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# IN THIS ISSUE

# ISSN 1359-7345 CODEN CHCOFS (25) 2625-2724 (2006)



# Cover

See Annie K. Powell et al., page 2650. New model compounds could shed light on the structural and electronic features of the Oxygen Evolving Centre responsible for splitting water in Photosynthesis. Image created from http://image02. webshots.com/2/0/88/26/ 80108826uLMIXy\_fs.jpg and a photograph by Janet Pain. Reproduced by permission of lan J. Hewitt, Jin-Kui Tang, N. T. Madhu, Rodolphe Clérac, Gernot Buth, Christopher E. Anson and Annie K. Powell from Chem. Commun., 2006, 2650.



**Inside cover** See Kotohiro Nomura *et al.*,

page 2659. A schematic illustration of the copolymerisation of ethylene with norbornene by nonbridged half-titanocene over historic architecture (Kasuga Taisha Shrine, Nara, The World Heritage). Image reproduced by permission of Kotohiro Nomura, Wei Wang, Michiya Fujiki and Jingyu Liu from *Chem. Commun.*, 2006, 2659.

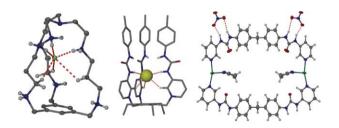
# FEATURE ARTICLE

# 2637

## A modular approach to anion binding podands: adaptability in design and synthesis leads to adaptability in properties

# Jonathan W. Steed\*

Adaptable anion binding systems have potential applications in sensing, extraction and nanostructured gel phase materials



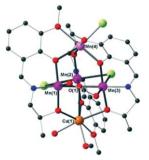
# COMMUNICATION

# 2650

# A series of new structural models for the OEC in photosystem II

Ian J. Hewitt, Jin-Kui Tang, N. T. Madhu, Rodolphe Clérac, Gernot Buth, Christopher E. Anson and Annie K. Powell\*

A new series of  $MMn^{II-III}_{4}$  clusters (M = Na, Ca) has been structurally characterised and their relevance to understanding the oxygen evolving centre of photosystem II is discussed.



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## 2653

# **X**-Ray crystallographic and EPR spectroscopic characterization of a pyrrolidine adduct of $Y_3N@C_{80}$

Luis Echegoyen,\* Christopher J. Chancellor, Claudia M. Cardona, Bevan Elliott, José Rivera, Marilyn M. Olmstead and Alan L. Balch\*

Crystallographic data for the pyrrolidine adduct  $Y_3N@C_{80}C_4H_9N\cdot 2.5CS_2$  reveals a slightly pyramidalized  $Y_3N$  unit with idealized mirror symmetry that avoids contact with the site of addition.

#### 2656

#### Photochromism of a diarylethene charge-transfer complex: photochemical control of intermolecular charge-transfer interaction

Masakazu Morimoto, Seiya Kobatake and Masahiro Irie\*

Photochromic diarylethene 1 formed radical ions upon mixing with  $TCNQF_4$  in organic solvents. The absorption intensity of the radical ions was modulated by photochromic reactions of the diarylethene. This behavior is ascribed to the difference in the electron-donating character between open- and closed-ring isomers of the diarylethene.

## 2659

### Notable norbornene (NBE) incorporation in ethylene–NBE copolymerization catalysed by nonbridged half-titanocenes: better correlation between NBE incorporation and coordination energy

Kotohiro Nomura,\* Wei Wang, Michiya Fujiki and Jingyu Liu

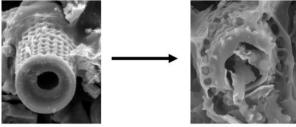
 $CpTiCl_2(N=C'Bu_2)$  exhibited remarkable catalytic activity and efficient norbornene (NBE) incorporation in ethylene–NBE copolymerization; efficient synthesis of high molecular weight polymers with high NBE contents has been achieved.

#### 2662

#### A novel porous carbon based on diatomaceous earth

S. M. Holmes,\* B. E. Graniel-Garcia, P. Foran, P. Hill, E. P. L. Roberts, B. H. Sakakini and J. M. Newton

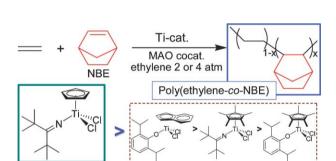
The impregnation of a sucrose solution into the structure of diatomaceous earth followed by carbonisation and dissolution of the silica leads to a novel intricate porous carbon which has potential as a support in a range of catalytic processes.

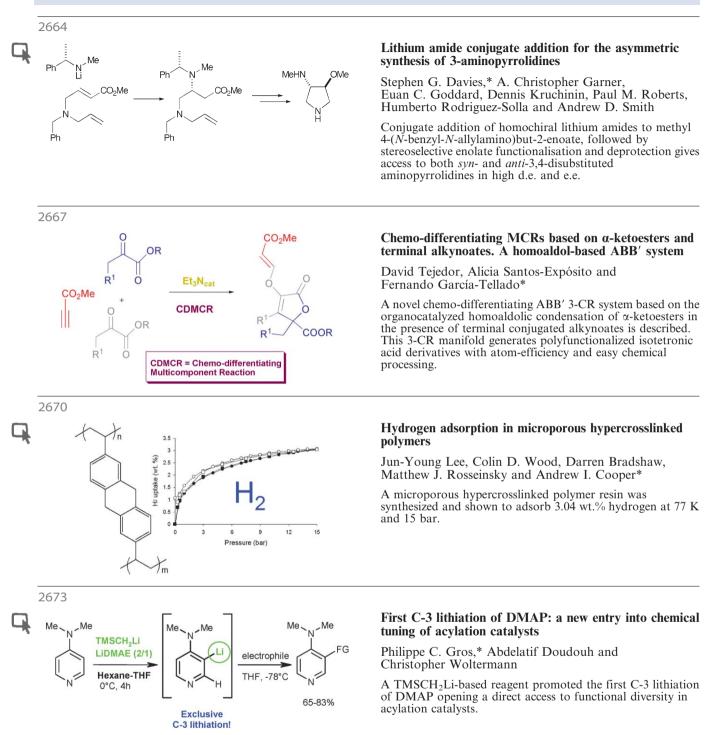


Silica

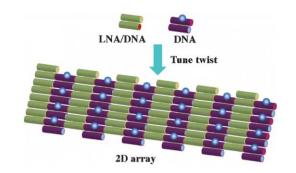
**Carbon negative** 







2675



# Sherri Rinker, Yan Liu and Hao Yan\* The helical repeat of a LNA/DNA hetero-duplex was

helicity of LNA/DNA hybrid duplex

Two-dimensional LNA/DNA arrays: estimating the

measured to be  $13.2 \pm 0.9$  base pairs per turn by incorporating LNA oligos into self-assembled two-dimensional DNA tile arrays.

# 2678

# Sulfur-capped cyclodextrins: a new class of cavitands with extroverted as well as introverted donor functionalities

Belkacem Benmerad, Pascaline Clair, Dominique Armspach,\* Dominique Matt,\* Fadila Balegroune and Loic Toupet

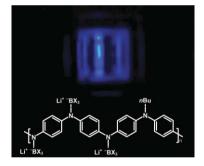
Ansa-cyclodextrins were obtained in high yields by reaction of sodium sulfide with A,B-di- or A,B,D, $\breve{E}$ -tetramesylated  $\alpha$ -CD precursors; the resulting thiocavitands are suitable for forming nanotubular molecules, as well as for hosting metal-organic fragments.

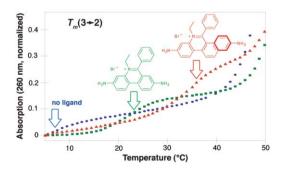
2681

# Blue emitting polyaniline

Debanghsu Chaudhuri and D. D. Sarma\*

A novel functionalization of polyaniline (PANI) leads to materials exhibiting a bright, deep blue photoluminescence. The synthetic strategy provides a general route for functionalizing PANI.



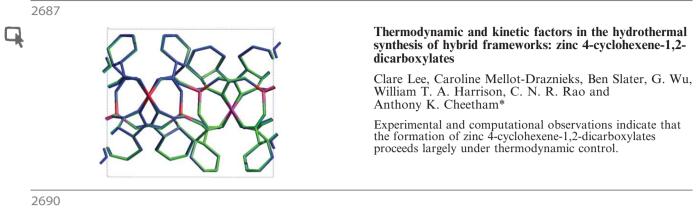


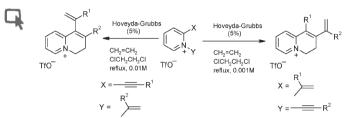
## 2684

# Extended ethidium bromide analogue as a triple helix intercalator: synthesis, photophysical properties and nucleic acids binding

Victor K. Tam, Qi Liu and Yitzhak Tor\*

Ethidium bromide has been extended by fusing an additional aromatic ring resulting in a larger intercalator with increased affinity for poly  $r(A) \cdot r(U)$ , poly  $d(A) \cdot d(T)$  and triple helices when compared to the parent heterocycle.

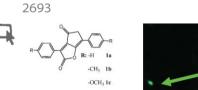


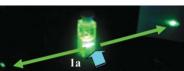


#### Enyne ring-closing metathesis on heteroaromatic cations

Ana Núñez, Ana M. Cuadro,\* Julio Alvarez-Builla and Juan J. Vaquero\*

The first use of cationic heteroaromatic enynes as suitable substrates in enyne ring-closing metathesis is described. The metathesis reaction affords new 1-vinyl- and 2-vinyl-substituted 3,4-dihydroquinolizinium salts, useful precursors for biologically relevant cations.



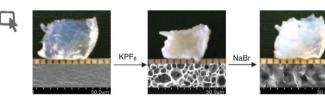


## A new class of laser dyes, 2-oxa-bicyclo[3.3.0]octa-4,8diene-3,6-diones, with unity fluorescence yield

Chao-Yu Wang, Yu-Shan Yeh, Elise Y. Li, Yi-Hong Liu, Shiuh-Ming Peng, Shiuh-Tzung Liu\* and Pi-Tai Chou\*

A new class of dyes, **1a–c**, have been synthesized. **1a–c** all exhibit unity fluorescence quantum yield in common organic solvents and have demonstrated remarkable amplified spontaneous emission with a gain efficiency of > 10.

#### 2696



# Surfactant ionic liquid-based microemulsions for polymerization

Feng Yan and John Texter\*

Surfactants based on imidazolium ionic liquids (ILs), including polymerizable surfactant ILs, have been synthesized and used to stabilize polymerizable microemulsions useful for producing polymeric nanoparticles, gels, and open-cell porous materials that exhibit semireversible poration with counter-ion exchange.

# 2699

# Reactivity of electrophilic μ-phosphinidene complexes with N-heterocyclic carbenes: formation of the first main group element adducts of 'abnormal' carbene ligands

Todd W. Graham, Konstantin A. Udachin and Arthur J. Carty\*

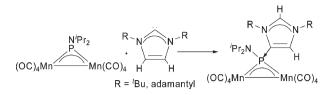
The phosphinidene complexes  $[Mn_2(CO)_8{\mu-P(N'Pr_2)}]$  and  $[Co_2(CO)_4(\mu-dppm){\mu-P(N'Pr_2)}]$  react with N-heterocyclic carbenes 1,3-bis(R)imidazol-2-ylidene (R = <sup>*t*</sup>Bu, adamantyl) to form 'abnormal' carbene adducts, where the carbene is bound to the phosphinidene fragment *via* C-4 instead of the expected C-2.

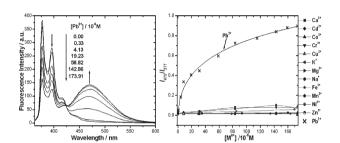
2702

# A tryptophan-containing fluoroionophore sensor with high sensitivity to and selectivity for lead ion in water

Li-Jun Ma, Yi-Fu Liu and Yuqing Wu\*

We report a fluoroionophore sensor, **PLT**, that shows high sensitivity to (detection limit up to 0.15  $\mu$ M) and selectivity for lead ion over Ca<sup>2+</sup>, Cd<sup>2+</sup>, Co<sup>2+</sup>, Cr<sup>3+</sup>, Cu<sup>2+</sup>, K<sup>+</sup>, Mg<sup>2+</sup>, Na<sup>+</sup>, Fe<sup>2+</sup>, Mn<sup>2+</sup>, Ni<sup>2+</sup> and Zn<sup>2+</sup> in aqueous solution.





### 2705

# Switching in molecular shapes: main chain length driven rod-circle transition of isolated helical polysilanes

Akihiro Ohira,\* Sun-Young Kim, Michiya Fujiki,\* Yusuke Kawakami, Masanobu Naito, Giseop Kwak and Anubhav Saxena

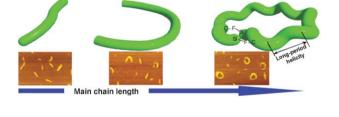
Unique conformations such as rod, semicircle, and circle structures of isolated semi-flexible helical polysilanes were observed by AFM and the chain topologies could be significantly related to the chain length on the surfaces.

2708

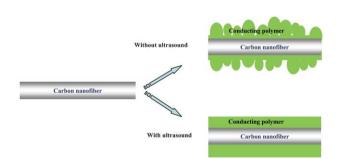
# Highly-regulated nanocoatings of polymer films on carbon nanofibers using ultrasonic irradiation

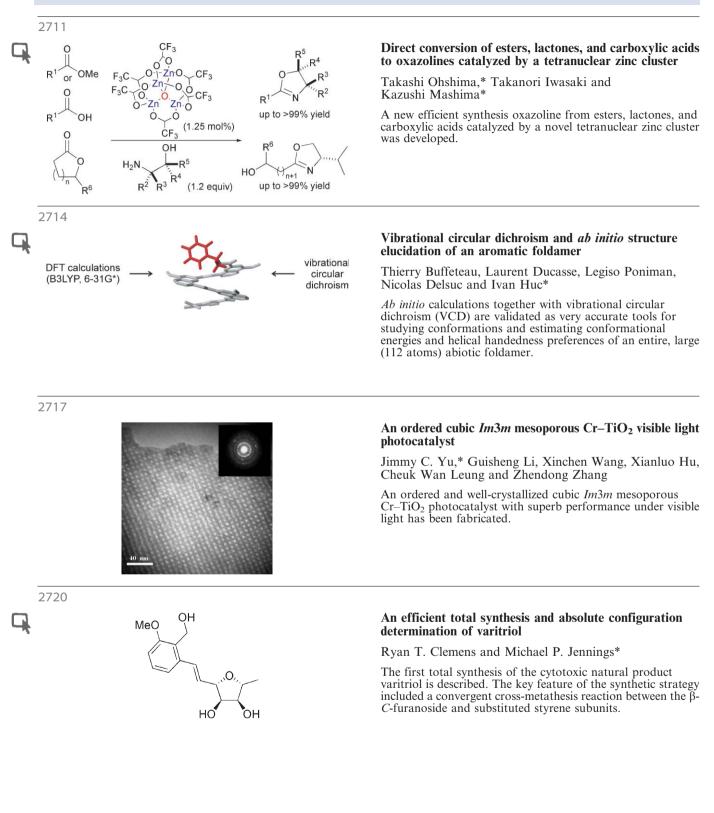
Jong-Eun Park, Miyuki Saikawa, Mahito Atobe\* and Toshio Fuchigami

It was demonstrated that the nanoprecise coating of a uniform and densely packed polymer layer on nanomaterials and the uniform polymer coating of individual nano-objects is possible using ultrasonic effects.



Rod





# 2722

Unusual variations in the incidence of  $Z^\prime>1$  in oxo-anion structures

Kirsty M. Anderson, Andres E. Goeta, Kirsty S. B. Hancock and Jonathan W. Steed

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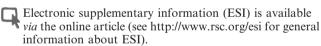
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