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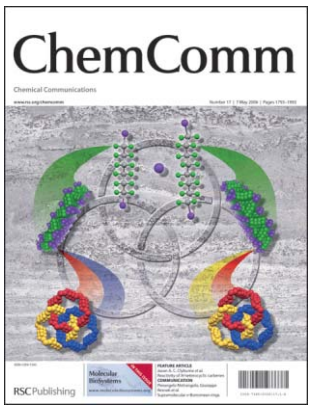
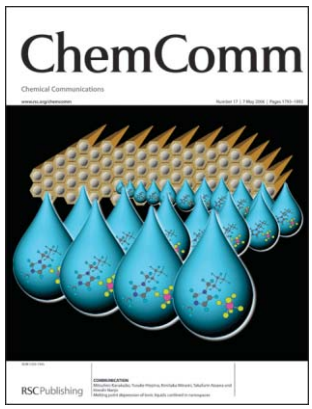
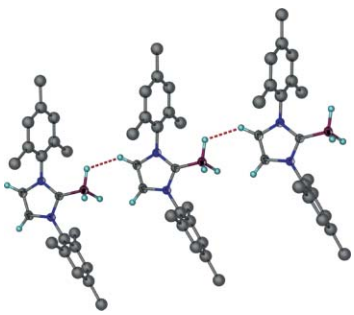


Cover
See Pierangelo Metrangolo, Giuseppe Resnati *et al.*, page 1819. Supramolecular *n*-Borromean rings of different dimensions can be engineered through a modular approach based on the self assembly of fluorinated tectons *via* halogen bonding. Image reproduced by permission of Rosalba Liantonio, Pierangelo Metrangolo, Franck Meyer, Tullio Pilati, Walter Navarrini and Giuseppe Resnati from *Chem. Commun.*, 2006, 1819.



Inside cover
See Mitsuhiro Kanakubo *et al.*, page 1828. Controllable nano-ionic liquids; confinement is a unique physical approach. Image reproduced by permission of Mitsuhiro Kanakubo, Yusuke Hiejima, Kimitaka Minami, Takafumi Aizawa and Hiroshi Nanjo from *Chem. Commun.*, 2006, 1828.

FEATURE ARTICLE



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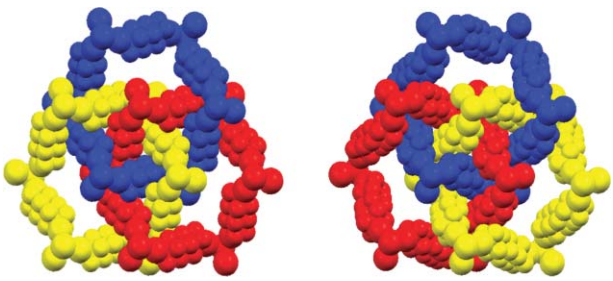

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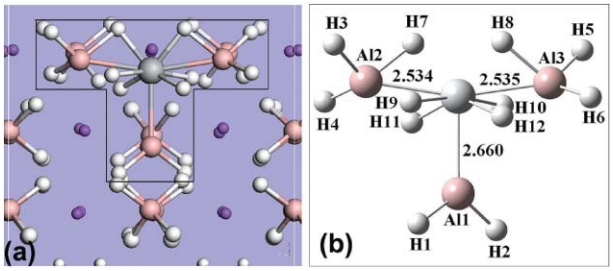
1822

A precursor state for formation of $TiAl_3$ complex in reversible hydrogen desorption/adsorption from Ti-doped $NaAlH_4$

Jianjun Liu and Qingfeng Ge*

A complex structure, $TiAl_3H_x$, with Ti occupying an interstitial site and interacting directly with three neighboring $(AlH_4)^-$ groups in a slab simulating $NaAlH_4(001)$, is believed to be a precursor state for the formation of a $TiAl_3$ binary phase observed experimentally and plays an important role in hydrogen release/uptake in Ti-doped $NaAlH_4$.

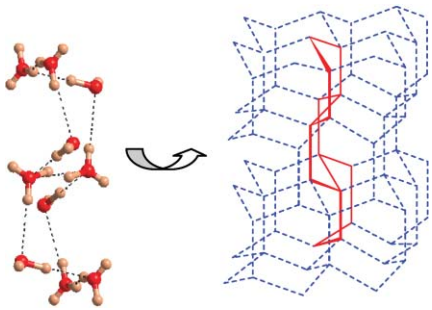


1825

First example of an ice-like water hexamer boat tape structure in a supramolecular organic host

Binoy K. Saha and Ashwini Nangia*

A T6(2) tape of water molecules in the boat cyclohexane conformation, a 1D structural motif in natural ice I_h, is characterized by X-ray diffraction in the channel framework of dibromophloroglucinol tetrahydrate.

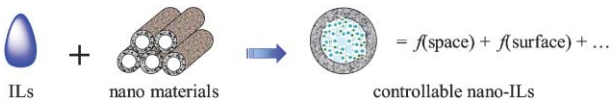


1828

Melting point depression of ionic liquids confined in nanospaces

Mitsuhiro Kanakubo,* Yusuke Hiejima,
Kimitaka Minami, Takafumi Aizawa and Hiroshi Nanjo

A new physical method was proposed to control the liquid properties of room temperature ionic liquids (RT-ILs) in combination with nanoporous materials; the melting point of ILs confined in nanopores remarkably decreases in proportion to the inverse of the pore size.

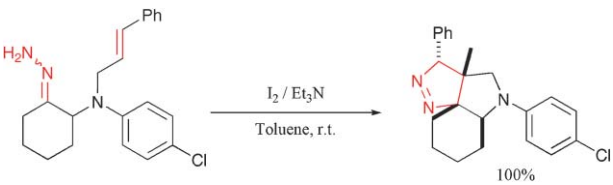


1831

Observations on the reaction of hydrazones with iodine: interception of the diazo intermediates

Béatrice Quiclet-Sire* and Samir Z. Zard*

The reaction of hydrazones with iodine/base leads to diazo intermediates which are readily trapped by an internal alkene or alkyne.



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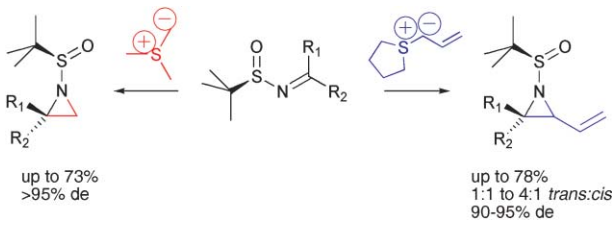
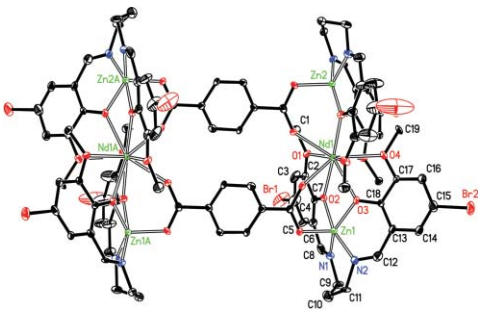


Direct synthesis of chiral aziridines from *N*-*tert*-butyl-sulfinylketimines

Daniel Morton, David Pearson, Robert A. Field and Robert A. Stockman*

Reaction of *tert*-butyl-sulfinylketimines with sulfur ylides yields highly substituted chiral aziridines in up to 78% yield and > 90% d.e.

1836

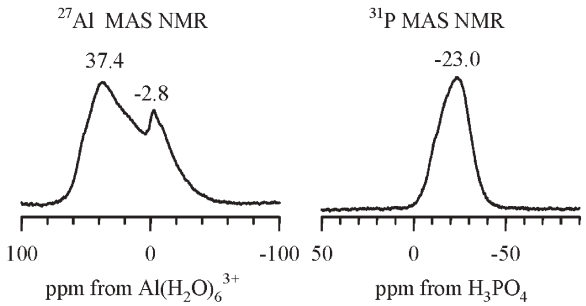


Design and synthesis of a near infra-red luminescent hexanuclear Zn–Nd prism

Xiao-Ping Yang, Richard A. Jones,* Wai-Kwok Wong,* Vince Lynch, Michael M. Oye and Archie L. Holmes

The use of the Schiff-base ligand *N*,*N*′-bis(5-bromo-3-methoxysalicylidene)propylene-1,3-diamine (H_2L) and 1,4-benzenedicarboxylate (BDC) enables the construction of the hexanuclear luminescent Zn–Nd complex $[Zn_4Nd_2L_4(1,4\text{-}BDC)_2]\cdot[Nd(NO_3)_5(H_2O)]\cdot Et_2O\cdot 2EtOH\cdot 3H_2O$.

1839

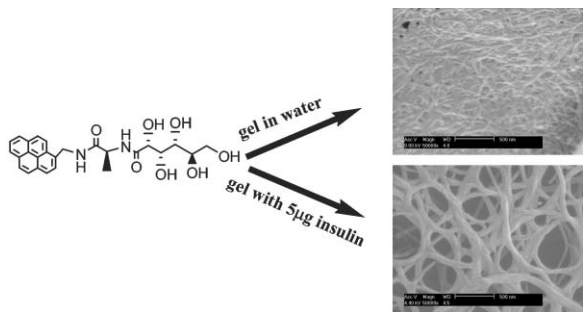


Synthesis and characterization of novel mesoporous aluminosilicate MCM-41 containing aluminophosphate building units

Tomás D. Conesa, Robert Mokaya, Juan M. Campelo and Antonio A. Romero*

A new approach for the synthesis of mesoporous SAPO materials with high Si loading *via* the addition of aluminophosphate precursor to preformed mesoporous Al-MCM-41 phases is reported.

1842



An insulin-sensing sugar-based fluorescent hydrogel

Sankarprasad Bhuniya and Byeang Hyean Kim*

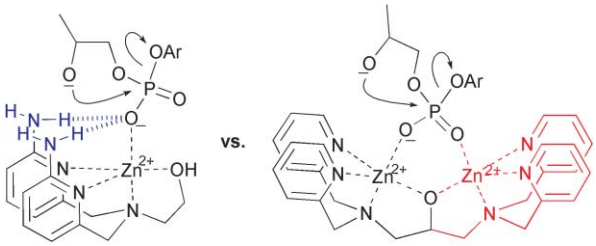
A small library of amphiphiles consisting of a polar carbohydrate "headgroup" attached to the N-termini of amino acids, which is linked with a nonpolar pyrene tail group have been prepared and it is found that one of them has insulin sensitivity in aqueous media.

1845

Comparing a mononuclear Zn(II) complex with hydrogen bond donors with a dinuclear Zn(II) complex for catalysing phosphate ester cleavage

Guoqiang Feng, Juan C. Mareque-Rivas* and Nicholas H. Williams*

A comparison between making a Zn(II) complex dinuclear or introducing H-bond donors to improve its efficiency for phosphate diester cleavage shows that both lead to similar observed rates of cleavage; however, using H-bond donors can lead to higher turnover numbers.



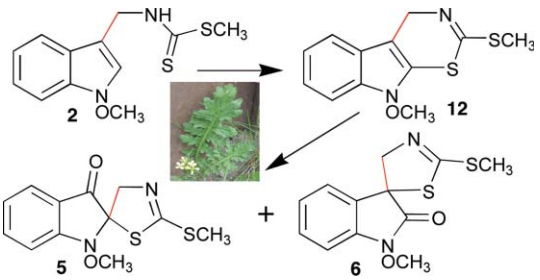
How do H-bond donors compare to making a Zn(II) complex dinuclear in improving its efficiency for catalysing phosphate diester cleavage?

1848

En route to erucalexin: a unique rearrangement in the crucifer phytoalexin biosynthetic pathway

M. Soledade C. Pedras* and Denis P. O. Okinyo

The first biosynthetic studies revealing that both 1-methoxybrassinin (**2**) and sinalbin B (**12**) are close precursors of the phytoalexins erucalexin (**5**) and 1-methoxyspirobrassinin (**6**).

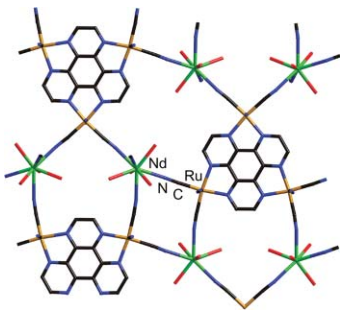


1851

Polynuclear cyanoruthenate chromophores based on hexaaza-triphenylene containing up to twelve cyanides: photophysical and structural properties

Juan-Manuel Herrera, Michael D. Ward,* Harry Adams, Simon J. A. Pope and Stephen Faulkner

The complex $[\{Ru(CN)_4\}_3(\mu^3\text{-HAT})]^{6-}$ (HAT = hexaaza-triphenylene) has twelve externally-directed cyanide groups, which result in (i) remarkable solvatochromism in its absorption spectrum, and (ii) unusually high connectivity in its coordination networks with Ln(III) cations.

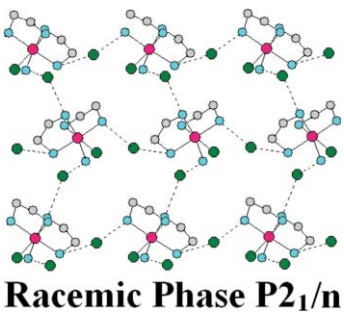


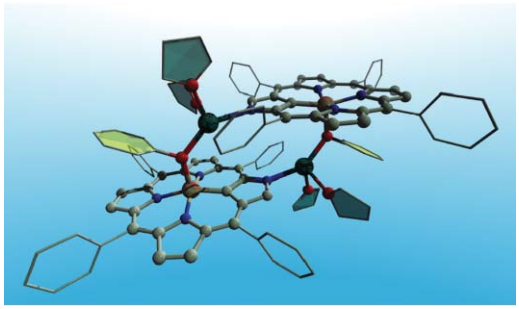
1854

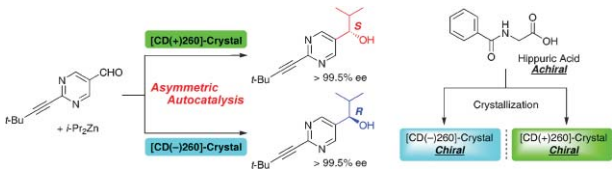
On the spontaneous induction of chirality in the preparation of Werner's complex *cis*-$[CoBr(NH_3)(en)_2]Br_2$

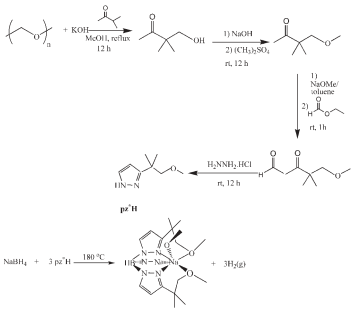
Fang Guo, Meritxell Casadesus, Eugene Y. Cheung, Michael P. Coogan* and Kenneth D. M. Harris*

The product obtained directly from the standard reaction to produce Werner's complex *cis*-$[CoBr(NH_3)(en)_2]Br_2$ is shown, *via* structure determination from powder X-ray diffraction data, to be a racemic crystalline phase.









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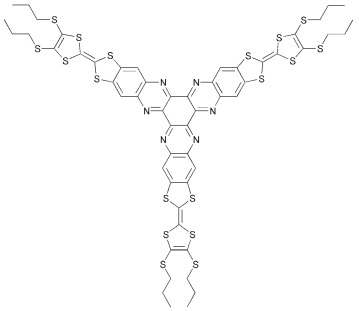
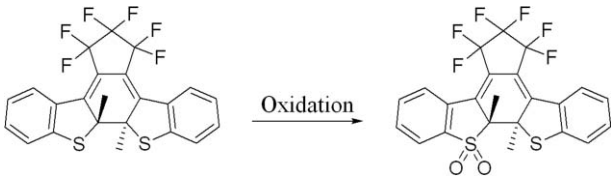


A redox-active tri-star molecule: merging of TTF and HAT chemistry

Chunyang Jia, Shi-Xia Liu,* Christian Tanner, Claudia Leiggener, Lionel Sanguinet, Eric Levillain, Samuel Leutwyler, Andreas Hauser and Silvio Decurtins

A highly π-conjugated molecule combining two characteristics; a charge-transfer transition originating from its inherent donor–acceptor nature in its neutral state and an intervalence charge-transfer transition in its dication mixed-valence state is reported.

1881

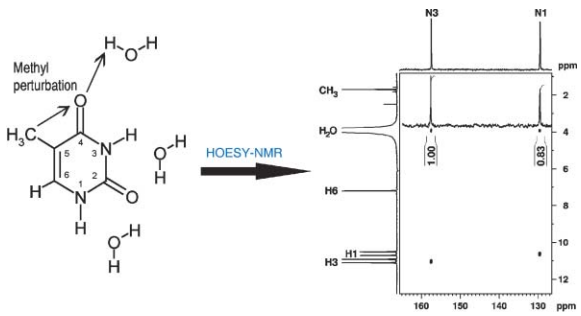


Fatigue-resistant photochromic dithienylethenes by controlling the oxidation state

Yong-Chul Jeong, Dae Gyu Park, Eunkyoung Kim,* Kwang-Hyun Ahn* and Sung Ik Yang*

High fatigue-resistant photochromic dithienylethenes were synthesized by controlling the oxidation state of 1,2-bis(2-methyl-1-benzothiophene-3-yl)perfluorocyclopentene (BTF6) and 1,2-bis(2,5-dimethylthien-3-yl)perfluorocyclopentene (DMTF6).

1884

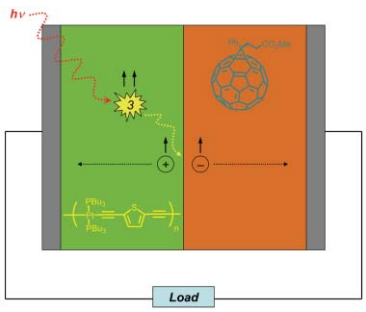


NMR diffusion and nuclear Overhauser investigation of the hydration properties of thymine: influence of the methyl group

Pierre Thureau,* Bernard Ancian, Stéphane Viel and André Thévand

The absence of preferential hydration in thymine and its lowest water accessibility with respect to uracil were evidenced by NMR diffusion and HOESY experiments.

1887



Platinum–acetylide polymer based solar cells: involvement of the triplet state for energy conversion

Fengqi Guo, Young-Gi Kim, John R. Reynolds* and Kirk S. Schanze*

Relatively efficient photovoltaic devices were fabricated using blends of a phosphorescent platinum–acetylide polymer and a fullerene (PCBM); involvement of the triplet excited state of the platinum–acetylide polymer in photoinduced charge transfer is believed to contribute to the device efficiency.

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