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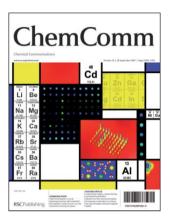
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## IN THIS ISSUE

## ISSN 1359-7345 CODEN CHCOFS (36) 3685-3784 (2007)



Cover Fluorogenic ligands with oligofluorene chromophores were designed to provide turn-on and ratiometric signal optimized for use in fluorescence-based sensor arrays for cations. The luminescence response of the arrays reminds us of Piet Mondrian's compositions. Image reproduced by permission of Manuel A. Palacios, Zhuo Wang, Victor A. Montes, Grigory V. Zyryanov, Bathany J. Hausch, Karolina Jursíková and Pavel Anzenbacher, Jr. from Chem. Commun., 2007, 3708.

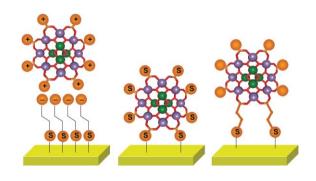
## FEATURE ARTICLE

## 3699

## Advances on the nanostructuration of magnetic molecules on surfaces: the case of single-molecule magnets (SMM)

Jordi Gómez-Segura, Jaume Veciana and Daniel Ruiz-Molina\*

Here we revise all the experimental approximations for single-molecule magnets that have been so far reported for their addressing, nanostructuration and study on surfaces.



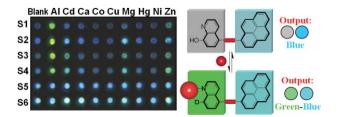
## COMMUNICATIONS

## 3708

## Hydroxyquinolines with extended fluorophores: arrays for turn-on and ratiometric sensing of cations

Manuel A. Palacios, Zhuo Wang, Victor A. Montes, Grigory V. Zyryanov, Bethany J. Hausch, Karolina Jursíková and Pavel Anzenbacher, Jr.\*

8-Hydroxyquinoline-based ligands with extended conjugated fluorophores were designed to provide turn-on and ratiometric signal output optimized for use in fluorescence-based sensor arrays, where the changes in blue and green channels of the RGB signal are used to distinguish between cationic analytes.



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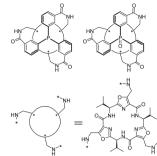
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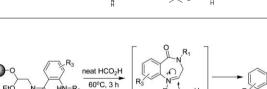
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## 3711





Configurationally stable propeller-like triarylphosphine and triarylphosphine oxide

Aron Pintér, Gebhard Haberhauer,\* Isabella Hyla-Kryspin and Stefan Grimme\*

Configurationally stable, propeller-like triarylphosphine and triarylphosphine oxide can be synthesized; a chiral scaffold based on *Lissoclinum*-cyclopeptides linked *via* three peptide bonds with a triphenylphosphine and triphenylphosphine oxide moiety, respectively, prevents effectively epimerization at the chiral phosphorus atom.

## 3714

## Novel application of Leuckart–Wallach reaction for synthesis of tetrahydro-1,4-benzodiazepin-5-ones library

Sung-Chan Lee and Seung Bum Park\*

A novel and efficient strategy involving the revitalization of the Leuckart–Wallach (LW) reaction has been developed to synthesize privileged tetrahydro-1,4-benzodiazepines with excellent yields and purities. The key synthetic strategy involved sequential intramolecular iminium formation and hydride transfer under an acidolytic cleavage condition.

## 3717

## Binding of an acetonitrile molecule inside the ethereal cavity of a hexaarylbenzene-based receptor *via* a synergy of C-H···O/C-H··· $\pi$ interactions

Ruchi Shukla, Sergey V. Lindeman and Rajendra Rathore\*

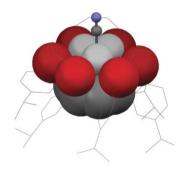
A single molecule of acetonitrile binds to a hexaarylbenzenebased receptor containing a polar ethereal fence and a hydrophobic aromatic bottom *via* a synergy of C–H···O and C–H··· $\pi$  interactions.

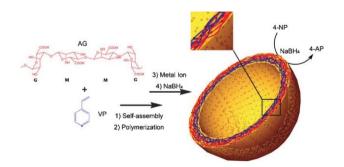
## 3720

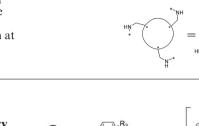
## Template-free method to prepare polymer nanocapsules embedded with noble metal nanoparticles

Yongyi Gao, Xiaobin Ding,\* Zhaohui Zheng, Xu Cheng and Yuxing Peng\*

Polymer nanocapsules embedded with noble metal nanoparticles and showing a good catalytic activity were prepared by a novel and convenient method.







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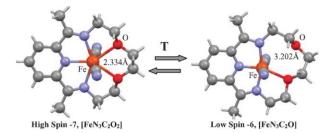
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#### 3723



## A reversible metal-ligand bond break associated to a spin-crossover

Philippe Guionneau,\* Frédéric Le Gac, Abdellah Kaiba, José Sánchez Costa, Daniel Chasseau and Jean-François Létard

The studied iron(II) complex exhibits a thermal induced metalligand bond break associated to a spin crossover that appears non-destructive and fully reversible in the solid state.

## 3726

## A dual near-infrared pH fluorescent probe and its application in imaging of HepG2 cells

Bo Tang,\* Xia Liu, Kehua Xu, Hui Huang, Guiwen Yang and Liguo An

A dual near-infrared pH fluorescent probe has been designed, synthesized, and applied to HepG2 cells, with a  $pK_a$  value of 5.14 under acidic conditions, and 11.31 under basic conditions, which is valuable for studying acidic organelles in living cells and pH changes in chemical systems.

## 3729

## Simple and rapid colorimetric enzyme sensing assays using non-crosslinking gold nanoparticle aggregation

Weian Zhao, William Chiuman, Jeffrey C. F. Lam, Michael A. Brook\* and Yingfu Li\*

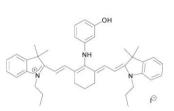
Non-crosslinking gold nanoparticle (AuNP) aggregation induced by the loss (or screen) of surface charges is applied for enzymatic activity sensing and potentially inhibitor screening.

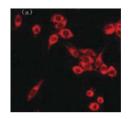
## 3732

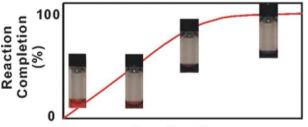
## Threaded structure and blue luminescence of (CuCN)<sub>20</sub>(Piperazine)<sub>7</sub>

Robert D. Pike,\* Kathryn E. deKrafft, Amanda N. Ley and Tristan A. Tronic

The structure of  $(CuCN)_{20}$ (piperazine)<sub>7</sub> consists of two non-identical interpenetrated CuCN-piperazine networks:  $6[(CuCN)_2$ (piperazine)]·[(CuCN)\_8(piperazine)]. It displays intense blue luminescence due to a large Stokes shift.







**Reaction time** 





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## Some top tips so far...

In-line bubble trap for microfluidic devices *David T. Eddington* 

Superior data presentation of poor quality microfluidics images: A simple method to manipulate video images for presentation in print *Richard J. Holmes and Nicholas J. Goddard* 

Richara J. Holmes and Nicholas J. Godaara

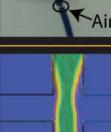
Vacuum filling of microfluidic devices, a simple method to remove bubbles when filling chips *lvar Meyvantsson and David J. Beebe* 

On-chip Electrophoresis Devices: Do's, Don't's and Dooms Alexandre Persat, Tom Zangle, Jonathan Posner and Juan Santiago









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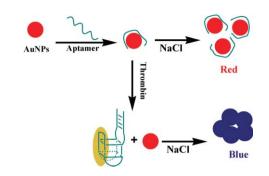
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## COMMUNICATIONS

### 3735



## Simple and sensitive aptamer-based colorimetric sensing of protein using unmodified gold nanoparticle probes

Hui Wei, Bingling Li, Jing Li, Erkang Wang and Shaojun Dong\*

A simple and sensitive aptamer-based colorimetric sensor for protein detection (alpha-thrombin in this work) using unmodified gold nanoparticle probes was developed.

#### 3738

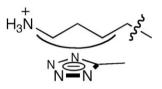
## A shape-dependent hydrophobic effect for tetrazoles

Devin J. Mahnke, Robert McDonald and Fraser Hof\*

A new tetrazole-derived host binds cationic guests in pure water upon undergoing an adaptive shape change that makes the *faces* of the anionic tetrazolate rings the key binding elements. This result points the way toward a new class of hosts that employ tetrazoles as binding elements that are simultaneously anionic and hydrophobic.



host-guest



 $\eta = 5.5\%$ 

drug-protein

#### 3741

#### Phenothiazine derivatives for efficient organic dye-sensitized solar cells

Haining Tian, Xichuan Yang,\* Ruikui Chen, Yuzhen Pan, Lin Li, Anders Hagfeldt\* and Licheng Sun\*

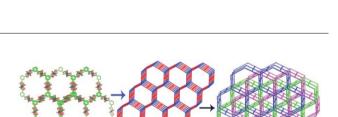
Novel organic dyes based on the phenothiazine (**PTZ**) unit were designed and synthesized for application in dye-sensitized solar cells; a prominent solar energy-to-electricity conversion efficiency ( $\eta$ ) of 5.5% was achieved.



## Unprecedented (3,4)-connected metal-organic frameworks (MOFs) with 3-fold interpenetration and considerable solvent-accessible void space

Feng Luo, Ji-min Zheng\* and Stuart R. Batten

*Via* solvothermal synthesis, the self-assembly of  $CuCl_2$ ,  $H_3BTC$ , and L in DMF generated one novel coordination polymer; the structure of it is the unprecedented (3,4)-connected MOFs with 3-fold interpenetration and considerable solvent-accessible cavities occupied by reversible guest water molecules.



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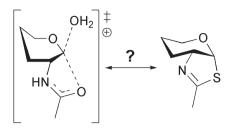
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## COMMUNICATIONS

#### 3747



## Glycosidase inhibitors as conformational transition state analogues

Ian R. Greig\* and Ian H. Williams\*

The behaviour of inhibitors of glycosyl hydrolase family 84 enzymes as conformational transition state analogues is examined using QM/MM MD simulations.

## 3750

### Facile synthesis of silver nano/micro-ribbons or saws assisted by polyoxomolybdate as mediator agent and vanadium(IV) as reducing agent

Catherine Marchal-Roch,\* Cédric R. Mayer, Aude Michel, Eddy Dumas, Feng-Xian Liu and Francis Sécheresse

The use of saturated or lacunary polyoxomolybdate salts in the presence of vanadyl(IV) salts and silver salts leads, in acetonitrile, to the formation of silver nanoribbon and nanosaw bundles in mild conditions.

## 3753

## Encapsulation of titanium(IV) oxide particles in hollow silica for size-selective photocatalytic reactions

Shigeru Ikeda,\* Yoshimitsu Ikoma, Hideyuki Kobayashi, Takashi Harada, Tsukasa Torimoto, Bunsho Ohtani and Michio Matsumura

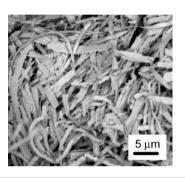
A core-shell composite of titanium(IV) oxide (TiO<sub>2</sub>) particles encapsulated in hollow silica shells was fabricated, and the core-shell composite showed size-selective photocatalytic activity for decomposition of organics without reducing the intrinsic activity of the naked TiO<sub>2</sub> core.

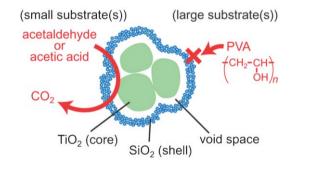
## 3756

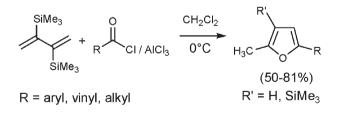
### A novel cyclization reaction between 2,3-bis(trimethylsilyl)buta-1,3-diene and acyl chlorides with straightforward formation of polysubstituted furans

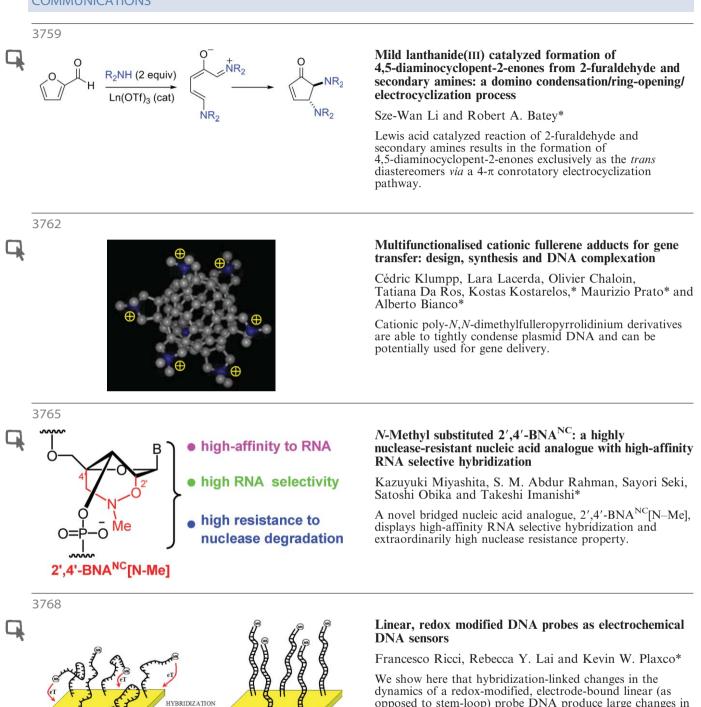
Francesco Babudri, Stefania R. Cicco, Gianluca M. Farinola, Linda C. Lopez, Francesco Naso\* and Vita Pinto

A novel cyclization process of 2,3-bis(trimethylsilyl)buta-1,3diene with various acyl chlorides in the presence of aluminium trichloride affords 2,5-disubstituted or 2,3,5-trisubstituted furans in short reaction time.









opposed to stem-loop) probe DNA produce large changes in the Faradaic current, allowing for the ready detection of target oligonucleotides.

## 3771

#### Highly recoverable pyridinium-tagged Hoveyda–Grubbs pre-catalyst for olefin metathesis. Design of the boomerang ligand toward the optimal compromise between activity and reusability

Diane Rix, Fréderic Caïjo, Isabelle Laurent, Lukasz Gulajski, Karol Grela\* and Marc Mauduit\*

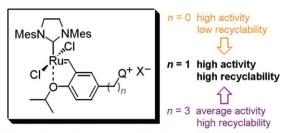
Optimum balance between the activity of the catalyst and its recoverability combined with low ruthenium contaminations in the product (0.08 ppm) has been reached with a new ionic-tagged Hoveyda–Grubbs pre-catalyst.

## 3774

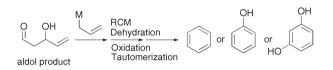
#### Efficient synthetic routes to aromatic compounds using ring-closing olefin metathesis followed by dehydration, oxidation, and tautomerization

Kazuhiro Yoshida,\* Takeharu Toyoshima and Tsuneo Imamoto\*

A simple synthetic approach to aromatic compounds using combinations of RCM, dehydration, oxidation, and tautomerization is described.



Tagged catalysts for applications in traditional and aqueous solvents and in RTILs



## 3777

## Surface modification of gold nanorods with synthetic cationic lipids

Yasuro Niidome,\* Kanako Honda, Keisuke Higashimoto, Hirofumi Kawazumi, Sunao Yamada, Naotoshi Nakashima, Yoshihiro Sasaki, Yoshihiko Ishida and Jun-ichi Kikuchi\*

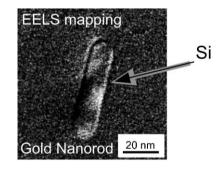
Gold nanorods passivated with cationic cerasome-forming lipids.

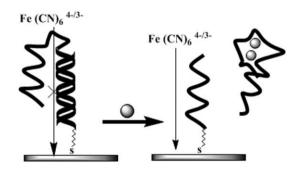
## 3780

## Reusable, label-free electrochemical aptasensor for sensitive detection of small molecules

Bingling Li, Yan Du, Hui Wei and Shaojun Dong\*

A sensitive impedietric aptasensor for adenosine is developed, which gives not only a label-free but also a reusable platform to make the detection of small molecules simple and convenient.





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