

## IN THIS ISSUE

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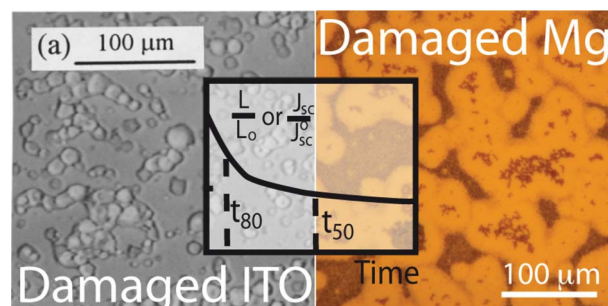
## REVIEWS

6188

### Interfacial degradation in organic optoelectronics

Ayşe Turak\*

This article reviews the current state of the art with regards to interfacial stability and control of electrode/active layer interfaces to understand the performance of organic optoelectronic devices. Mechanisms of degradation, techniques to prevent and control it, and novel ways of using it advantageously are discussed.

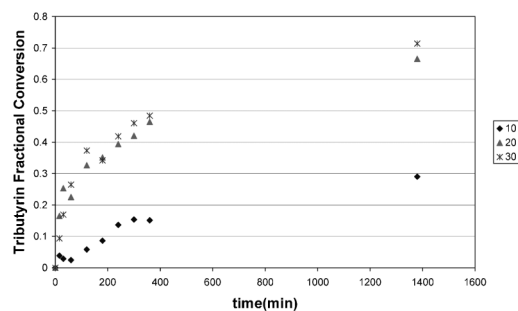


6226

### Multiscale modelling of heterogeneously catalysed transesterification reaction process: an overview

Thomas J. Davison, Chinedu Okoli, Karen Wilson, Adam F. Lee, Adam Harvey, Julia Woodford and Jhuma Sadhukhan\*

Genetic Algorithm (GA) and Monte Carlo (MC) simulation based computational framework for optimal catalyst design.



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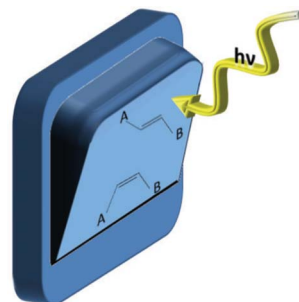
## REVIEWS

6241

***E/Z* Photochemical switches: syntheses, properties and applications**

Cristina García-Iriepa, Marco Marazzi, Luis Manuel Frutos\* and Diego Sampedro\*

By UV-visible irradiation, molecular switches can be interconverted between *E* and *Z* conformers: well established and emerging scenarios are presented.



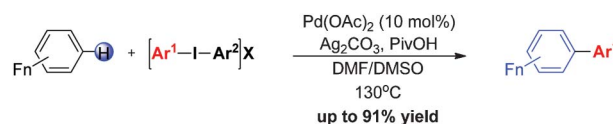
## COMMUNICATIONS

6267

**Direct C-arylation of polyfluoroarenes with diaryliodonium salts via Pd(OAc)<sub>2</sub>-catalysis**

Fenglou Guo, Jianwei Han,\* Song Mao, Juan Li, Xu Geng, Jianjun Yu and Limin Wang\*

A novel approach towards the Pd-catalyzed arylation of electron-deficient polyfluoroarenes with diaryliodonium salts was developed.

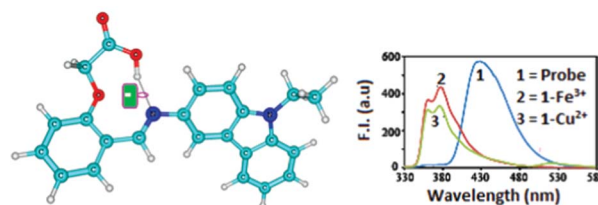


6271

**Carboxylated 'locking unit' directed ratiometric probe design, synthesis and application in selective recognition of Fe<sup>3+</sup>/Cu<sup>2+</sup>**

Sougata Sinha, Sunil Kumar, Rik Rani Koner, Jomon Mathew, Chayan K. Nandi\* and Subrata Ghosh\*

A ratiometric probe has been designed and synthesized through the introduction of a carboxylated functionality, and ultimately applied for the selective recognition of Fe<sup>3+</sup>/Cu<sup>2+</sup>.

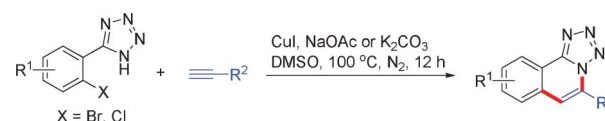


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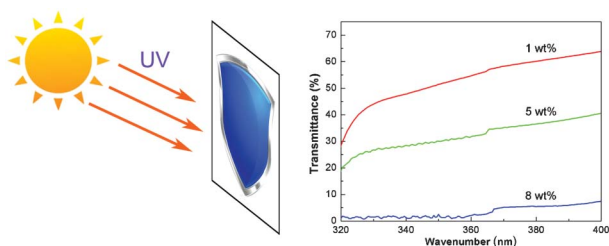
**Efficient copper-catalyzed domino synthesis of tetrazoloisoquinolines**

Liangliang Shi, Ruji Wang, Haijun Yang, Yuyang Jiang and Hua Fu\*

A novel and efficient copper-catalyzed method for the synthesis of tetrazolo[5,1-*a*]isoquinolines has been developed. The domino reactions underwent sequential copper-catalyzed Sonogashira cross-coupling and intramolecular addition of the NH from a tetrazole group to an internal alkyne.



6282

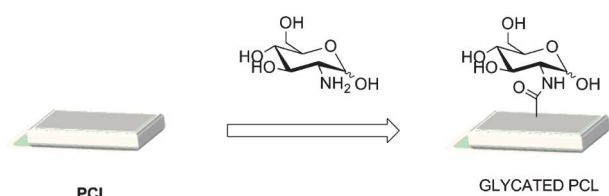


### Poly(ethylene terephthalate) nanocomposites with a strong UV-shielding function using UV-absorber intercalated layered double hydroxides

Tianchi Cao, Kongli Xu, Guangming Chen\* and Cun-yue Guo\*

A novel strategy is developed to prepare poly(ethylene terephthalate) nanocomposites with a strong UV-shielding function.

6286

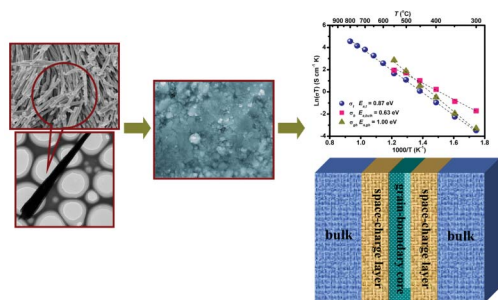


### Glucosamine grafting on poly( $\epsilon$ -caprolactone): a novel glycated polyester as a substrate for tissue engineering

Laura Russo, Antonio Gloria, Teresa Russo, Ugo D'Amora, Francesca Taraballi, Roberto De Santis, Luigi Ambrosio, Francesco Nicotra and Laura Cipolla\*

Sugar-grafted PCL *via* a one-step reaction with glucosamine: merging materials and carbohydrates.

6290

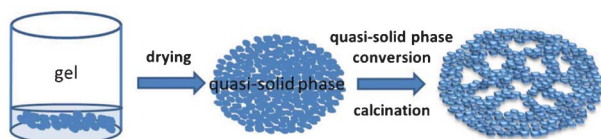


### Neodymium-doped ceria nanomaterials: facile low-temperature synthesis and excellent electrical properties for IT-SOFCs

Fuchang Meng, Nan Lin, Tian Xia,\* Jingping Wang, Zhan Shi, Jie Lian, Qiang Li, Hui Zhao and Fangwei Ma

The synthesis of neodymium-doped ceria nanostructures which act as a potential electrolyte or composite anode for intermediate temperature solid oxide fuel cells is described.

6295



### Direct synthesis of hierarchical zeolites with oriented nanocrystals without adding extra templates

Xuan Wang, Yingxia Li,\* Can Luo, Jia Liu and Biaohua Chen

Hierarchical zeolites formed by the aggregation of uniformly oriented nanocrystals are directly synthesized using a quasi-solid phase method without adding extra templates.

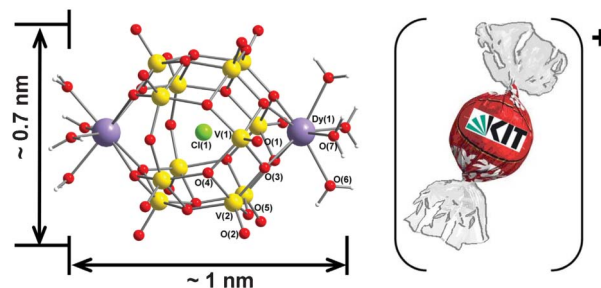
## COMMUNICATIONS

6299

### Tetradecanuclear lanthanide-vanadium "nanochocolates": catalytically-active cationic heteropolyoxovanadium clusters

Mária Šimuneková, Denis Prodius,\* Valeriu Mereacre, Peter Schwendt, Constantin Turta, Marco Bettinelli, Adolfo Speghini, Yanhua Lan, Christopher E. Anson and Annie K. Powell\*

The synthesis, structures, magnetic and catalytic properties of unprecedented cationic lanthanide-containing heteropolyoxovanadium clusters are reported.

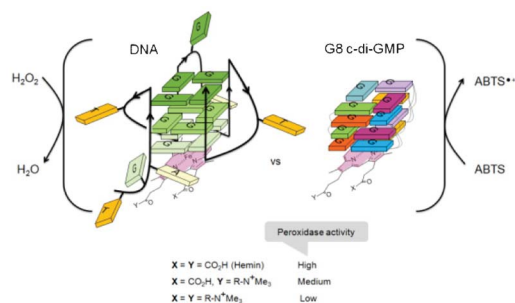


6305

### Octameric G8 c-di-GMP is an efficient peroxidase and this suggests that an open G-tetrad site can effectively enhance hemin peroxidation reactions

Benjamin T. Roembke, Jingxin Wang, Shizuka Nakayama, Jie Zhou and Herman O. Sintim\*

"Loopless" G8 c-di-GMP G-quadruplex, a small molecule mimic of parallel G-quadruplex, is as good a peroxidase catalyst as traditional DNA quadruplexes.

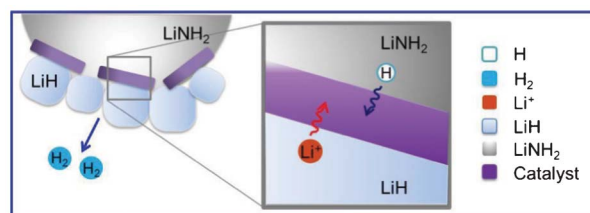


6311

### A solid-solid reaction enhanced by an inhomogeneous catalyst in the (de)hydrogenation of a lithium-hydrogen-nitrogen system

Tengfei Zhang,\* Shigehito Isobe, Yongming Wang, Naoyuki Hashimoto and Somei Ohnuki

H was combined and released at the  $\text{LiNH}_2$ -LiH interface. The catalyst improves  $\text{Li}^+$  ion migration from LiH to  $\text{LiNH}_2$  without high energy barriers.

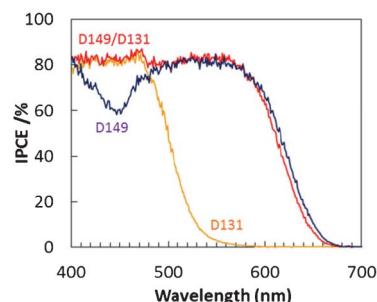


6315

### Enhancement of photovoltaic performances in dye-sensitized solar cells by co-sensitization with metal-free organic dyes

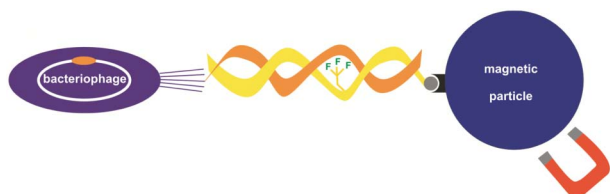
Constance Magne, Mathieu Urien and Thierry Pauporté\*

A one-step dye cocktail strategy is proposed for the efficient sensitization of a ZnO photoelectrode in dye-sensitized solar cells using two complementary indoline metal-free organic dyes. The roles of the co-adsorbents are investigated and the cells are shown to be highly stable upon aging.





6319

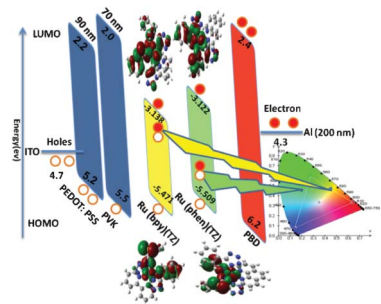


### Accommodating fluorinated amino acids in a helical peptide environment

Elisabeth K. Nyakatura, Oliver Reimann, Toni Vagt, Mario Salwiczek and Beate Kokschi\*

Phage display is used to discover fluorophilic environments within hydrophobic protein surroundings.

6323

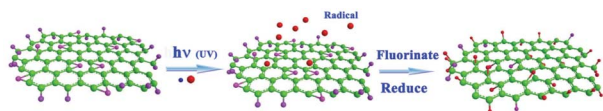


### Unusual electroluminescence in ruthenium(II) tetrazole complexes

Hashem Shahroosvand,\* Leyla Najafi, Ezeddin Mohajerani, Mohammad Janghouri and Mahmoud Nasrollahzadeh

New ruthenium tetrazol-5-yl (Tz) complexes with 1,10 phenanthroline (phen) and 2,2 bipyridine (bpy) as auxiliary ligands have been synthesized and characterized.

6327

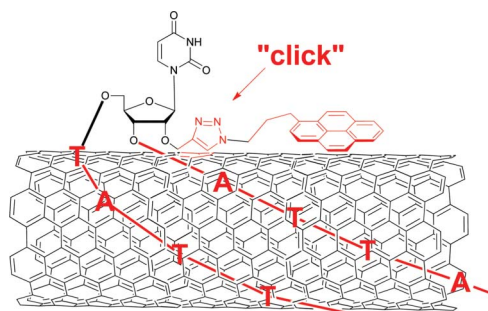


### Photochemical synthesis of fluorinated graphene via a simultaneous fluorination and reduction route

Peiwei Gong, Zhaofeng Wang, Zhangpeng Li, Yongjuan Mi, Jinfeng Sun, Lengyuan Niu, Honggang Wang, Jinqing Wang\* and Shengrong Yang

A novel photochemical approach has been realized to synthesize fluorinated graphene via a simultaneous fluorination and reduction route.

6331



### A simple pyrene "click"-type modification of DNA affects solubilisation and photoluminescence of single-walled carbon nanotubes

Wolfgang Schmucker, Stefanie Klumpp, Frank Hennrich, Manfred Kappes and Hans-Achim Wagenknecht\*

Pyrene chromophores attached to the 2'-position of short oligonucleotides affect the solubilisation of as-prepared single walled carbon nanotube solids when sonicated in an aqueous buffer solution.

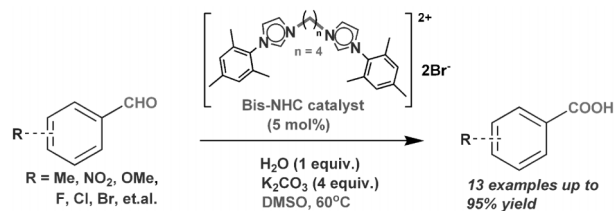
## COMMUNICATIONS

6334

### Abnormal bis-NHC mediated aerial oxidation of arylaldehydes: highly efficient transformation of arylaldehydes to the corresponding carboxylic acids catalyzed by organic catalysts

Wei Yang, Gao-Zhang Gou, Yi Wang\* and Wen-Fu Fu\*

A convenient and highly efficient reaction catalyzed by bis-NHC complexes was discovered for the oxidation of arylaldehydes to the corresponding carboxylic acids.

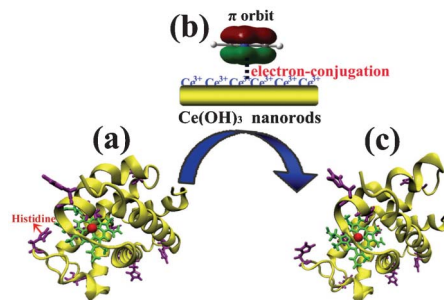


6339

### Strong electron-conjugation interaction facilitates electron transfer of hemoglobin by $Ce(OH)_3$ nanorods

Lei Wang, Qingfen Luan, Dan Yang, Xin Yao and Kebin Zhou\*

$Ce(OH)_3$  NRs conjugated with the aromatic residues in Hb resulted in the preferred stabilization of Hb-Fe( $\alpha$ ).



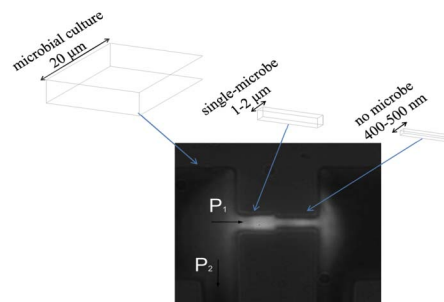
## PAPERS

6343

### Single microbe trap and release in sub-microfluidics

Andreas E. Vasdekis\*

A sub-micron resolution microfluidic system (sub-microfluidics) capable of trapping and releasing single *Escherichia coli* bacteria is presented.



6347

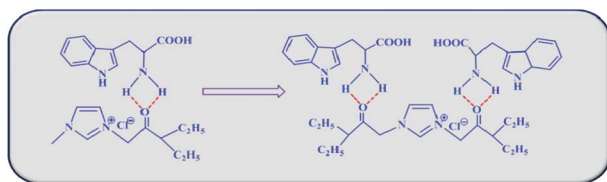
### Liquid crystal stepwise electropolymerization – an approach to create insect photonic structure

Hiromasa Goto\*

A stepwise polymerization enables production of triple-layer films consisting of [cholesteric LC order]–[nematic LC order]–[cholesteric LC order] films similar to the exoskeleton of insect photonic structure.



6356

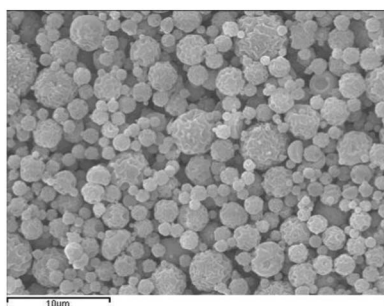


### Aqueous two phase extraction process of tryptophan based on functionalized ionic liquids

Changping Li,\* Zhuo Li, Ailing Wang, Jingmei Yin,\* Jian Wang, Huaxi Li and Qingshan Liu

Smart design, synthesis and applications of new functionalized ionic liquids in extraction process with high partition coefficients.

6362

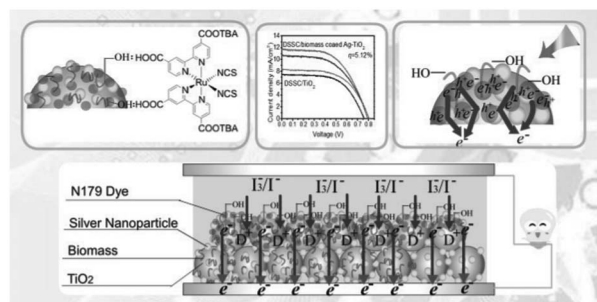


### Chitosan microparticles for "in vitro" 3D culture of human chondrocytes

N. García-Giralt, D. M. García Cruz, X. Nogues, J. L. Escobar Ivirico\* and J. L. Gómez Ribelles

Chondrocytes are frequently cultured embedded in gels that provide them with a three-dimensional environment.

6369

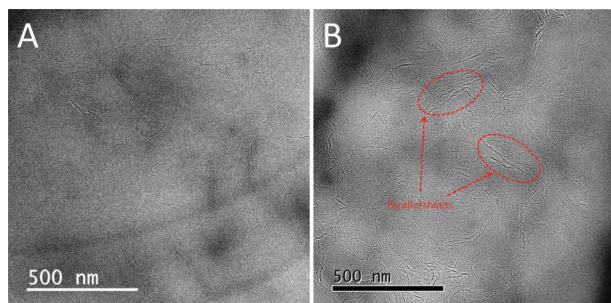


### A novel biomass coated Ag-TiO<sub>2</sub> composite as a photoanode for enhanced photocurrent in dye-sensitized solar cells

Zhongbiao Tian, Liqing Wang, Lishan Jia,\* Qingbiao Li, Qianqian Song, Shuai Su and Hui Yang

A novel biomass-coated Ag nanoparticle-modified TiO<sub>2</sub> composite is prepared and used as a photoanode to boost the conversion efficiency of DSSCs.

6377



### Polydopamine-coated graphene as multifunctional nanofillers in polyurethane

Liping Yang, Si Lei Phua, Cher Ling Toh, Liying Zhang, Han Ling, Mengchee Chang, Dan Zhou, Yuliang Dong and Xuehong Lu\*

Polyurethane nanocomposites incorporated with polydopamine-coated graphene sheets were fabricated by solution blending.



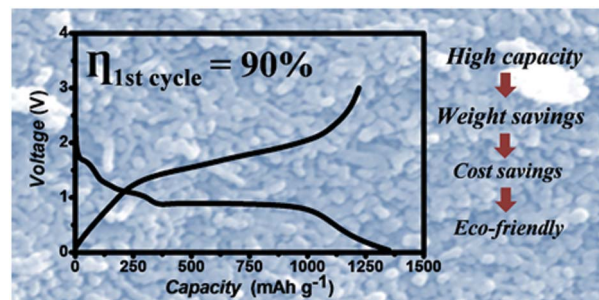
## PAPERS

6386

### Developing a light weight lithium ion battery – an effective material and electrode design for high performance conversion anodes

Srirama Hariharan, Vishwanathan Ramar, Shailendra P. Joshi and Palani Balaya\*

A high first cycle coulombic efficiency of 90% is achieved for the first time for lithium storage in  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> using conversion reaction.

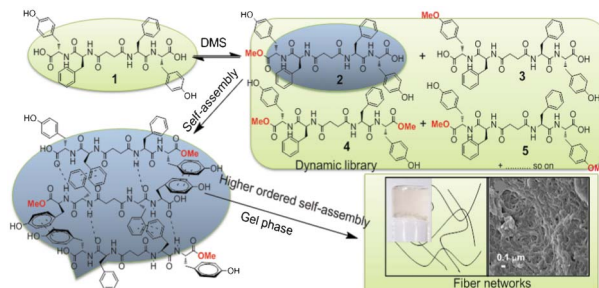


6395

### Exploiting a self-assembly driven dynamic nanostructured library

Indrajit Maity, Dnyaneshwar B. Rasale and Apurba K. Das\*

A self-assembly driven dynamic peptide-based library facilitates the formation of a predominant product in a gel phase medium. The resultant product self-assembles into well-defined  $\beta$ -sheets, resulting in hierarchical nanofibrils.

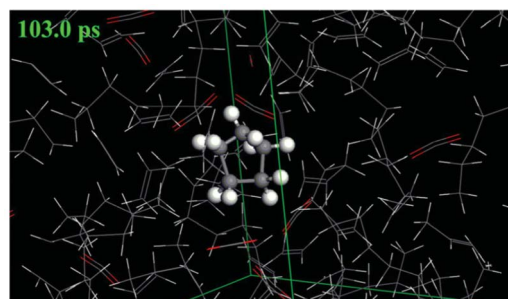


6401

### ReaxFF molecular dynamics simulations of non-catalytic pyrolysis of triglyceride at high temperatures

Zhiqiang Zhang,\* Kefeng Yan and Jilong Zhang

The formation of cyclopentane was supposed to be *via* intramolecular cyclization of linear alkane biradical.

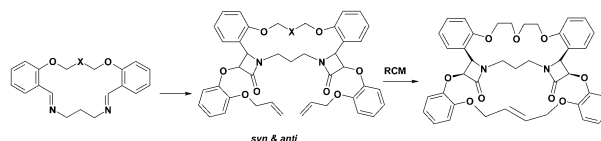


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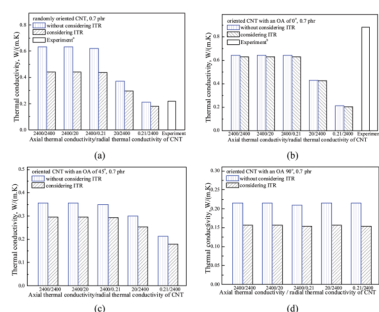
### Sequential Staudinger ketene–imine cycloaddition, RCM approach to polycyclic macrocyclic bisazetidinones

Yehia A. Ibrahim,\* Nouria A. Al-Awadi, Talal F. Al-Azemi, Susan Abraham and Elizabeth John

An efficient approach to novel macrocyclic azacrown ethers incorporating two azetidinone rings fused to the macrocycle through the 3,4-positions of the azetidinone rings and two macrocycles fused at 1,3,4-positions of two azetidinone rings was achieved.



6417

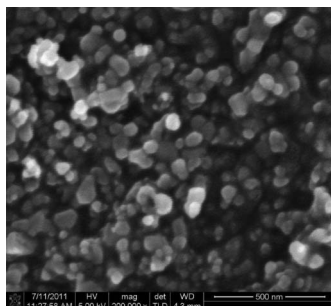


### Thermal conductivity of micro/nano filler filled polymeric composites

Zhiguo Li,\* Wenjing Wu, Hong Chen, Zhenhua Zhu, Youshan Wang and Yong Zhang

The thermal conductivity anisotropy (TCA) of carbon nanotubes (CNTs) with a small orientation angle (OA) strongly affects the thermal conductivity of emulsion-polymerized styrene–butadiene rubber (ESBR) composites.

6429

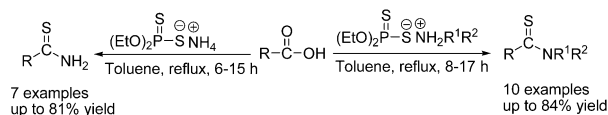


### Rheological properties of diethylene glycol-based MgAl<sub>2</sub>O<sub>4</sub> nanofluids

Gaweł Żyła,\* Marian Cholewa and Adam Witek

Nanofluids (suspensions of nanoparticles in liquids) have been studied very intensively because they may find many applications in many fields including science, industry and medicine.

6435

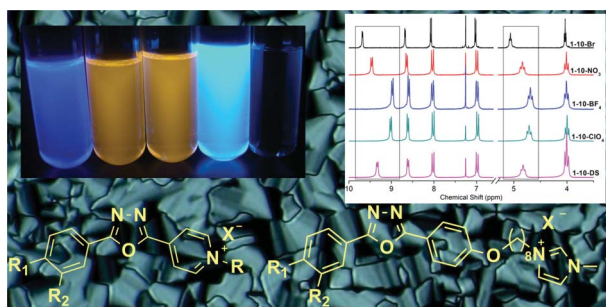


### A simple and novel method for the direct conversion of carboxylic acids into thioamides

Babak Kaboudin,\* Vahid Yarahmadi, Jun-ya Kato and Tsutomu Yokomatsu

A simple, efficient, practical and direct method for the conversion of carboxylic acids into thioamides has been developed.

6442



### Pyridinium and imidazolium 1,3,4-oxadiazole ionic liquid crystals: a thermal and photophysical systematic investigation

Eduard Westphal, Danilo Henrique da Silva, Fernando Molin and Hugo Gallardo\*

Twenty five 1,3,4-oxadiazole molecules (ionic and non-ionic) were synthesized and their thermal and photophysical properties were investigated and compared.

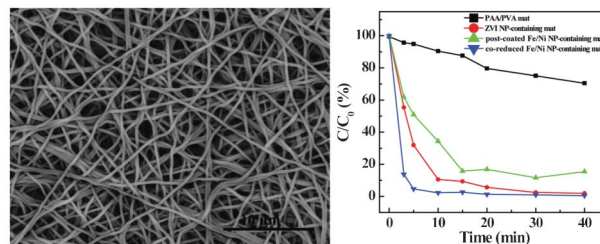
## PAPERS

6455

### Enhanced decoloration efficacy of electrospun polymer nanofibers immobilized with Fe/Ni bimetallic nanoparticles

Hui Ma, Yunpeng Huang, Mingwu Shen,\* Dengmai Hu, Hong Yang, Meifang Zhu, Shiping Yang and Xiangyang Shi\*

Crosslinked polyacrylic acid/polyvinyl alcohol nanofibers can be used as nanoreactors to generate bimetallic Fe/Ni nanoparticles with enhanced decoloration efficacy.

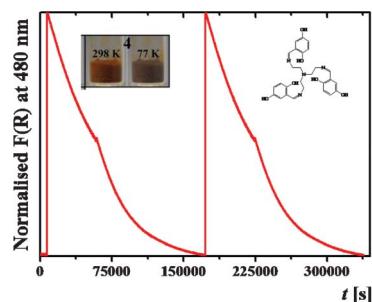


6466

### First evidence of thermo- and two-step photochromism of tris-anils

Damir A. Safin and Yann Garcia\*

Seven thermochromic *N,N',N''*-tris(salicylidene)triamines have been synthesized and fully characterized. One of them exclusively displays photochromism with an unusual two-step back thermal relaxation.

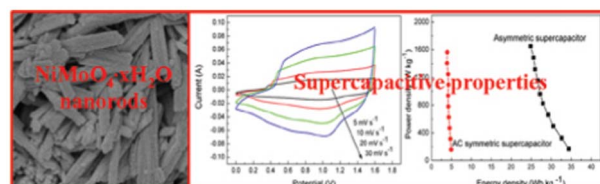


6472

### Facile synthesis of NiMoO₄·xH₂O nanorods as a positive electrode material for supercapacitors

Mao-Cheng Liu, Long Kang,\* Ling-Bin Kong,\* Chao Lu, Xue-Jing Ma, Xiao-Ming Li and Yong-Chun Luo

One-dimensional NiMoO₄·xH₂O nanorods which exhibit excellent electrochemical behavior are synthesized as a promising positive electrode material for supercapacitors.

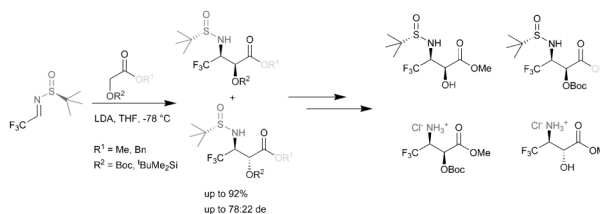


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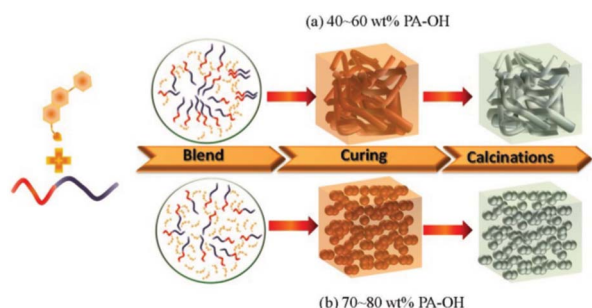
### New asymmetric approach to β-trifluoromethyl isoserines

Michael V. Shevchuk, Valery P. Kukhar, Gerd-Volker Röschenenthaler, Bassem S. Bassil, Kosuke Kawada, Vadim A. Soloshonok and Alexander E. Sorochinsky\*

Enantiopure β-trifluoromethyl isoserines of (2*S*,3*S*)- and (2*R*,3*S*)-absolute configurations have been prepared by addition of the enolates, derived from α-hydroxyacetates, to (5)-*N*-*tert*-butanesulfinyl (3,3,3)-trifluoroacetaldehyde with good combined yield and *syn/anti* stereoselectivity.



6485

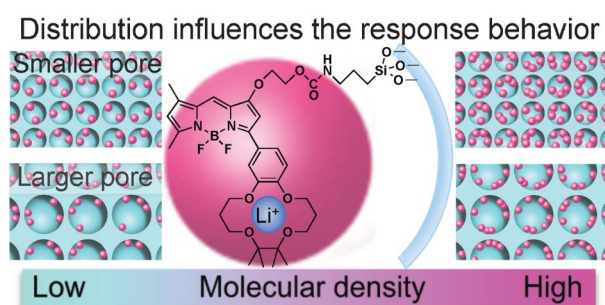


### From flexible to mesoporous polybenzoxazine resins templated by poly(ethylene oxide-*b*- $\epsilon$ -caprolactone) copolymer through reaction induced microphase separation mechanism

Wei-Cheng Chu, Jheng-Guang Li and Shiao-Wei Kuo\*

Blending the PEO-*b*-PCL diblock copolymer with PA-OH through thermal curing resulted in the block copolymer being incorporated into the polybenzoxazine resin, forming regular nanostructures through a mechanism involving reaction-induced microphase separation.

6499

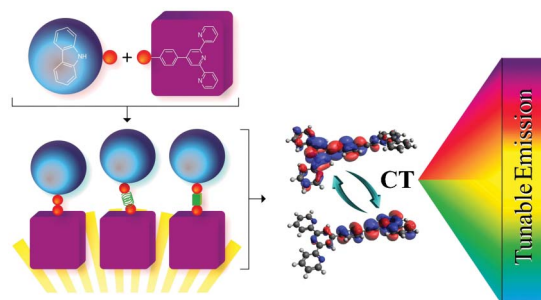


### Li<sup>+</sup>-selective optodes – effect of fluoroionophore distribution in mesoporous silica thin films on Li<sup>+</sup> response

Yuki Hiruta, Chikai Sato, Youhei Takahashi, Kei Kubobuchi, Yushi Shichi, Daniel Citterio and Koji Suzuki\*

This paper describes the development and the characterization of a Li<sup>+</sup> optical sensor (optode) based on a Li<sup>+</sup> selective fluoroionophore (KBL-01-Si), immobilized to a mesoporous silica thin film.

6507

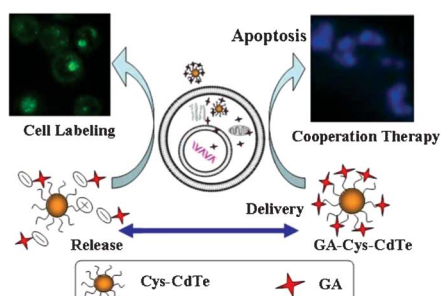


### Carbazole-terpyridine donor-acceptor luminophores

Andrea Baschieri, Letizia Sambri,\* Isacco Gualandi, Domenica Tonelli,\* Filippo Monti, Alessandra Degli Esposti and Nicola Armaroli\*

By juxtaposing carbazole and terpyridine units, characterized by complementary electron donor-acceptor properties, versatile and highly tuneable luminophores that emit all across the visible spectral region are obtained.

6518



### Multifunctional effects of Cys-CdTe QDs conjugated with gambogic acid for cancer cell tracing and inhibition

Jingyuan Li, Changyu Wu, Peipei Xu, Lixin Shi, Baoan Chen, Matthias Selke, Hui Jiang and Xuemei Wang\*

The fluorescent nanocomposites of Cys-CdTe QDs conjugated with gambogic acid afford a novel strategy for cancer cell tracing and inhibition.

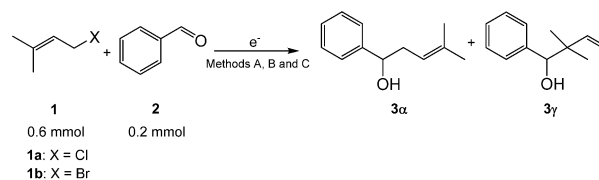


6526

### Inversion of regioselectivity in the electrochemical prenylation of benzaldehyde on a graphite powder cathode

Ronny F. M. de Souza, Madalena C. C. Areias, Lothar W. Bieber and Marcelo Navarro\*

A green electrochemical heterocoupling procedure has been developed for the prenylation of benzaldehyde on a graphite powder cathode, producing high  $\alpha$ - or  $\gamma$ -regioselectivity.

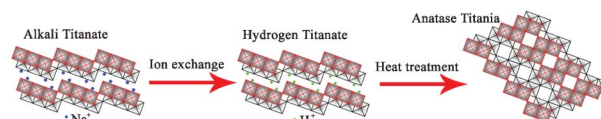


6531

### Topotactic conversion route to ultrafine crystalline TiO<sub>2</sub> nanotubes with optimizable electrochemical performance

Weilong Liu, Peng Gao,\* Di Bao, Guoli Zhang, Yujin Chen,\* Guorui Chen, Ying Wang, Longqiang Wang, Shaoqiang Yang, Guobao Li\* and Yuzeng Sun

TiO<sub>2</sub> nanotubes were synthesized *via* a topotactic chemical transformation from H<sub>2</sub>Ti<sub>3</sub>O<sub>7</sub> nanotubes, which exhibited superior performance in Li battery.

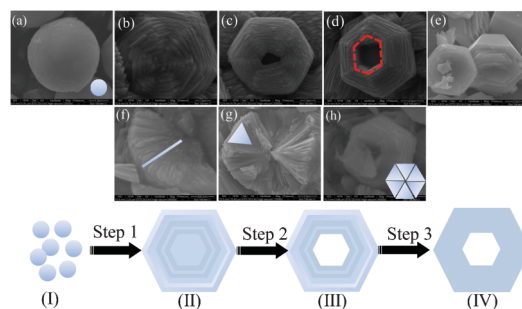


6538

### Aggregation-induced growth of hexagonal ZnO hierarchical mesocrystals with interior space: nonaqueous synthesis, growth mechanism, and optical properties

Hequan Wang,\* Ling Xin, Hai Wang,\* Xiao Yu, Yong Liu,\* Xiang Zhou and Baojun Li

Hexagonal ZnO hierarchical mesocrystals with interior space were prepared directly on a FTO substrate *via* a simple, mild, nonaqueous method that only involves the reaction of zinc acetate hydrate in the presence of isopropylamine.

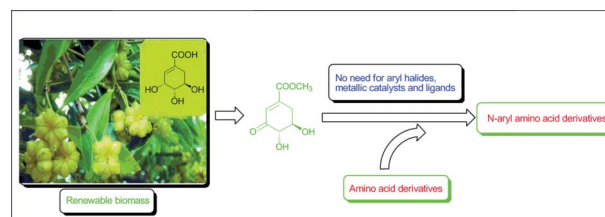


6545

### Facile and efficient N-arylation of amino acid esters with (–)-methyl-3-dehydroshikimate(3-MDHS): a bio-based and metal-free strategy leading to N-aryl amino acid derivatives

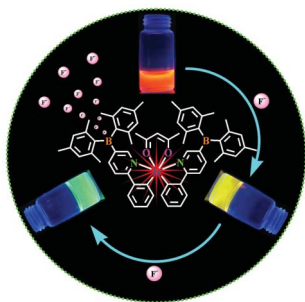
Yong Zou,\* Ensheng Zhang, Tianlong Xu, Wei Wu, Yu Chen, Mu Yuan, Wen Wei and Xuejing Zhang

A green and efficient protocol for the N-arylation of a wide range of amino acid derivatives using the biomass derived platform compound 3-MDHS under mild conditions has been developed.





6553

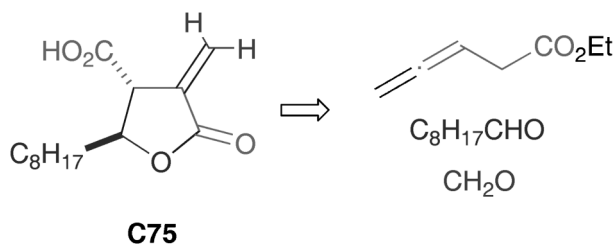


### Dynamic dual stage phosphorescence chromatic change in a diborylated iridium phosphor for fluoride ion sensing with concentration discriminating capability

Xiaolong Yang, Zuan Huang, Cheuk-Lam Ho, Guijiang Zhou,\* Dong Ryeol Whang, Chunliang Yao, Xianbin Xu, Soo Young Park,\* Chung-Hin Chui and Wai-Yeung Wong\*

A novel dynamic dual stage phosphorescence chromatic change is realized in a diborylated iridium complex by Lewis acid–base interaction between boron atom and F<sup>−</sup> ion.

6564

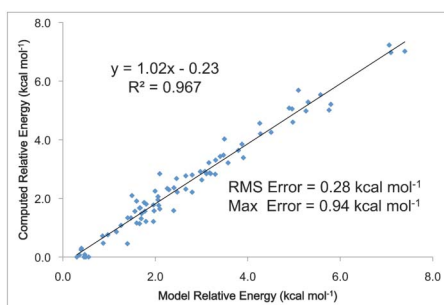


### Convenient synthesis of C75, an inhibitor of FAS and CPT1

Carolina Sánchez, Kamil Makowski, Paula Mera, Jaume Farràs, Ernesto Nicolás, Laura Herrero, Guillermina Asins, Dolors Serra, Fausto G. Hegardt, Xavier Ariza\* and Jordi Garcia\*

A new approach to the enzyme inhibitor C75 and its temporary transformation into a phenyl selenoether derivative is disclosed. This procedure facilitates the purification, manipulation and storage of C75.

6572

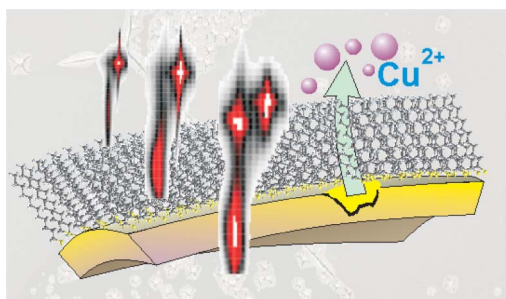


### Easy chairs: the conformational preferences of polyfluorocyclohexanes

Qiong Luo, Katherine R. Randall and Henry F. Schaefer\*

Polyfluorocyclohexanes present an interesting challenge to our current understanding of fundamental organic chemistry. Species with up to six fluorine substituents have been examined using reliable computational methods. We present a simplified model for predicting the conformational energies of polyfluorocyclohexanes, to aid in developing accurate force fields and in drug design.

6586



### Effect of thiol self-assembled monolayers and plasma polymer films on dealloying of Cu–Au alloys

A. Pareek, G. N. Ankah, S. Cherevko, P. Ebbinghaus, K. J. J. Mayrhofer, A. Erbe and F. U. Renner\*

Inhibition by thiol self-assembled monolayers on Cu–Au alloys leads to a localized dealloying mechanism forming nanoporous micro-cracks.

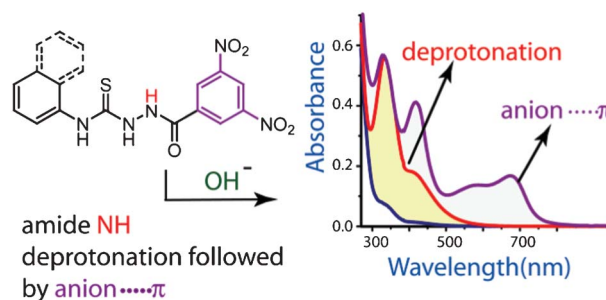
## PAPERS

6596

### Amidothiourea based colorimetric receptors for basic anions: evidence of anion induced deprotonation of amide –NH proton and hydroxide induced anion $\cdots\pi$ interaction with the deprotonated receptors

Arghya Basu, Sandeep Kumar Dey and Gopal Das\*

Amidothiourea based receptors recognize basic anions *via* deprotonation of an amide N–H and anion $\cdots\pi$  interaction in both organic and aqueous-organic environments.

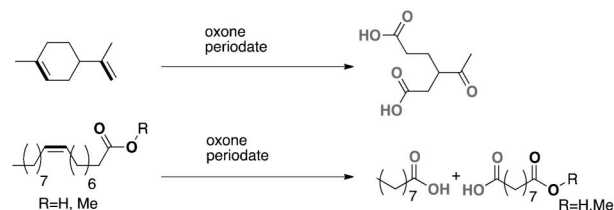


6606

### A metal-free, one-pot method for the oxidative cleavage of internal aliphatic alkenes into carboxylic acids

Peter Spanning, Pieter C. A. Bruijninx, Bert. M. Weckhuysen and Robertus J. M. Klein Gebbink\*

Oxidative cleavage of internal aliphatic double bonds is accomplished by a combination of oxone and sodium periodate in aqueous acetonitrile. Fatty acids and terpenes cleanly give the corresponding mono- and diacids.

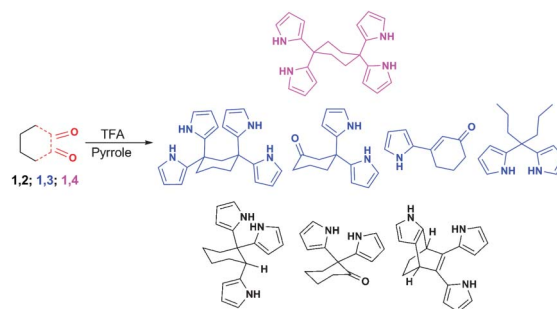


6614

### Condensation of cyclohexanediones with pyrrole under acidic conditions: unusual products and interesting structural features

Sanjeev P. Mahanta and Pradeepta K. Panda\*

Reaction of the three isomers of cyclohexanediones (1,2-, 1,3- and 1,4-diones) with pyrrole under acidic conditions are explored.

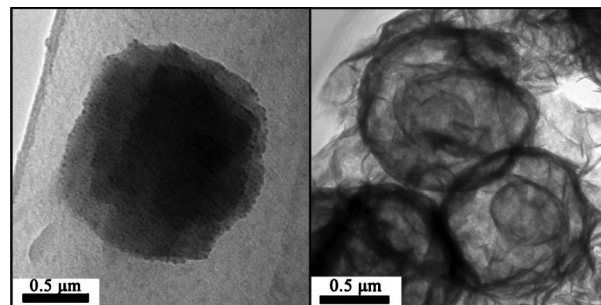


6621

### Uranium(vi) adsorption on alumina hollow microspheres synthesized *via* a facile self-templating process

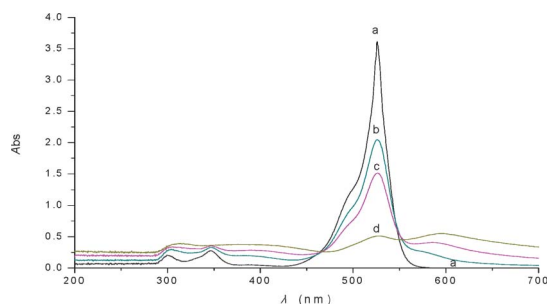
Jing Yu, Zhanshuang Li, Qi Liu, Jun Wang,\* Hao Wei, Milin Zhang and Lianhe Liu

Alumina hollow microspheres were prepared *via* a self-templating process, and exhibit a high adsorption efficiency for uranium(vi).



## PAPERS

6627

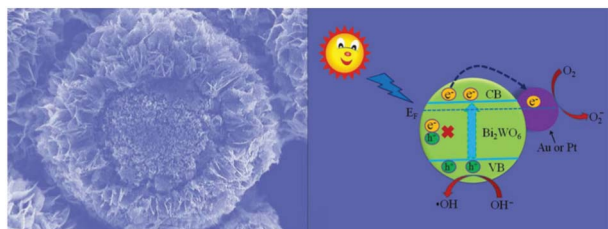


### A new resonance Rayleigh scattering method for the determination of trace $O_3$ in air using rhodamine 6G as probe

Chenyin Lin, Guiqing Wen,\* Aihui Liang\* and Zhiliang Jiang\*

$O_3$  reacted with  $H_3BO_3$ -KI solution to produce  $I_3^-$  and with rhodamine 6G to form associated particles that exhibited a resonance Rayleigh scattering peak at 418 nm.

6631

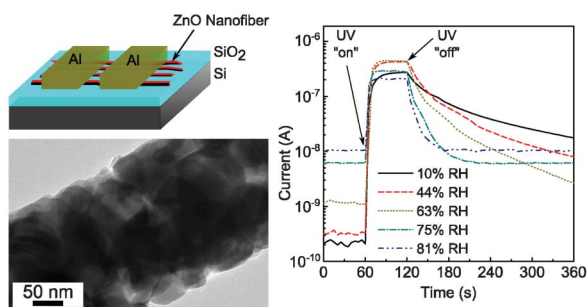


### Homogeneous core/shell $Bi_2WO_6$ spherical photocatalysts: their controlled synthesis and enhanced visible-light photocatalytic performances

Chaochao Mao, Maolin Li, Zhiguo Fang, Fanli Meng, Xiaoni Qu, Yanping Liu, Mengjiao Wang, Ji Zhang, Zhan Shi and Xiaohui Guo\*

Homogeneous core/shell  $Bi_2WO_6$  hybrids were synthesized via symmetric Ostwald ripening process and display enhanced photo-catalytic efficiency in decomposition of RhB.

6640

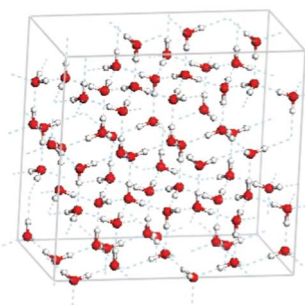


### Effects of humidity on the ultraviolet nanosensors of aligned electrospun ZnO nanofibers

Chuilin Lai, Xiaoxu Wang, Yong Zhao, Hao Fong\* and Zhengtao Zhu\*

The UV photoresponse of the uni-axially aligned electrospun ZnO nanofibers was sensitive to the relative humidity due to the competitive surface effects of oxygen and water molecules.

6646



### A calculating proof on hydrogen bonding in ordinary ice by the first-principles density functional theory

Peng Zhang,\* Sheng-Hao Han, Hui Yu and Yang Liu

The QM calculations indicating that the two hydrogen bonds in ordinary ice maybe attributed to the coupling with the energy splitting of the internal covalent vibrations.

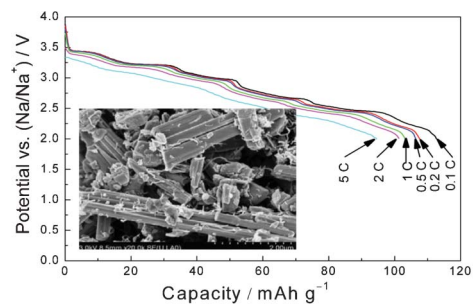
## PAPERS

6650

**Na<sub>0.44</sub>MnO<sub>2</sub>-CNT electrodes for non-aqueous sodium batteries**

Liwei Zhao, Jiangfeng Ni,\* Haibo Wang and Lijun Gao\*

Na<sub>0.44</sub>MnO<sub>2</sub>-CNT composite materials display an excellent rate discharge capability for sodium batteries.



6656

**The Li-CO<sub>2</sub> battery: a novel method for CO<sub>2</sub> capture and utilization**

Shaomao Xu, Shyamal K. Das and Lynden A. Archer\*

We report a novel primary Li-CO<sub>2</sub> battery that consumes pure CO<sub>2</sub> gas as its cathode.

