

IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 34(1) 1–172 (2010)



Cover

See Jean-Pierre Sauvage *et al.*, pp. 34–43.
A copper-based [2]rotaxane with two bidentate chelates of the aromatic diimine family in its axis displays fast electrochemically driven shuttling motions owing to steric factors only. The image is taken from http://www.graphicshunt.com/wallpapers/images/running_cheetah_-1248.htm and can be used freely according to the website. Jean-Paul Collin, Fabien Durola, Jacques Lux and Jean-Pierre Sauvage, *New J. Chem.*, 2010, **34**, 34.



Inside cover

See Changjian Lin *et al.*, pp. 44–51.
The cover displays a templated fabrication technique to selectively grow ordered ZnO nanorod arrays based on photocatalytic lithography and electrochemical deposition. The technique can be extended to make other nanostructure arrays over a large area and is flexible in terms of shape, arrangement and thickness of the pattern. Yuekun Lai, Zequan Lin, Jianying Huang, Lan Sun, Zhong Chen and Changjian Lin, *New J. Chem.*, 2010, **34**, 44.

EDITORIAL

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New year, new resolutions, new impact for *NJC* . . .

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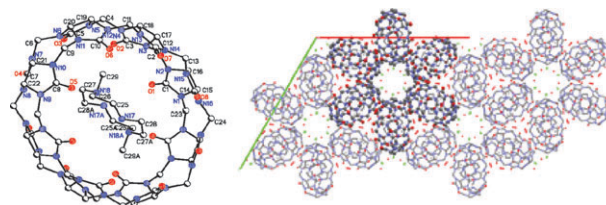
LETTERS

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A cucurbit[8]uril inclusion complex with 1,7-dimethyl-1,4,7,10-tetraazacyclododecane tetrachloride

Xiao-jun Wu, Kai Hu, Xiang-gao Meng and Gong-zhen Cheng*

The inclusion complex of DMC@CB[8] shows a sexfoil packing structure compared to the aligned structure in the free cucurbit[8]uril.



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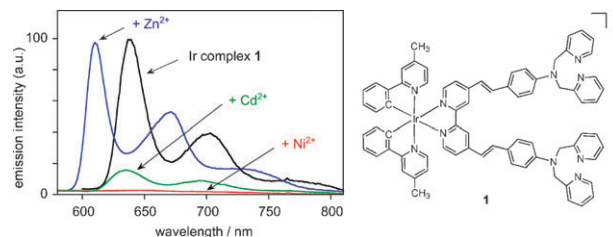
LETTERS

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Modulating the luminescence of an iridium(III) complex incorporating a di(2-picoly)anilino-appended bipyridine ligand with Zn^{2+} cations

Juan C. Araya, Juana Gajardo, Sergio A. Moya, Pedro Aguirre, Loïc Toupet, J. A. Gareth Williams, Muriel Escadeillas, Hubert Le Bozec and Véronique Guerschais*

The presence of Zn^{2+} ions specifically perturbs the excited state of an Ir(III) complex, giving rise to a blue-shifted absorption and emission, and a shorter luminescence lifetime.

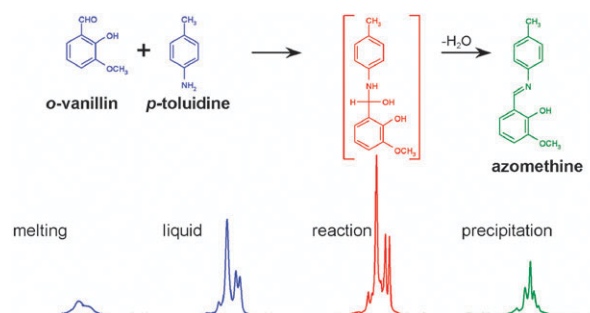


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Mechanically induced reactions in organic solids: liquid eutectics or solid-state processes?

Oleksandr Dolotko, Jerzy W. Wiench, Kevin W. Dennis, Vitalij K. Pecharsky* and Viktor P. Balema*

A thorough investigation of the solvent-free reaction between solid *o*-vanillin and *p*-toluidine has shown that mechanochemical transformations, which appear to be solid-state processes, may in fact occur in a liquid phase.

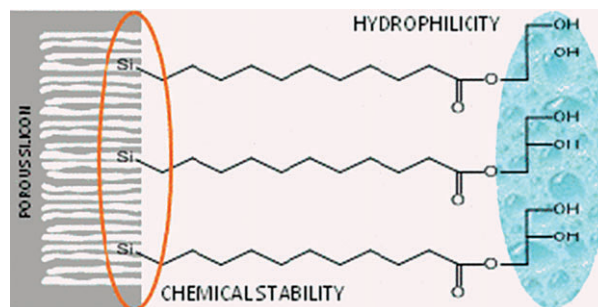


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Grafting of monoglyceride molecules for the design of hydrophilic and stable porous silicon surfaces

Stéphanie Pace, Philippe Gonzalez, Jean-Marie Devoisselle, Pierre-Emmanuel Milhiet, Daniel Brunel and Frédérique Cunin*

Hydrophilic chemically stable porous silicon surfaces are generated by surface functionalisation with polar head terminated lipid biomolecules of the monoglyceride type. Two approaches to anchor the monoglyceride moiety to porous silicon surfaces are presented.



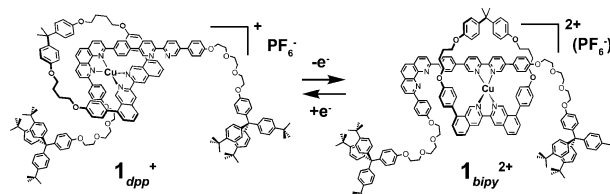
PAPERS

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A copper-based shuttling [2]rotaxane with two bidentate chelates in the axis: steric control of the motion

Jean-Paul Collin, Fabien Durola, Jacques Lux and Jean-Pierre Sauvage*

In a copper-based [2]rotaxane the electrochemically-induced gliding motion of the copper-complexed ring from the dpp "station" to the bipy "station" and *vice versa* is fast on the cyclic voltammetry timescale (milliseconds to seconds).



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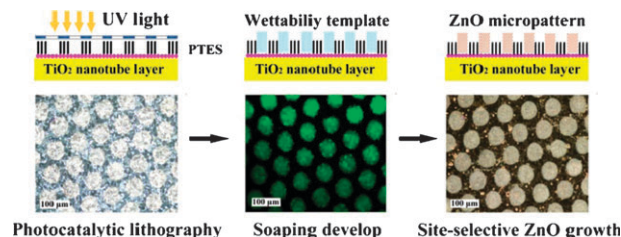
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Controllable construction of ZnO/TiO₂ patterning nanostructures by superhydrophilic/superhydrophobic templates

Yuekun Lai, Zequan Lin, Jianying Huang, Lan Sun, Zhong Chen and Changjian Lin*

ZnO nanostructured patterns with controllable structures were fabricated on templates with extreme wettability contrast (superhydrophilic/superhydrophobic) on TiO₂ nanotube surfaces. ZnO nanorods were selectively deposited on the superhydrophilic regions to form array patterning.

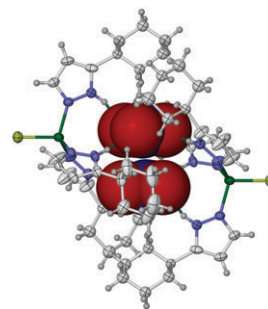


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The effect of different ligand substituents on the chemistry of a zinc-pyrazole anion host

Jonathan Day, Katie E. R. Marriott, Colin A. Kilner and Malcolm A. Halcrow*

[ZnCl(Hpz^{Cy})₃]₂NO₃ (Hpz^{Cy} = 5-cyclohexylpyrazole) forms dimeric hydrogen-bonded capsules containing two nitrate anions (shown). In contrast, [ZnBr(Hpz^{Cy})₃]₂NO₃ · H₂O contains chains of anions and water molecules lying within channels formed by the cations.

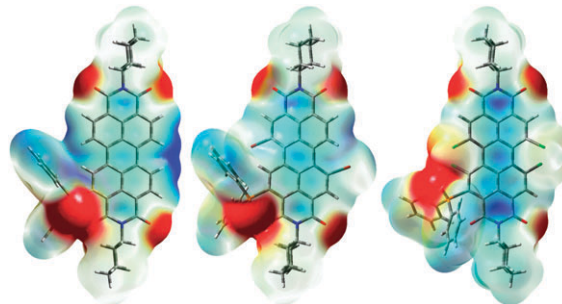


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A novel substitution reaction of perylene bisimides with Ph₂PLi at the α-position

Xue Wu, Chuanwei Yin, Zhiqiang Shi,* Maoyou Xu, Jin Zhang and Juanjuan Sun

A novel substitution reaction of perylene bisimides has been developed, in which the Ph₂PO group was attached to the PBI core at the α-position instead of the usual bay position.

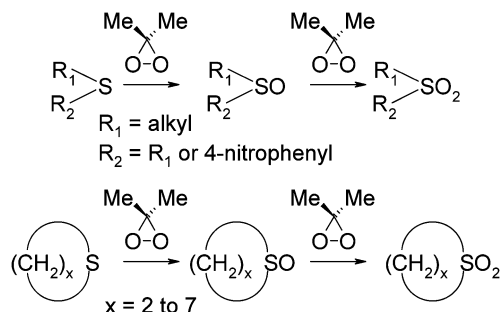


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A kinetic investigation, supported by theoretical calculations, of steric and ring strain effects on the oxidation of sulfides and sulfoxides by dimethyldioxirane in acetone

Peter Hanson,* Ramon A. A. J. Hendrickx and John R. Lindsay Smith*

The oxidations of sulfides and sulfoxides by dimethyldioxirane in acetone exhibit contrasting sensitivities to steric and ring strain effects.



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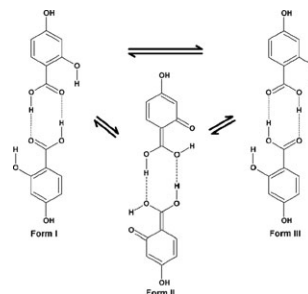
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Stability and cooperativity of hydrogen bonds in dihydroxybenzoic acids

Martin S. Adam, Matthias J. Gutmann, Charlotte K. Leech, Derek S. Middlemiss, Andrew Parkin, Lynne H. Thomas and Chick C. Wilson*

Multiple temperature diffraction, and static and dynamic solid-state DFT calculations, are used to probe the hydrogen bond system in two isomers of dihydroxybenzoic acid, providing an unambiguous analysis of the potential for cooperativity and disorder in the hydrogen bond network.

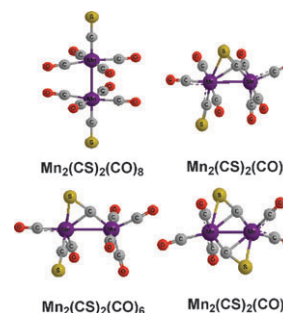


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Binuclear manganese carbonyl thiocarbonyls: metal–metal multiple bonds *versus* four-electron donor thiocarbonyl groups

Zhong Zhang, Qian-shu Li,* Yaoming Xie, R. Bruce King* and Henry F. Schaefer III

Theoretical studies predict $\text{Mn}_2(\text{CS})_2(\text{CO})_8$ to have an unbridged structure with an Mn–Mn single bond. The unsaturated derivatives $\text{Mn}_2(\text{CS})_2(\text{CO})_n$ ($n = 7, 6, 5$) are predicted to have structures with four-electron donor $\eta^2\text{-}\mu\text{-CS}$ groups.

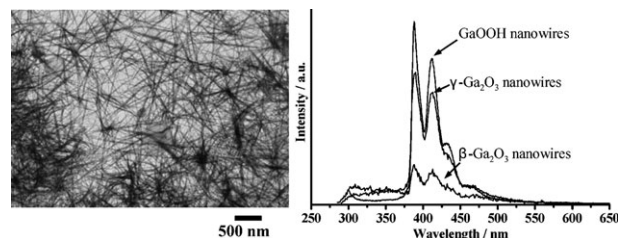


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GaOOH, and β - and γ -Ga₂O₃ nanowires: preparation and photoluminescence

Chih-Chia Huang and Chen-Sheng Yeh*

A composite methodology involving laser ablation followed by a solution refluxing process was demonstrated to observe blue emissions from GaOOH and (β -, γ -) Ga₂O₃ nanowires.

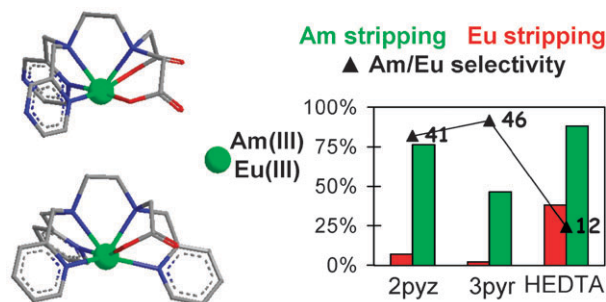


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Water-soluble tetrapodal N,O ligands incorporating soft N-heterocycles for the selective complexation of Am(III) over Ln(III)

Marie Heitzmann, Christelle Gateau, Laurence Chareyre, Manuel Miguiditchian, Marie-Christine Charbonnel and Pascale Delangle*

A series of hydrophilic tetrapodal ligands bearing two or three N-heterocycles, pyridine or pyrazine, selectively strip americium(III) from organic solutions containing 4f and 5f elements, with better separation factors than HEDTA.





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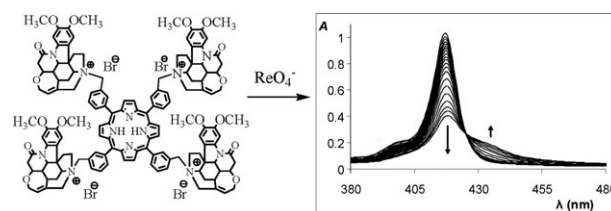
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Oxoanion binding: a change of selectivity for porphyrin–alkaloid conjugates as a result of substitution pattern

Lenka Veverková, Kamil Záruba, Jitka Koukolová and Vladimír Král*

The selective interaction of two porphyrin–brucine quaternary salts with oxoanions in a methanol/aqueous environment is described.

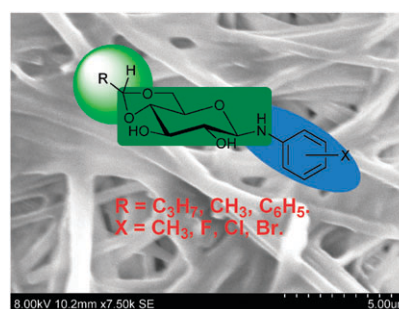


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Protecting group/halogen effect of *N*-glycosylamines on the self assembly of organogelator

Subbiah Nagarajan, Pawar Ravinder, Venkatesan Subramanian and Thangamuthu Mohan Das*

A series of 4,6-*O*-protected-*N*-glycosylamine-based organogelators were synthesised and characterized. The existence of π – π stacking, dipole–dipole interactions and H-bonding were inferred from ¹H NMR, FT-IR, XRD and computational studies. The gelation properties were studied in regard to their molecular structure by various techniques.

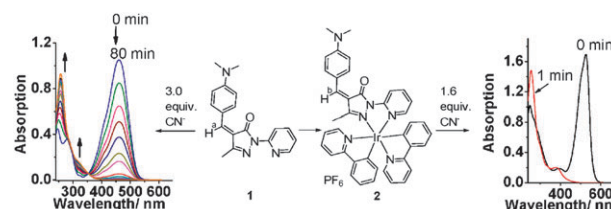


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Multisignaling detection of cyanide anions based on an iridium(III) complex: remarkable enhancement of sensitivity by coordination effect

Bin Lou, Zhu-Qi Chen, Zu-Qiang Bian* and Chun-Hui Huang

A novel iridium(III) complex, **2**, was synthesized, which was a specific lumino-chromo-electro chemodosimeter for cyanide anions, and is a much faster detector of cyanide anions than **1**.

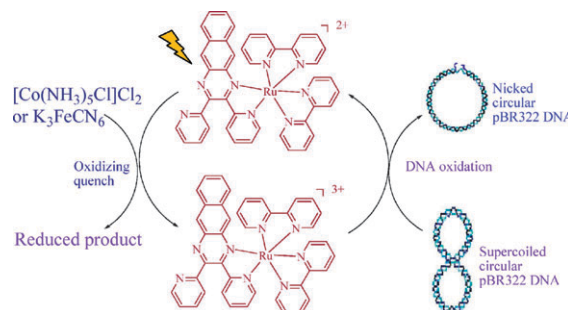


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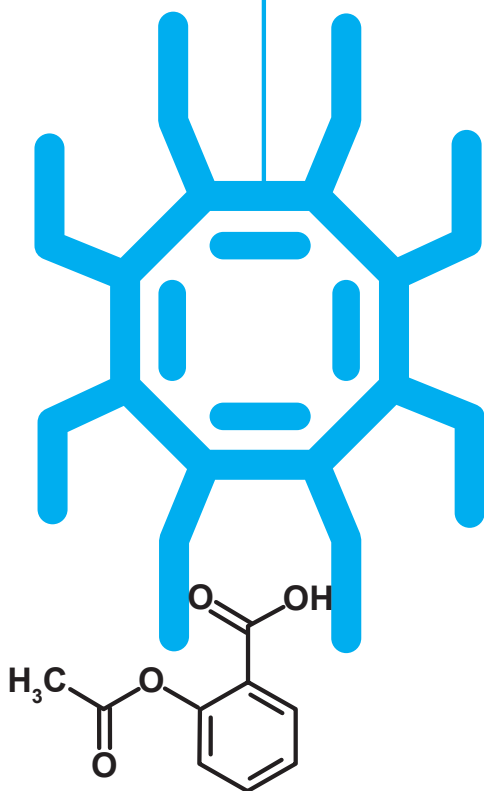
DNA photocleavage in anaerobic conditions by a Ru(II) polypyridyl complex with long wavelength MLCT absorption

Qian-Xiong Zhou, Wan-Hua Lei, Chao Li, Yuan-Jun Hou, Xue-Song Wang* and Bao-Wen Zhang*

[Ru(bpy)₂(dpp)]²⁺ exhibits very long wavelength ¹MLCT absorption, with a maximum at 550 nm, and DNA photocleavage activity in anaerobic conditions in the presence of suitable oxidative quenchers.



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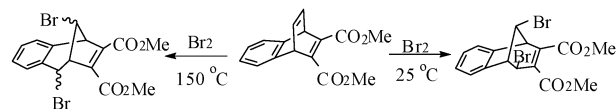


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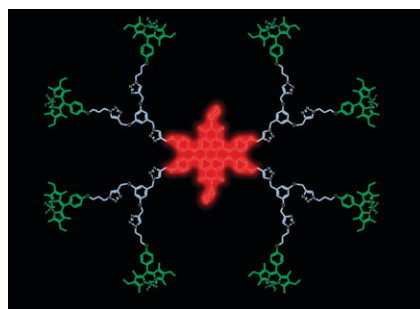
Low and high temperature bromination of 2,3-dicarbomethoxy and 2,3-dicyano benzobarrelene: unexpected substituent effect on bromination

The bromination of 2,3-dicarbomethoxy- and 2,3-dicyano benzobarrelene at different temperatures was investigated and a possible role of substituents on the bromination reaction was discussed.



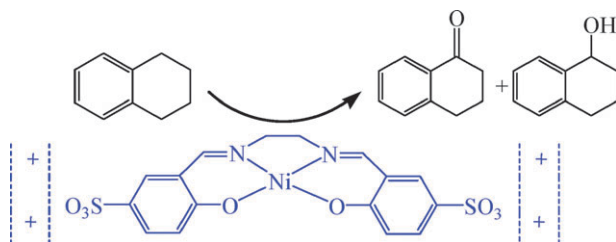
Convergent synthesis and light harvesting properties of dendritic boradiazaindacene (BODIPY) appended perylenediimide dyes

A novel dendritic light harvester, synthesized by coupling convergent dendrimer synthesis with click chemistry, has eight BODIPY units at the periphery and a perylenediimide (PDI) chromophore at the core.



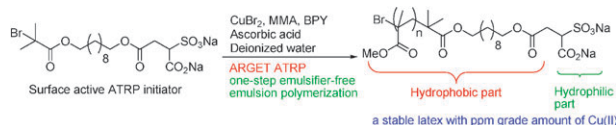
Synthesis of a sulfonato-salen-nickel(II) complex immobilized in LDH for tetralin oxidation

A new heterogenized catalyst of a sulfonato-salen-nickel(II) complex immobilized on a layered double hydroxide host has been synthesized and characterized through various spectroscopic and microscopic techniques. The catalytic properties of the catalyst were examined in liquid phase tetralin oxidation.



Synthesis and use of a surface-active initiator in emulsion polymerization under AGET and ARGET ATRP conditions

A simple surface-active ATRP initiator was synthesized efficiently. Living/controlled radical emulsion polymerization of methyl methacrylate was realized under ARGET ATRP conditions, in which the new initiator functioned as both an ATRP initiator and a latex stabilizer.



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