinne Gosmini*

A new cobalt-catalysed reductive coupling of aryl halides with benzyl chlorides is reported. A variety of diarylmethanes can be prepared in good to excellent yields under mild reaction conditions using CoBr₂ as catalyst and Zn dust.

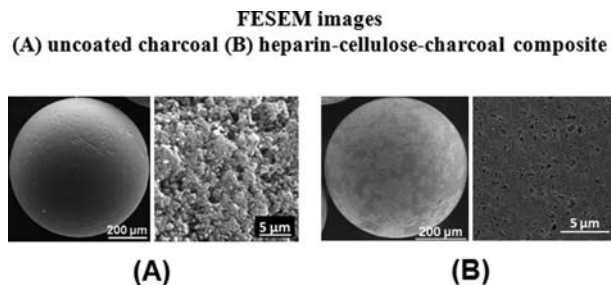


5022

Heparin–cellulose–charcoal composites for drug detoxification prepared using room temperature ionic liquids

Tae-Joon Park, Sang-Hyun Lee, Trevor J. Simmons, Jeffrey G. Martin, Shaker A. Mousa, Elisaveta A. Snezhkova, Veronika V. Sarnatskaya, Vladimir G. Nikolaev* and Robert J. Linhardt*

Heparin–cellulose–charcoal composites prepared using RTILs enhance the biocompatibility and blood compatibility of activated charcoal beads while decreasing the size of their active pores.

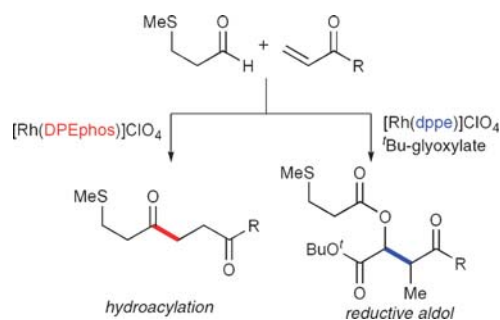


5025

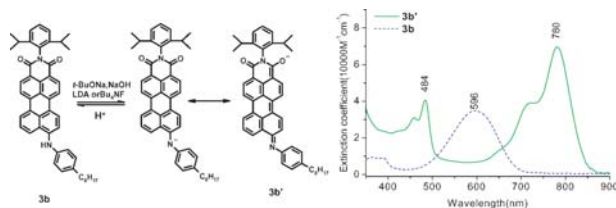
Rhodium-catalysed hydroacylation or reductive aldol reactions: a ligand dependent switch of reactivity

James D. Osborne and Michael C. Willis*

The pathway for the combination of enones and β-S-substituted aldehydes using Rh-catalysis can be switched between a hydroacylation reaction or a reductive aldol reaction by simple choice of the phosphine ligand. This catalyst controlled switch allows access to new ketone hydroacylation products; useful 1,4-diketone intermediates for the synthesis of N-, S- and O-heterocycles.



5028

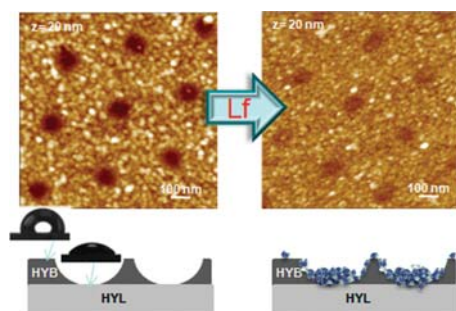


Amino-substituted rylene dicarboximides and their quinoidal charge delocalization after deprotonation

Zhihong Liu, Chen Li, Manfred Wagner, Yuri Avlasevich, Andreas Herrmann and Klaus Müllen*

A novel approach towards NIR absorption, including the deprotonation and subsequent quinoidal charge delocalization of amino-substituted rylene dicarboximides, is presented.

5031



Confined protein adsorption into nanopore arrays fabricated by colloidal-assisted polymer patterning

Grazia M. L. Messina, Cristina Satriano* and Giovanni Marletta

A combination of plasma surface modification of polymer thin films and colloidal nanosphere lithography was used to fabricate two-dimensional nanopore arrays as protein nanocontainers.

5034

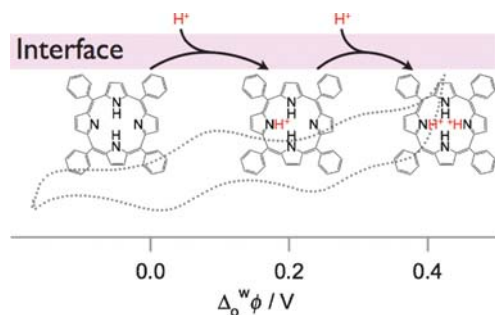


Isolation, structure and fatty acid synthesis inhibitory activities of platensimycin B₁–B₃ from *Streptomyces platensis*

Chaowei Zhang, John Ondeyka, Deborah L. Zink, Bruce Burgess, Jun Wang and Sheo B. Singh*

Three platensimycin congeners with key modifications in the aromatic part of the molecule including a rare six-membered cyclic carbamate have been described. These structural variations validated the critical role played by platensimycin carboxylic acid (negative charge) in the biological activity.

5037



Evidence of tetraphenylporphyrin monoacids by ion-transfer voltammetry at polarized liquid|liquid interfaces

Bin Su, Fei Li, Raheleh Partovi-Nia, Claude Gros, Jean-Michel Barbe, Zdenek Samec and Hubert H. Girault*

We present a simple methodology to illustrate the existence of tetraphenylporphyrin monoacid based on ion-transfer voltammetry at a polarized water|1,2-dichloroethane interface and organic pK values are also estimated.

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