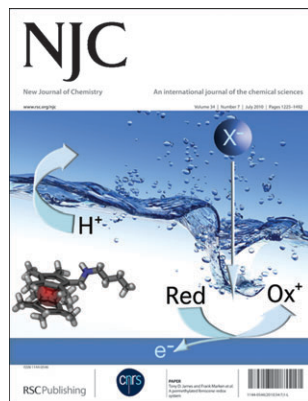


IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 34(7) 1225-1492 (2010)



Cover

See James and Marken *et al.*, pp. 1261–1265.
Artwork prepared by Tony D. James to illustrate the ferrocene redox process with simultaneous anion transport and proton release at the liquid–liquid interface. Image reproduced by permission of Tony D. James and Frank Marken from *New J. Chem.*, 2010, **34**, 1261.



Inside cover

See Suhm and Zehnacker-Rentien *et al.*, pp. 1266–1285.
A multi-experimental approach combined with state-of-the-art quantum chemistry was needed to unravel the chirality recognition effects in methyl mandelate, due to a subtle interplay between aromatic and hydrogen bond forces. Image reproduced by permission of Martin A. Suhm and Anne Zehnacker-Rentien from *New J. Chem.*, 2010, **34**, 1266.

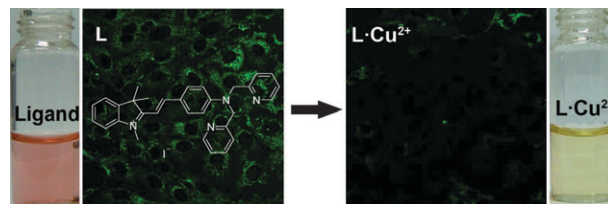
LETTERS

1239

A colorimetric and fluorescent chemosensor for copper ions in aqueous media and its application in living cells

Huan-Huan Wang, Lin Xue, Zhang-Jian Fang, Guo-Ping Li and Hua Jiang*

A merocyanine dye can monitor copper ions in aqueous media by the naked eye and fluorescence microscopy, and image copper ions in living cells due to its good cell permeability and high solubility under physiological conditions.

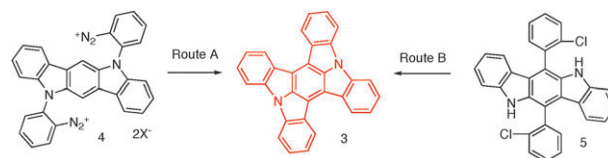


1243

Dibenzo[2,3:5,6]pyrrolizino[1,7-*bc*]indolo-[1,2,3-*lm*]carbazole: a new electron donor

Claude Niebel, Vladimir Lokshin, Amos Ben-Asuly, Wladimir Marine, Artak Karapetyan and Vladimir Khodorkovsky*

The new heterocyclic system, dibenzo[2,3:5,6]pyrrolizino-[1,7-*bc*]indolo[1,2,3-*lm*]carbazole **3**, which can be considered as a planar hybrid of carbazole and *p*-phenylenediamine, can readily be prepared and possesses high thermal stability and strong electron donor properties.



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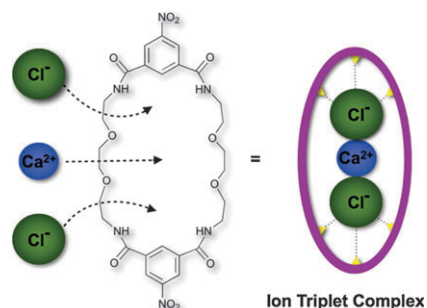
LETTERS

1247

The first supramolecular ion triplet complex

Jens Eckelmann, Vittorio Saggiomo, Frank D. Sönnichsen and Ulrich Lünig*

The first supramolecular complex between a neutral macrocycle and an ion triplet (CaCl_2) has been prepared and studied by NMR and MS techniques.



1251

Synthesis and anion binding properties of novel 3,12- and 3,7-bis(4'-nitrophenyl)-azo-calix[4]pyrrole receptors

Bhaskar Garg, Tanuja Bisht and Shive Murat Singh Chauhan*

Two novel 3,12- and 3,7-bis(4'-nitrophenyl)-azo-5,5,10,10,15,15,20,20-octamethyl calix[4]pyrroles were prepared and studied as potential anion binders for AcO^- and H_2PO_4^- .



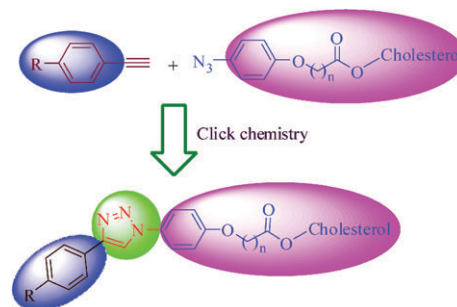
PAPERS

1255

Synthesis and characterization of novel cholesterol based mesogenic compounds using 'click' chemistry

K. C. Majumdar,* Shovan Mondal and Randhir K. Sinha

An efficient route for the synthesis of non-symmetric dimesogens containing cholesteryl moiety and an aromatic mesogenic unit interconnected through polymethylene spacer by Cu(I)-catalyzed [3+2] cycloaddition is described.

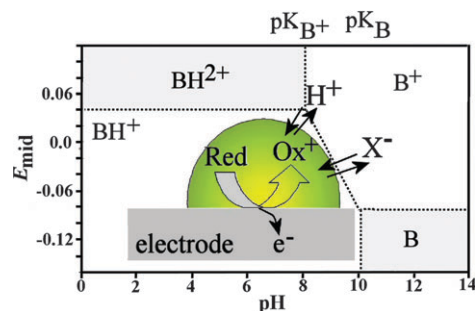


1261

***N,N*-Butyl-decamethylferrocenyl-amine reactivity at liquid | liquid interfaces: electrochemically driven anion transfer vs. pH driven proton transfer**

Andrew M. Kelly, Najoua Katif, Tony D. James* and Frank Marken*

The electrochemical oxidation of "microphase-immobilized" *N,N*-butyl-decamethylferrocenyl-amine causes either proton or anion transfer at a liquid | liquid interface, dependent on the electrolyte solution composition and pH.



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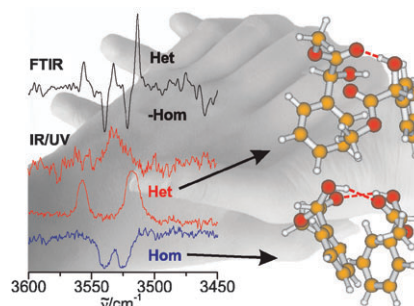
PAPERS

1266

Chirality influence on the aggregation of methyl mandelate

Merwe Albrecht, Ana Borba, Katia Le Barbu-Debus, Birger Dittrich, Rui Fausto, Stefan Grimme, Ahmed Mahjoub, Marija Nedić, Ulrich Schmitt, Lena Schrader, Martin A. Suhm,*
Anne Zehnacker-Rentien* and Julia Zischang

Differences between homo- and heterochiral mandelate dimers as revealed by FTIR and IR/UV double resonance spectroscopy.

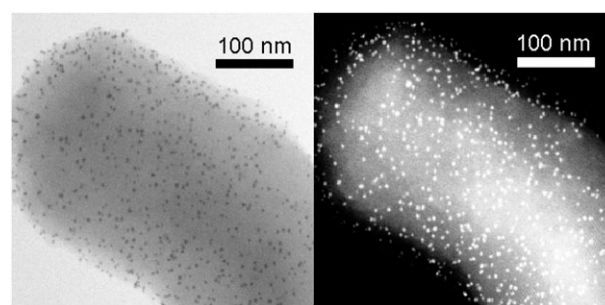


1286

The modification of M41S materials: addition of metal clusters and nanoparticles

Nicole S. Hondow, George A. Koutsantonis,*
Rebecca O. Fuller, Hamzah Fansuri, Martin Saunders,
Robert L. Stamps and Dongke Zhang

The incorporation of various molecular metal clusters and iron/platinum nanoparticles, with well defined stoichiometry, into M41S materials has been investigated. The grafting of simple monometallic, and one bimetallic, clusters has been achieved.

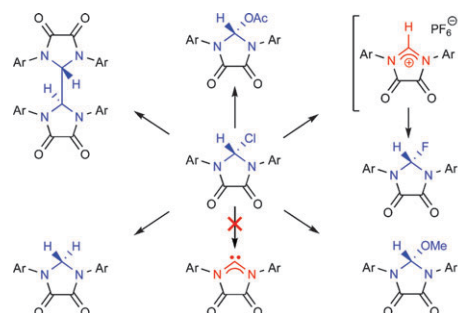


1295

The influence of electron delocalization upon the stability and structure of potential *N*-heterocyclic carbene precursors with 1,3-diaryl-imidazolidine-4,5-dione skeletons

Matthew G. Hobbs, Taryn D. Forster,
Javier Borau-Garcia, Chrissy J. Knapp,
Heikki M. Tuononen and Roland Roesler*

The carbonyl moieties in the skeleton of the transient 1,3-diaryl-4,5-dioxo-4,5-dihydro-3*H*-imidazolium salts lowers considerably the energy of the LUMO, rendering these species highly electrophilic.

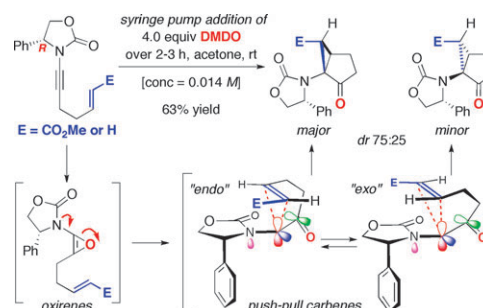


1309

A stereoselective intramolecular cyclopropanation via a *de novo* class of push-pull carbenes derived from DMDO-epoxidations of chiral ynamides

Hongyan Li, Jennifer E. Antoline, Jin-Haek Yang,
Ziyad F. Al-Rashid* and Richard P. Hsung*

This work describes the first examples of diastereoselective intramolecular cyclopropanations of a *de novo* class of push-pull carbenes derived from DMDO-epoxidations of chiral ynamides.

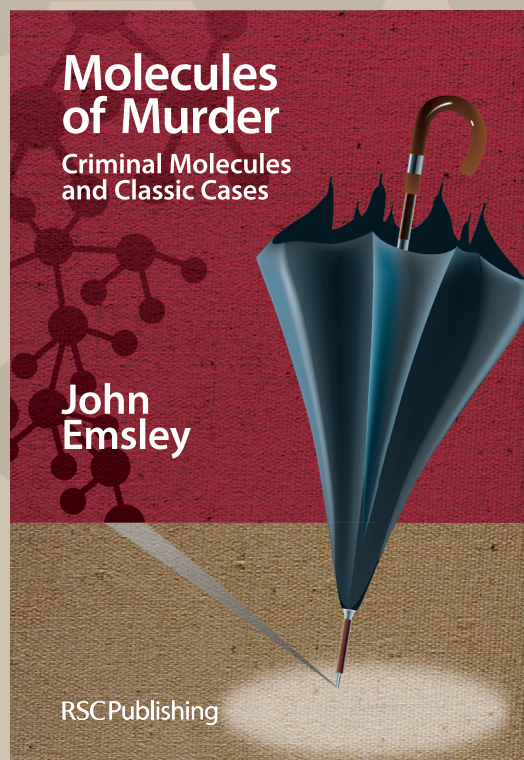


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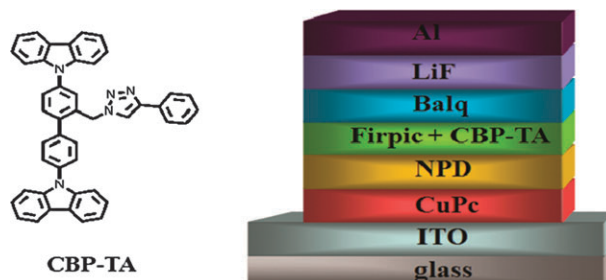
PAPERS

1317

A bipolar host containing 1,2,3-triazole for realizing highly efficient phosphorescent organic light-emitting diodes

Myoung Ki Kim, Jongchul Kwon, Tae-Hyuk Kwon and Jong-In Hong*

We synthesized a new bipolar host containing 1,2,3-triazole for realizing highly efficient phosphorescent organic light-emitting diodes. The external quantum efficiency of the Firpic-based blue phosphorescent OLEDs increased by 30% when CBP-TA was used as the host instead of CBP.

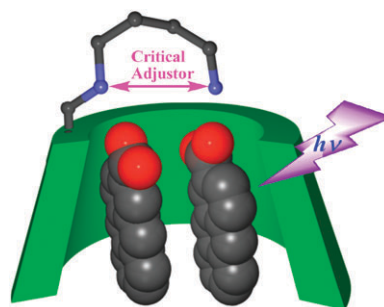


1323

Critical stereocontrol by inter-amino distance of supramolecular photocyclodimerization of 2-anthracenecarboxylate mediated by 6-(ω -aminoalkylamino)- γ -cyclodextrins

Chenfeng Ke, Cheng Yang, Wenting Liang, Tadashi Mori, Yu Liu* and Yoshihisa Inoue*

The HT/HH and *anti/syn* ratios as well as the enantioselectivity were manipulated through the ditopic electrostatic interactions in the [4+4] photocyclodimerization of AC mediated by γ -CDs with varying inter-amino distances.

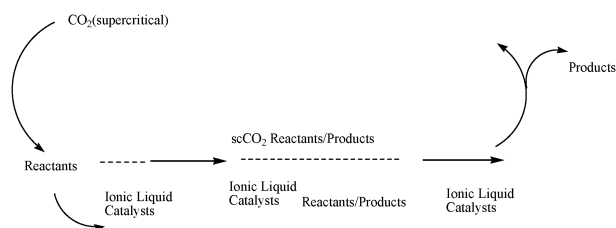


1330

Hydrosilylation catalysed by a rhodium complex in a supercritical CO₂/ionic liquid system

Jiayun Li, Jiajian Peng,* Guodong Zhang, Ying Bai, Guoqiao Lai* and Xiaonian Li

During hydrosilylation in a supercritical CO₂/ionic liquid system, the reactants were possibly transferred by scCO₂ into the ionic liquid phase, in which the catalyst was dissolved. The products can be flushed with scCO₂ after the reaction and the catalyst/ionic liquid system reused.

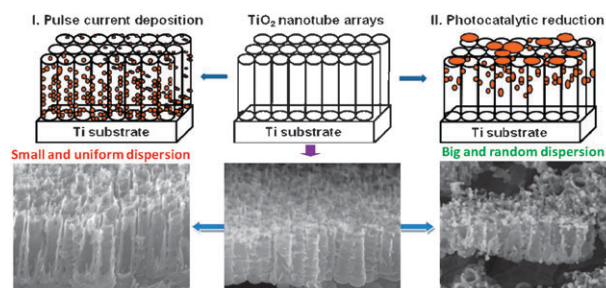


1335

Fabrication of uniform Ag/TiO₂ nanotube array structures with enhanced photoelectrochemical performance

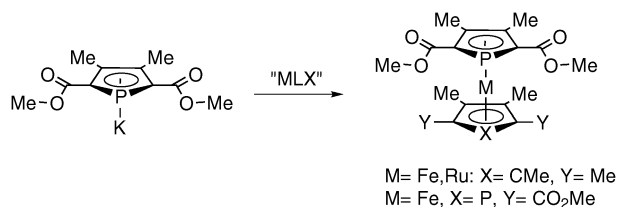
Yuekun Lai, Huifang Zhuang, Kunpeng Xie, Dangguo Gong, Yuxin Tang, Lan Sun, Changjian Lin* and Zhong Chen*

Three-dimensional (3D) Ag/TiO₂ nanotube array structures fabricated by a facile pulse current technique exhibited enhanced photoelectrochemical activity compared to random Ag/TiO₂ counterpart formed by regular photocatalytic reduction.



PAPERS

1341

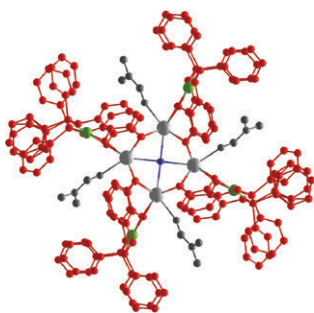


Studies of how redox chemistry influences the synthesis of transition metal phosphametalloenes: a convenient synthesis of 2,5-diester-substituted phosphametalloenes and 2,2',5,5'-tetraester-substituted-1,1'-diphosphaferrocenes

Duncan Carmichael,* Xavier F. Le Goff and Eric Muller

Convenient syntheses of 2,5-diester-substituted phosphametalloenes and 2,2',5,5'-tetraester-substituted-1,1'-diphosphaferrocenes are described. Redox chemistry appears to play no part in the reaction of simple phospholides with Fe(II) centres.

1348

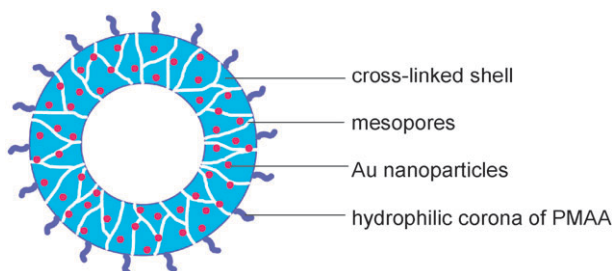


Stoichiometry controlled self-assembly of tri- and octa-nuclear palladium–yttrium complexes

Samir H. Chikkali, Martin Nieger and Dietrich Gudat*

Adjusting the stoichiometric ratio of the reactants was the key to control the assembly of either one or two Pd-bisphosphine units on one yttrium(III) template to give either a trinuclear complex of composition [Y(H₂L₂Pd)(L₂Pd)(dmf)]Cl or a polynuclear assembly [O(YL₂Pd)₄(dmf)₄H]Cl₃.

1355

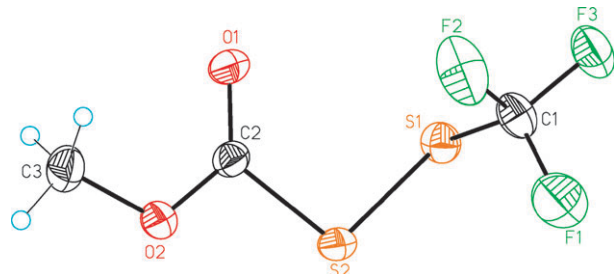


Hollow shell–corona microspheres with a mesoporous shell as potential microreactors for Au-catalyzed aerobic oxidation of alcohols

Li Yang, Minchao Zhang, Yang Lan and Wangqing Zhang*

Au-functionalized microreactors are proposed for aerobic alcohol oxidation. These microreactors are constructed by immobilization of Au nanoparticles on hollow shell–corona microspheres with a mesoporous shell, within which aerobic alcohol oxidation takes place efficiently.

1365



Methoxycarbonyl trifluoromethyl disulfide, CH₃OC(O)SSCF₃: synthesis, structure and conformational properties

Sonia Torrico-Vallejos, Mauricio F. Erben,* Roland Boese and Carlos O. Della Védova*

The synthesis and characterization of CH₃OC(O)SSCF₃ is reported. The molecule exists in the gas phase as a mixture of two conformers, whereas only the most stable is present in the crystal.

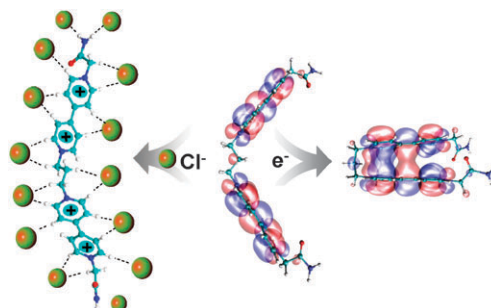
PAPERS

1373

Viologen-based redox-switchable anion-binding receptors

Ramu Kannappan, Christophe Bucher,*
Eric Saint-Aman,* Jean-Claude Moutet, Anne Milet,
Mircea Oltean, Estelle Métaay, Stéphane Pellet-Rostaing,
Marc Lemaire and Carole Chaix

The association of two viologen fragments through a propyl linker promotes a chelate-like complexation of chlorides in polar media. The reduction-triggered formation of a π -dimer was also investigated by electrochemistry and by theoretical calculation.

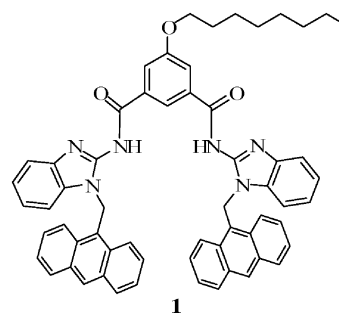


1387

Binding induced destruction of an excimer in anthracene-linked benzimidazole diamide: a case toward the selective detection of organic sulfonic acids and metal ions

Kumaresh Ghosh,* Tanushree Sen and Amarendra Patra

Anthracene linked benzimidazole diamide **1** distinguishes sulfonic acids from carboxylic acids by exhibiting destruction of inherently present excimer. A similar situation arose in the presence of Cu^{2+} , Co^{2+} and Ni^{2+} among other metal ions studied.

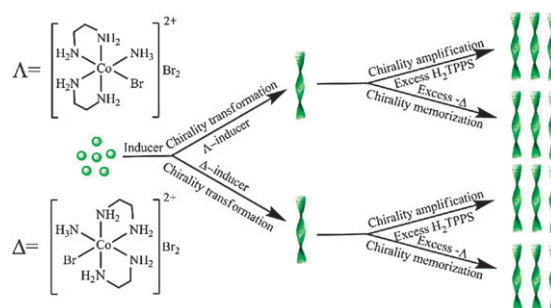


1394

Transformation, memorization and amplification of chirality in cationic Co(III) complex–porphyrin aggregates

Jian Wang, Dongdong Ding, Lixi Zeng, Qian Cao,
Yujian He* and Hui Zhang*

Transformation, memorization and amplification of chirality were found to exist in Λ - and Δ -cationic Co(III) complex–porphyrin aggregate systems.



1401

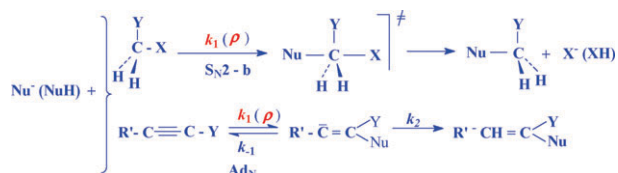
The extended time evolution size decrease of gold nanoparticles formed by the Turkevich method

Madeeha A. Uppal, Andreas Kafizas, Teck H. Lim and
Ivan P. Parkin*

Gold nanoparticle (Au NP) solutions, made simply by the Turkevich reduction method, were seen to significantly decrease in size over a time period of days demonstrating inverse Ostwald growth, possibly being the first time this phenomenon has been observed for such a system.



1408

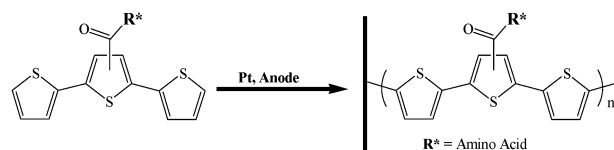


Substituent effects in nucleophiles on activation parameters in the bimolecular nucleophilic reactions in solution

Vladislav M. Vlasov

$\Delta H^\ddagger = \delta\Delta H^\ddagger_\sigma + \Delta H^\ddagger_0$; $\delta\Delta H^\ddagger = \delta\Delta H^\ddagger_{\text{ext}} + \delta\Delta H^\ddagger_{\text{int}}$; $\delta\Delta H^\ddagger_{\text{int}} = (0.7 \pm 0.8) - (6.1 \pm 0.32)\rho$ ($r = 0.971$, $s = 1.6$, $n = 24$) where $\rho = \rho(k_1)$. The charge development in the transition state (k_1) in S_N2, S_NV, Ad_N, S_NAr and acyl-transfer reactions is mainly governed by the internal part of the activation enthalpy change, $\delta\Delta H^\ddagger_{\text{int}}$.

1417

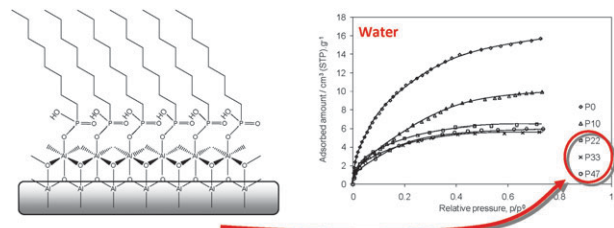


Synthesis and characterization of alanine functionalized oligo/polythiophenes

Christopher D. McTiernan and M'hamed Chahma*

Electrochemical oxidation of alanine functionalized oligothiophenes affords the corresponding polymers, which display excellent stability in doped and undoped states.

1424

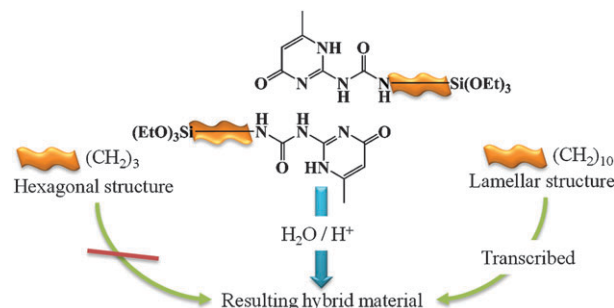


Organo-lined alumina surface from covalent attachment of alkylphosphonate chains in aqueous solution

Stéphanie Lassiaz, Anne Galarneau, Philippe Trens,* Dominique Labarre, Hubert Mutin and Daniel Brunel

The hydrophobisation of an alumina surface by covalent anchorage of alkylphosphonate, performed by treatment with an aqueous solution of alkylphosphonic acid without formation of bulk aluminium phosphonate, is evidenced by sorption of specific probes.

1436



Influence of the alkyl linker in the structuring of bridged silsesquioxanes obtained by self-recognition properties

G. Arrachart, A. Bendjeriou, C. Carcel, J. J. E. Moreau and M. Wong Chi Man*

The combination of H-bonding with lipophilic alkylene carbon chain interactions induces a lamellar structure to the alkoxy silane that can be transcribed to the hybrid silica.

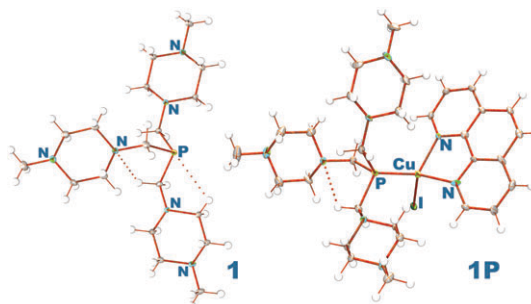
PAPERS

1441

Copper(I) iodide complexes containing new aliphatic aminophosphine ligands and diimines—luminescent properties and antibacterial activity

Radosław Starosta,* Magdalena Florek, Jarosław Król, Małgorzata Puchalska and Andrzej Kochel

Reactions of copper(I) iodide with diimine ligands and new tris(aminomethyl)phosphines derived from alkylpiperazines and morpholine result in complexes that show antimicrobial activity and solid state photoluminescent properties.

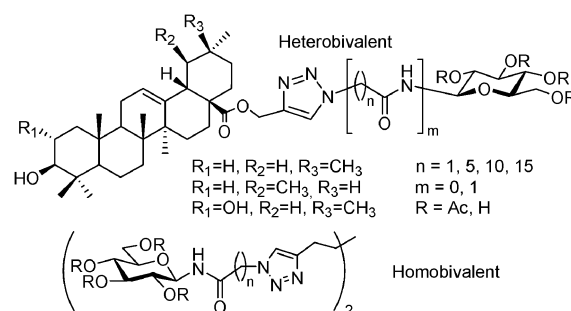


1450

Tethered derivatives of D-glucose and pentacyclic triterpenes for homo/heterobivalent inhibition of glycogen phosphorylase

Keguang Cheng, Jun Liu, Hongbin Sun,* Éva Bokor, Katalin Czifrák, Bálint Kónya, Marietta Tóth, Tibor Döcsa, Pál Gergely and László Somsák*

Low micromolar inhibitors (IC_{50} 40–70 μ M) were found among the heterobivalent compounds studied, while homobivalent derivatives proved inactive in assays against rabbit muscle glycogen phosphorylase a or b.

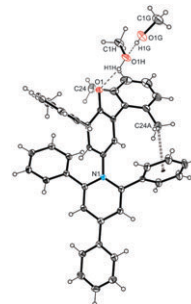


1465

Synthesis and structures of crystalline solvates formed of pyridinium N-phenoxide (Reichardt's-type) betaine dyes and alcohols

Sandra Kurjatschij, Wilhelm Seichter and Edwin Weber*

New betaine dyes of the Reichardt's type have been synthesized, examined regarding their solvatochromism and studied with reference to molecular conformation and structures of crystalline solvates, showing specific interactions with the betaine framework.

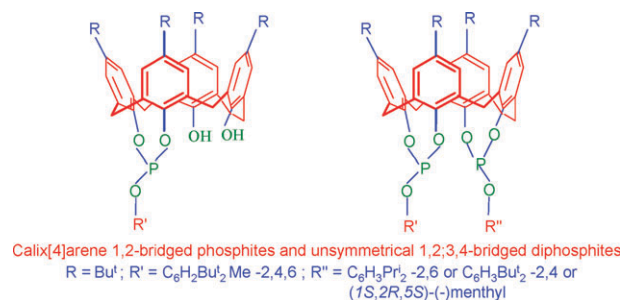


1478

NMR and X-ray crystallographic studies of unsymmetrical 25,26;27,28-dibridged *para-tert*-butyl calix[4]arene bisphosphites with a large “through-space” P–P coupling

Pathik Maji, Setharampattu S. Krishnamurthy* and Munirathinam Nethaji

The synthesis and structures of three 25,26-bridged *para-tert*-butyl-calix[4]arene phosphites and unsymmetrical (chiral and achiral) 25,26;27,28-bridged *para-tert*-butyl-calix[4]arene bisphosphites are reported.



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