

IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 30(7) 969-1108 (2006)



Cover

See Christopher B. Smith *et al.*, p. 991.

Aquated Yb^{3+} ions (space filling) reside in the channels of the crystalline material formed from the inclusion of $[\text{Co}(\text{phen})_3]^{3+}$ within the cavity of *p*-sulfonatocalix[8]arene. Image reproduced by permission of Christopher B. Smith, Leonard J. Barbour, Mohamed Makha, Colin L. Raston and Alexandre N. Sobolev, *New J. Chem.*, 2006, **30**, 991.

CHEMICAL SCIENCE

C49

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Chemical Science

July 2006/Volume 3/Issue 7

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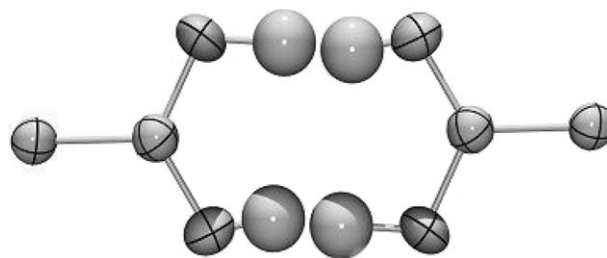
LETTERS

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Temperature dependence of proton transfer in 4-chlorobenzoic acid

Chick C. Wilson,* Xuelian Xu, Alastair J. Florence and Norman Shankland

The energy asymmetry associated with hydrogen atom transfer in 4-chlorobenzoic acid is determined to be 200 ± 15 K, from the temperature dependence of the hydrogen atom site occupancy factors determined from single-crystal neutron diffraction data.



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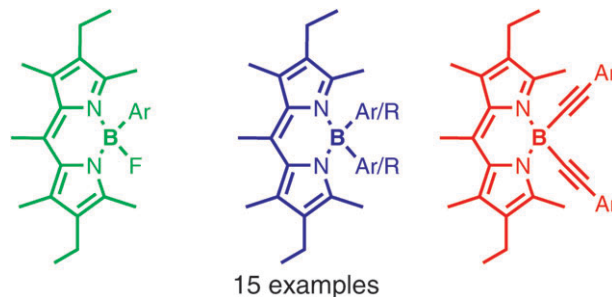
LETTERS

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New fluorescent aryl- or ethynylaryl-boron-substituted indacenes as promising dyes

Gilles Ulrich,* Christine Goze, Sébastien Goeb, Pascal Retailleau and Raymond Ziessel*

Novel dyes have been engineered by the replacement of the fluoro ligands of boron centers by alkyl, aryl or ethynylaryl fragments.

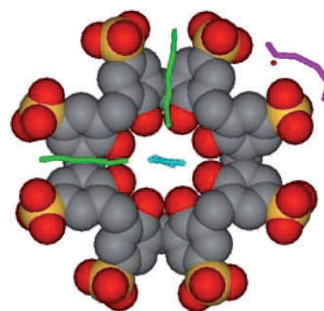


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Conformational extremes in the supramolecular assemblies of *para*-sulfonato-calix[8]arene

Florent Perret, Vanessa Bonnard, Oksana Danylyuk, Kinga Suwinska and Anthony W. Coleman*

Solid state structures of *para*-sulfonato-calix[8]arene complexes with 1,4-butanediammonium and 1,2-*cis*-cyclohexanediammonium cations show extremes in the macrocyclic conformation; the first one is planar and nearly circular, the second an inverted double cone.



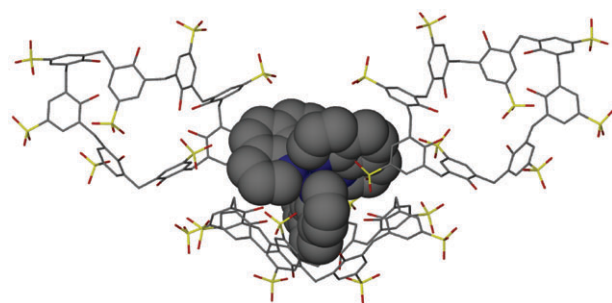
PAPERS

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Unlocking the elusive binding cavity in *p*-sulfonatocalix[8]arene

Christopher B. Smith,* Leonard J. Barbour, Mohamed Makha,* Colin L. Raston* and Alexandre N. Sobolev

p-Sulfonatocalix[8]arene encapsulates the classical coordination complex $[\text{Co}(\text{phen})_3]^{3+}$ in the presence of Yb^{3+} ions, to form a new crystalline material possessing negatively charged channels which propagate through the material in three dimensions.

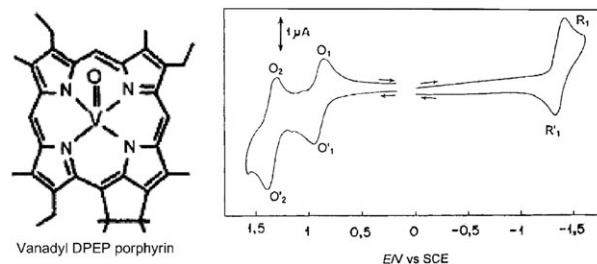


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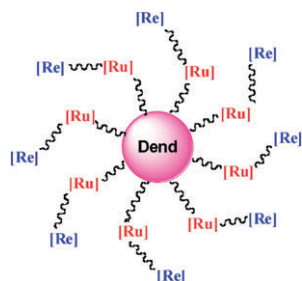
Thermodynamic and kinetic control over the oxidation mechanism of the natural vanadyl porphyrin series (DPEP)VO in methylene chloride: electrogeneration of an unusual dicationic species $[(\text{DPEP})\text{VO}]_2^{2+}$

Anass Doukkali,* Ahmed Saoiabi, Mohamed Ferhat, Yves Mugnier, Alain Vallat and Roger Guilard

The natural vanadyl DPEP porphyrin series (DPEP = deoxyphylloerythroetioporphyrinate) exhibits a typical electrochemical behavior.



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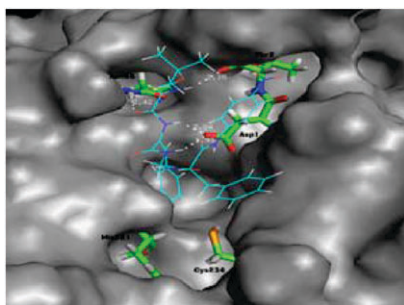


Metallo dendrimers containing both ruthenium (internal layer) and rhenium (external layer)

Inma Angurell, João C. Lima, Lara-Isabel Rodríguez, Laura Rodríguez, Oriol Rossell* and Miquel Seco

Photoluminescent carbosilane dendrimers having an internal layer of ruthenium atoms and an external surface formed by rhenium metals are reported.

1009

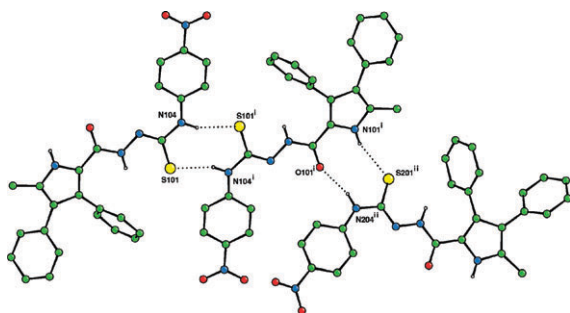


Peptide *p*-nitrophenylanilides containing (*E*)-dehydrophenylalanine—synthesis, structural studies and evaluation of their activity towards cathepsin C

R. Latajka,* M. Makowski, M. Jewgiński, M. Pawełczak, H. Koroniak and P. Kafarski

Structural, theoretic and biological studies of tetrapeptide *p*-nitroanilides containing (*E*)-dehydrophenylalanine, which acted as very weak inhibitors of cathepsin C, have proved that these peptides are hydrolysed in one step by direct removal of *p*-nitroaniline from the tetrapeptide.

1019

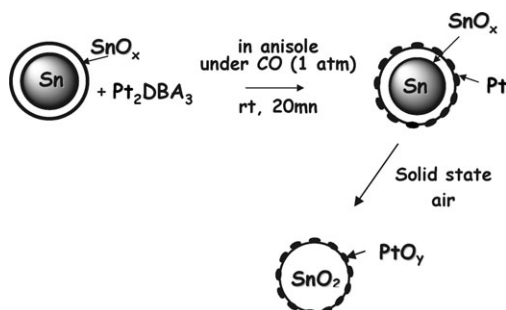


Pyrrolylamidourea based anion receptors

Louise S. Evans, Philip A. Gale,* Mark E. Light and Roberto Quesada*

The anion binding behaviour of a number of pyrrolylamidourea and thiourea compounds have been studied in DMSO solution.

1026



Organometallic approach for platinum and palladium doping of tin and tin oxide nanoparticles: structural characterisation and gas sensor investigations

Laurent Erades, Didier Grandjean, Céline Nayral, Katerina Soulantica, Bruno Chaudret, Philippe Menini, Frederic Parret and André Maisonnat*

Decomposition of $[Pt_2(dba)_3]$ or $[Pd(dba)_2]$ in a colloidal suspension containing tin/tin oxide core-shell nanoparticles leads to surface doped tin particles.

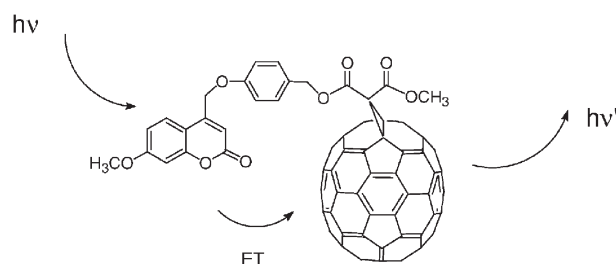
PAPERS

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Synthesis and fluorescence properties of [60] and [70]fullerene–coumarin dyads: Efficient dipole–dipole resonance energy transfer from coumarin to fullerene

Maria João Brites,* Célia Santos, Susana Nascimento, Bárbara Gigante, Heinrich Luftmann, Aleksandre Fedorov and Mário N. Berberan-Santos*

[60] and [70]fullerene–coumarin dyads have been synthesized in which the coumarin fluorescence is strongly quenched by dipole–dipole resonance energy transfer.

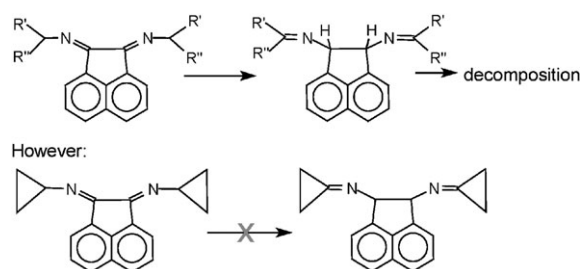


1046

Stability-inducing strain: application to the synthesis of alkyl-BIAN ligands (alkyl-BIAN = bis(alkyl)acenaphthenequinonediiimine)

Fabio Ragaini,* Michela Gasperini, Paolo Parma, Emma Gallo, Nicola Casati and Piero Macchi

N-Alkyl imines of acenaphthenequinone are not stable because an isomerization occurs that releases part of the ring strain. However, if an even more strained ring is present in the alkyl group, the isomerization becomes unfavorable and the compound is stable.

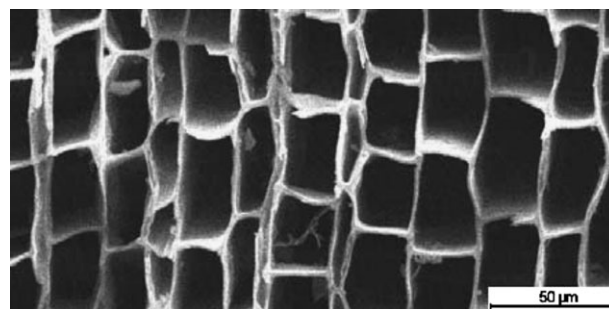


1058

Pinewood char templated mordenite/carbon honeycomb composite

György Onyestyák

Biotemplating with carbonized wood is a novel way of zeolite adsorbent and catalyst production, with uniform, hierarchically ordered macro- and micropore structure, having low diffusional resistances against mass transport of adsorptives, reactants and products around the zeolite crystallites.

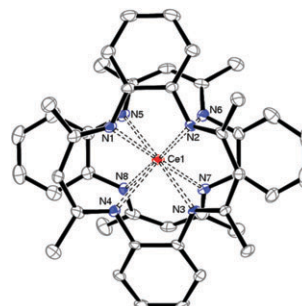


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Synthesis and magnetic properties of cerium macrocyclic complexes with tetramethyldibenzotetraaza[14]annulene, tmtaaH₂

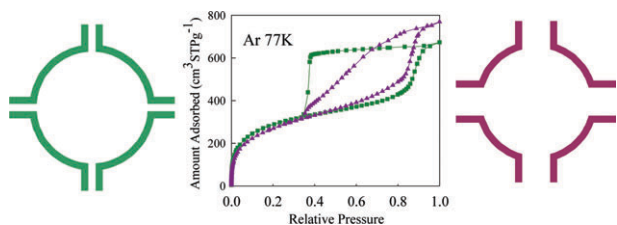
Marc D. Walter, Rosa Fandos and Richard A. Andersen*

The eight-coordinate cerium macrocyclic complex, Ce(tmtaa)₂, is not diamagnetic but it is a temperature independent paramagnet (TIP).



PAPERS

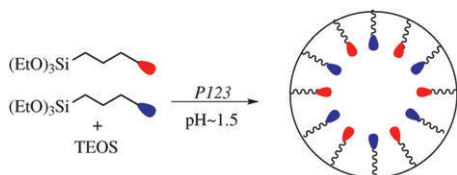
1071

**Effect of polymer-to-silica ratio on the formation of large three-dimensional cage-like mesostructures**

Rafal M. Grudzien, Bogna E. Grabicka, Maciej Kozak, Stanisław Pikus and Mietek Jaroniec*

Optimization of the polymer/silica ratio afforded a cage-like ordered mesoporous silica, FDU1, with narrow pore size distribution, uniform cage openings, large pore volume and high specific surface area.

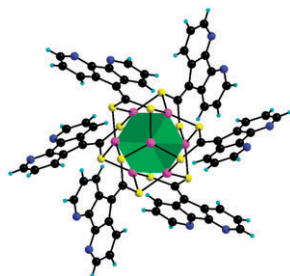
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**Synthesis of bifunctionalized-pore mesoporous organosilica. Study of the accessibility and the distribution of functions in the pore channels**

Rola Mouawia, Ahmad Mehdi,* Catherine Reyé and Robert Corriu*

The introduction and the regular distribution of two distinct organic groups on the pore surface was clearly evidenced by elemental analyses and chemical reactivity.

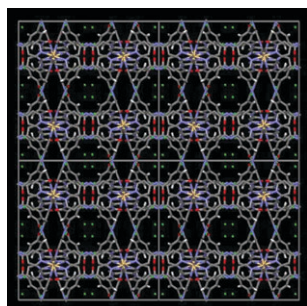
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**Octanuclear Cu(I) cubic complex decorated with six peripheral chelates**

Stéphane A. Baudron,* Mir Wais Hosseini* and Nathalie Kyritsakas

Formation of an air-stable octanuclear Cu(I) cubic complex presenting six peripheral coordinating sites.

1087

**Self-assembly of *N,N',N''*-tris(4-pyridyl)trimesic amide and *N,N',N''*-tris(3-pyridyl)trimesic amide with Ag^I or Cd^{II} ions**

Biing-Chiau Tzeng,* Bo-So Chen, Hsien-Te Yeh, Gene-Hsiang Lee and Shie-Ming Peng

2 forms a novel 3-D porous coordination network in the solid state. The open channels with pyridylamide moieties propagate into 3-D extended structures, a rare example of a 3-D porous material containing pyridylamides as functional moieties on the surface inside the channels.

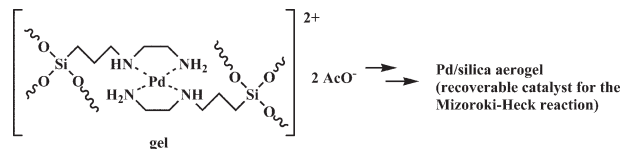
PAPERS

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Highly dispersed nickel and palladium nanoparticle silica aerogels: sol–gel processing of tethered metal complexes and application as catalysts in the Mizoroki–Heck reaction

Sandra Martínez, Marcial Moreno-Mañas, Adelina Vallribera,* Ulrich Schubert,* Anna Roig and Elies Molins

Highly dispersed Ni and Pd nanoparticles silica aerogels were prepared by tethering the metal to the silica matrix with the use of organofunctional alkoxysilanes.

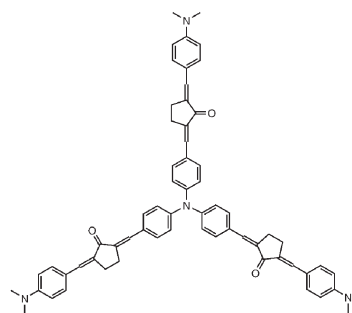


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Multibranched benzylidene cyclopentanone dyes with large two-photon absorption cross-sections

Jie Wu, Yuxia Zhao,* Xue Li, Mengquan Shi, Feipeng Wu* and Xiangyun Fang

Multibranched benzylidene cyclopentanone dyes present large two-photon absorption cross-sections, high photosensitizing efficiency and extensive application prospects in two-photon polymerization.



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