

IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 29(5) 641-748 (2005)

In this issue...

Letters by Colin Raston on a complex 3D 'wavy brick wall' coordination polymer and Joël Moreau on nanostructuring organo-silicas.



Cover

See Roberta Brayner *et al.*, *New J. Chem.*, 2005, **29**, 681.

Photograph: the coast of Vancouver Island where, in common with many other coastlines, brown marine algae (*Phaeophyceae*) are found. These algae are a source of a natural polymer which has been used to demonstrate superparamagnetic metallic nanoparticle growth within algal polysaccharide capsules.

The photograph is reproduced by permission of Dr Didier Jézéquel (Laboratoire de Géochimie des Eaux, Université Paris 7 & IPGP, Paris, France).

CHEMICAL SCIENCE

C33

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Chemical Science

May 2005/Volume 2/Issue 5

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LETTERS

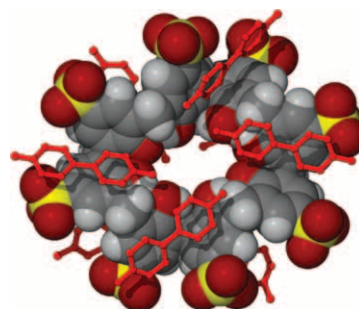
649



A complex 3D 'wavy brick wall' coordination polymer based on *p*-sulfonatocalix[8]arene

Scott J. Dalgarno, Michael J. Hardie, Jerry L. Atwood, John E. Warren and Colin L. Raston*

p-Sulfonatocalix[8]arene in a 'pleated loop' conformation acts as a linker unit between adjacent lanthanide(III)-4,4'-dipyridine-*N,N'*-dioxide coordination polymer layers through metal sulfonate coordination and each of the resultant 'pleated loop grooves' bears host to a 4,4'-dipyridine-*N,N'*-dioxide molecule.



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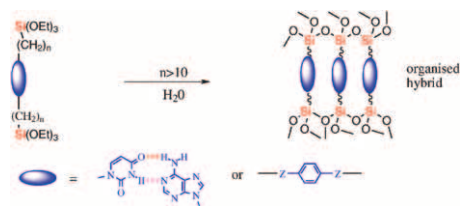
653



Nanostructuring organo-silicas: combination of intermolecular interactions and molecular recognition properties to generate self-assembled hybrids with phenylene or adenine...thymine bridging units

Joël J. E. Moreau,* Benoît P. Pichon, Guilhem Arrachart, Michel Wong Chi Man and Catherine Bied

Nanostructured bridged silsesquioxanes are obtained by self-organisation of long-chain silyl linkers with strong hydrophobic character.



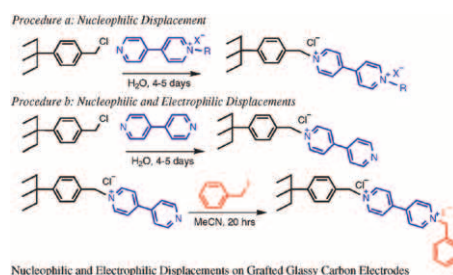
PAPERS

659

Nucleophilic and electrophilic displacements on covalently modified carbon: introducing 4,4'-bipyridinium on grafted glassy carbon electrodes

Allan Hjarbæk Holm, Rikke Møller, Karina Højrup Vase, Mingdong Dong, Kion Norrman, Flemming Besenbacher, Steen Uttrup Pedersen* and Kim Daasbjerg*

A nucleophilic and electrophilic displacement process allowed the successful surface functionalization of glassy carbon electrodes by covalently bound and electrochemically stable bipyridinium viologens.



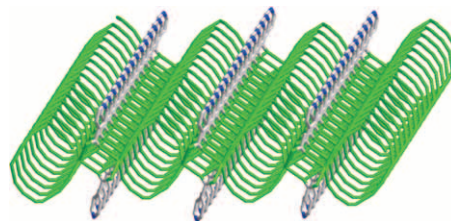
667



A series of new polyoxoanion-based inorganic-organic hybrids: $(\text{C}_6\text{NO}_2\text{H}_5)[(\text{H}_2\text{O})_4(\text{C}_6\text{NO}_2\text{H}_5)\text{Ln}(\text{CrMo}_6\text{H}_6\text{O}_{24})] \cdot 4\text{H}_2\text{O}$ ($\text{Ln} = \text{Ce}, \text{Pr}, \text{La}$ and Nd) with a chiral layer structure

Haiyan An, Dongrong Xiao, Enbo Wang,* Yangguang Li and Lin Xu

Four unprecedented inorganic-organic hybrids with a chiral layer structure, constructed from rare earth polyoxometalate helical chains and organic bridging ligands, are reported.

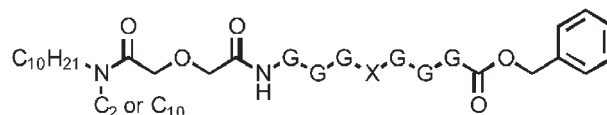


673

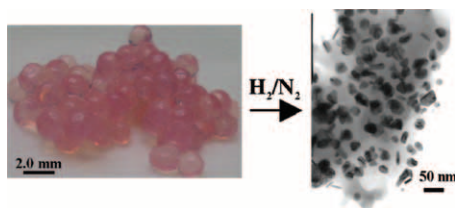
Anion transport in liposomes responds to variations in the anchor chains and the fourth amino acid of heptapeptide ion channels

Riccardo Ferdani, Robert Pajewski, Natasha Djedović, Jolanta Pajewska, Paul H. Schlesinger and George W. Gokel*

Carboxyfluorescein release studies and Hill plot analysis of the most active compound showed that four monomers were involved in pore formation rather than two.



681

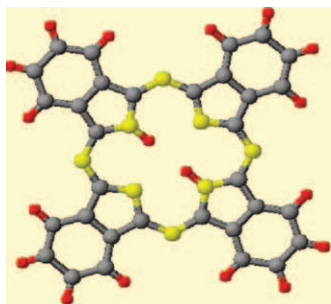


Algal polysaccharide capsule-templated growth of magnetic nanoparticles

Roberta Brayner,* Thibaud Coradin, Françoise Fiévet-Vincent, Jacques Livage and Fernand Fiévet

Polysaccharidic alginate capsules provide a well-defined, chemically and thermally stable environment for the formation of Co and Ni nanoparticles as well as CoNi nanoalloys, leading to magnetic nanocomposites.

686

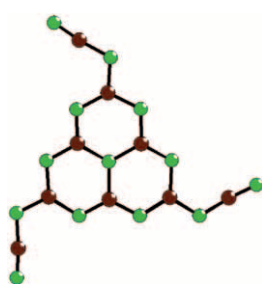


Synthesis of non-substituted phthalocyanines by standard and non-standard techniques. Influence of solvent nature in phthalocyanine preparation at low temperature by UV-treatment of the reaction system

B. I. Kharisov,* U. Ortiz Méndez, J. L. Almaraz Garza and J. R. Almaguer Rodríguez

Phthalocyanine formation from phthalonitrile at room temperature is studied in a series of non-aqueous solvents under conditions of UV-irradiation of the reaction system.

693

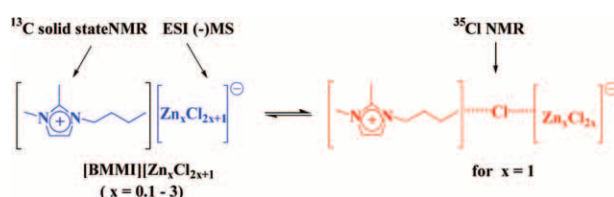


Potassium melonate, $K_3[C_6N_7(NCN)_3] \cdot 5H_2O$, and its potential use for the synthesis of graphite-like C_3N_4 materials

Elisabeta Horvath-Bordon, Edwin Kroke,* Ingrid Svoboda, Hartmut Fuess and Ralf Riedel

For the first time, a melonate {a salt with the $[C_6N_7(NCN)_3]^{3-}$ unit} is comprehensively characterised. The nitrogen-rich anion is thermally stable up to 500 °C and a promising building block for extended solids such as carbon(iv) nitrides.

700

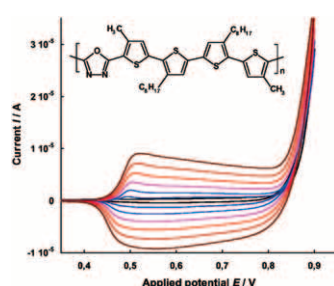


Synthesis and characterization of ionic liquids based upon 1-butyl-2,3-dimethylimidazolium chloride/ $ZnCl_2$

Vincent Lecocq, Aurélie Graille, Catherine C. Santini,* Anne Baudouin, Yves Chauvin, Jean Marie Basset, Laurence Arzel, Denis Bouchu and Bernard Fenet

The structure of a series of $[BMMI][Zn_xCl_{2+x}]$ ionic liquids is shown to vary with time and temperature.

707



Mixed alkylthiophene-based heterocyclic polymers containing oxadiazole units *via* electrochemical polymerisation: spectroscopic, electrochemical and spectroelectrochemical properties

Alexander S. Fisyuk, Renaud Demadrille, Claudia Querner, Malgorzata Zagorska, Joël Bleuse and Adam Pron*

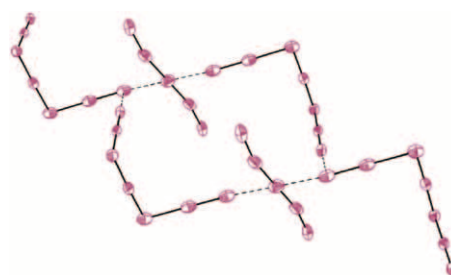
The synthesis of electropolymerisable thiophene-oxadiazole oligomers has been achieved. Both monomer and corresponding polymer show strong photoluminescence.

714

Synthesis, X-ray characterization and study of new ionic complexes of 2-pyridone, obtained by oxidation with I₂

Constantinos D. Antoniadis, Sotiris K. Hadjikakou,*
Nick Hadjiliadis,* Maciej Kubicki and Ian S. Butler

A polyiodide network is established by weak halogen-halogen interactions between I₇[−] and I₂⋯I[−]⋯I₂ ions derived from the reaction of 2-pyridinone with diiodine.

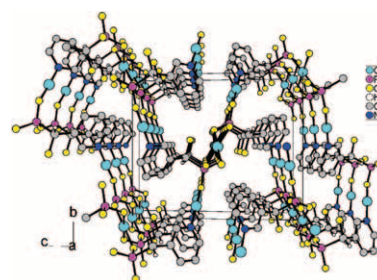


721

Synthesis and characterization of two metal phosphonates with 3D structures: Cu₂Cu^{II}[(3-C₅H₄N)CH(OH)PO₃]₂ and Zn[(3-C₅H₄N)CH(OH)PO₃]

Deng-Ke Cao, Yong-Jiang Liu, You Song and
Li-Min Zheng*

Cu₂Cu^{II}[(3-C₅H₄N)CH(OH)PO₃]₂ is a rare mixed-valent copper phosphonate containing paramagnetic chains of Cu(II), doubly linked by O–P–O bridges, which are isolated from each other by diamagnetic pyridyl groups and Cu(I) ions.

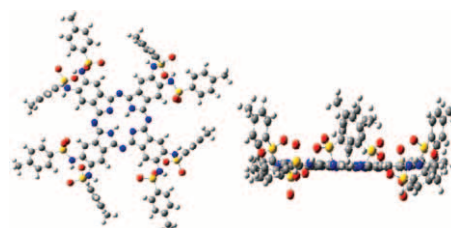


726

Synthesis and solvent effects on the spectroscopic properties of octatosylamido phthalocyanines

Fatma Yüksel, Ayşe Gül Gürek, Colette Lebrun and
Vefa Ahsen*

Solutions of octatosylamido-substituted metal-free, nickel(II) and zinc(II) phthalocyanines show reversible colour changes upon addition of a base.



733

Microwave approach for the synthesis of rhabdophane-type lanthanide orthophosphate (Ln = La, Ce, Nd, Sm, Eu, Gd and Tb) nanorods under solvothermal conditions

Chitta Ranjan Patra, Gabashvili Alexandra, Sujata Patra,
David Solomon Jacob, Aharon Gedanken,* Asher Landau
and Yossi Gofer

Rhabdophane-type hexagonal lanthanide orthophosphate, LnPO₄·*n*H₂O, nanowires/nanorods have been successfully fabricated in high yield (>95%) under open atmospheric pressure in a simple domestic microwave oven.

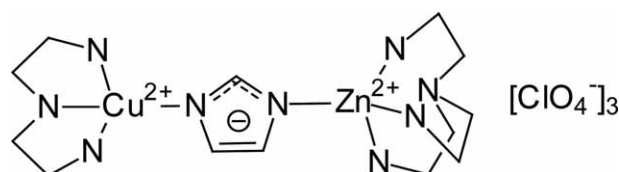


740

Superoxide dismutase activity of a Cu–Zn complex—bare and immobilised

I. Szilágyi, I. Labádi, K. Hernadi, I. Pálinkó,* I. Fekete, L.
Korecz, A. Rockenbauer and T. Kiss

This Cu–Zn complex displayed appreciable (host-free: IC₅₀ = 69.1 μmol dm^{−3}, immobilised in montmorillonite: IC₅₀ = 91.0 μmol dm^{−3}) or outstanding (adsorbed on silica gel: IC₅₀ = 6.0 μmol dm^{−3}) superoxide dismutase activity.



AUTHOR INDEX

- Ahsen, Vefa, 726
 Alexandra, Gabashvili, 733
 Almaguer Rodríguez, J. R., 686
 Almaraz Garza, J. L., 686
 An, Haiyan, 667
 Antoniadis, Constantinos D., 714
 Arrachart, Guilhem, 653
 Arzel, Laurence, 700
 Atwood, Jerry L., 649
 Basset, Jean Marie, 700
 Baudouin, Anne, 700
 Besenbacher, Flemming, 659
 Bied, Catherine, 653
 Bleuse, Joël, 707
 Bouchu, Denis, 700
 Brayner, Roberta, 681
 Butler, Ian S., 714
 Cao, Deng-Ke, 721
 Chauvin, Yves, 700
 Coradin, Thibaud, 681
 Daasbjerg, Kim, 659
 Dalgarno, Scott J., 649
 Demadrille, Renaud, 707
 Djedović, Natasha, 673
 Dong, Mingdong, 659
 Fekete, I., 740
 Fenet, Bernard, 700
 Ferdani, Riccardo, 673
 Fiévet, Fernand, 681
 Fiévet-Vincent, Françoise, 681
 Fisyuk, Alexander S., 707
 Fuess, Hartmut, 693
 Gedanken, Aharon, 733
 Gofer, Yossi, 733
 Gokel, George W., 673
 Graille, Aurélie, 700
 Gül Gürek, Ayşe, 726
 Hadjikakou, Sotiris K., 714
 Hadjiliadis, Nick, 714
 Hardie, Michael J., 649
 Hernadi, K., 740
 Holm, Allan Hjarbæk, 659
 Horvath-Bordon, Elisabeta, 693
 Jacob, David Solomon, 733
 Kharisov, B. I., 686
 Kiss, T., 740
 Korecz, L., 740
 Kroke, Edwin, 693
 Kubicki, Maciej, 714
 Labádi, I., 740
 Landau, Asher, 733
 Lebrun, Colette, 726
 Lecocq, Vincent, 700
 Li, Yangguang, 667
 Liu, Yong-Jiang, 721
 Livage, Jacques, 681
 Moreau, Joël J. E., 653
 Möller, Rikke, 659
 Norrman, Kion, 659
 Ortiz Méndez, U., 686
 Pajewska, Jolanta, 673
 Pajewski, Robert, 673
 Pálíncó, I., 740
 Patra, Chitta Ranjan, 733
 Patra, Sujata, 733
 Pedersen, Steen Uttrup, 659
 Pichon, Benoît P., 653
 Pron, Adam, 707
 Querner, Claudia, 707
 Raston, Colin L., 649
 Riedel, Ralf, 693
 Rockenbauer, A., 740
 Santini, Catherine C., 700
 Schlesinger, Paul H., 673
 Song, You, 721
 Svoboda, Ingrid, 693
 Szilágyi, I., 740
 Vase, Karina Højrup, 659
 Wang, Enbo, 667
 Warren, John E., 649
 Wong Chi Man, Michel, 653
 Xiao, Dongrong, 667
 Xu, Lin, 667
 Yüksel, Fatma, 726
 Zagorska, Malgorzata, 707
 Zheng, Li-Min, 721

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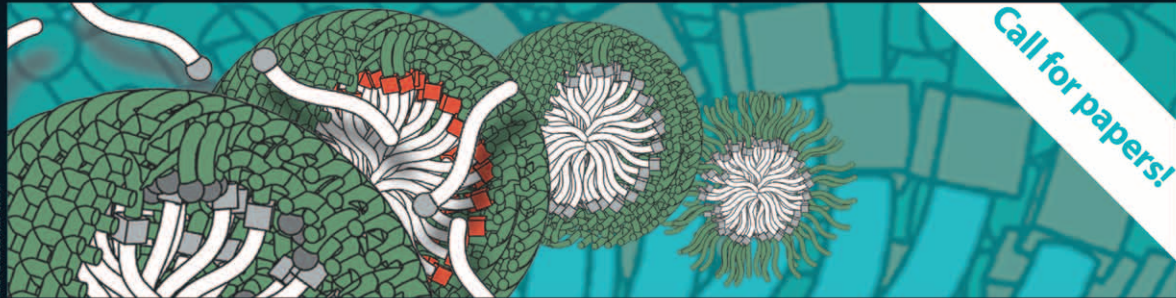
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