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IN THIS ISSUE

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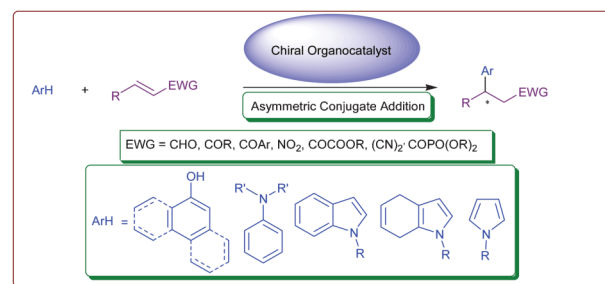
REVIEW

6117

Recent advances in asymmetric organocatalytic conjugate addition of arenes and hetero-arenes

Pankaj Chauhan and Swapandeep Singh Chimni*

This *review* describes the recent development in organocatalytic conjugate addition of arenes and hetero-arenes to unsaturated Michael acceptors.



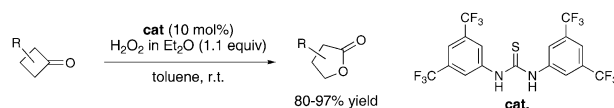
COMMUNICATIONS

6135

A new environmentally friendly method for the Baeyer–Villiger oxidation of cyclobutanones catalyzed by thioureas using H₂O₂ as an oxidant

Niiha Sasakura, Keiji Nakano, Yoshiyasu Ichikawa and Hiroyoshizo Kotsuki*

A new environmentally friendly method for the Baeyer–Villiger oxidation of cyclobutanones has been developed.



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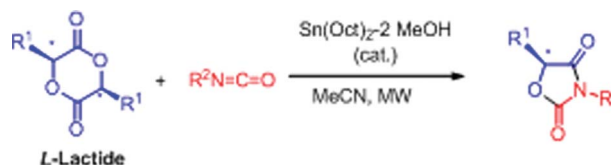
COMMUNICATIONS

6140

Catalytic conversion of lactide to optically pure heterocycles

Shinji Tsunoi, Hiroki Takahashi, Yugo Takano, Aritomo Okamura and Ikuya Shibata*

The catalytic preparation of heterocycles was developed *via* cycloaddition using lactide catalyzed by tin alkoxide to give optically pure compounds.

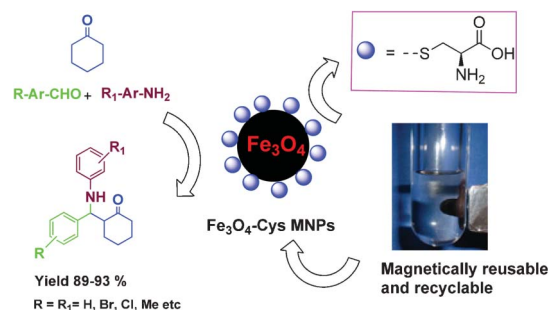


6144

A facile synthesis of cysteine–ferrite magnetic nanoparticles for application in multicomponent reactions—a sustainable protocol

Manoj B. Gawande,* Alexandre Velhinho, Isabel D. Nogueira, C. A. A. Ghumman, O. M. N. D. Teodoro and Paula S. Branco*

Cysteine was easily immobilized on a Fe_3O_4 surface and the catalyst successfully applied for the synthesis of β -amino carbonyls and hydroquinoline compounds.

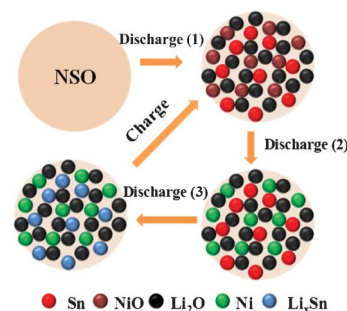


6150

Significantly increased cycling performance of novel “self-matrix” NiSnO_3 anode in lithium ion battery application

Xifei Li* and Chunlei Wang*

A novel NiSnO_3 anode significantly improves battery performance due to the nature of the self-matrix from the discharge process.

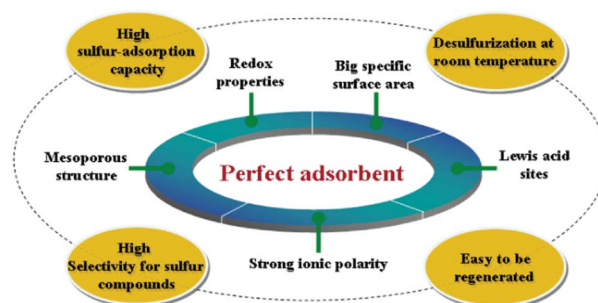


6155

A novel potential adsorbent for ultra deep desulfurization of jet fuels at room temperature

Yuesong Shen, Xinhai Xu and Peiwen Li*

In the present work, starting from current SARS mechanisms and material structure of adsorbents, we developed a novel adsorbent for room temperature ultra deep desulfurization of jet fuels to be applied in SOFCs for the first time.



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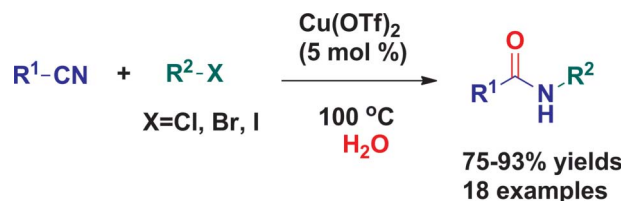
COMMUNICATIONS

6161

Cu(OTf)₂-catalysed Ritter reaction: efficient synthesis of amides from nitriles and haloalkylcarbons in water

Gui-Rong Qu,* Yan-Wei Song, Hong-Ying Niu, Hai-Ming Guo* and John S. Fossey

An efficient and green protocol for the synthesis of amides through the Ritter reaction of nitriles and haloalkylcarbons was developed. Cu(OTf)₂ economically efficiently catalysed the Ritter reaction in water. A range of haloalkylcarbons (benzyl, *tert*-butyl, *sec*-alkyl and primary alkyl haloalkylcarbons) were coupled with nitriles, providing the corresponding amides.

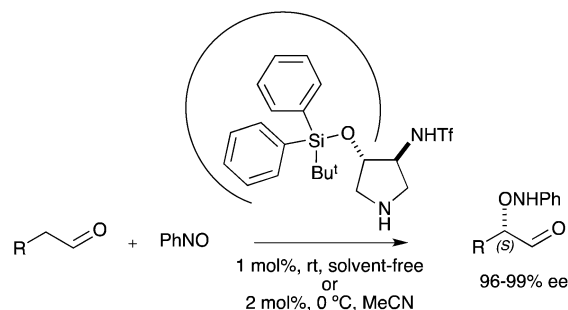


6164

A highly active organocatalyst for the asymmetric α -aminoxylation of aldehydes and α -hydroxylation of ketones

Xinyuan Fan, Esther Alza and Miquel A. Pericàs*

Enantiopure *trans*-3-trifluoromethylsulfonylamino-4-silyloxypyrrolidines, available in both enantiomeric forms by desymmetrisation, efficiently catalyse the asymmetric α -aminoxylation of aldehydes and the α -hydroxylation of ketones at low catalyst loadings.

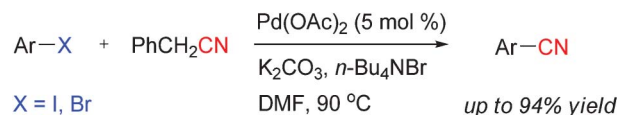


6167

Palladium-catalyzed cyanide metathesis: utilization of benzyl cyanide as an operator-benign reagent for aryl halide cyanations

Qiaodong Wen, Jisong Jin, Binbin Hu, Ping Lu* and Yanguang Wang*

Benzyl cyanide is a safe, effective cyanation reagent for palladium-catalyzed cyanation of haloarenes, which prevents palladium catalyst poisoning.

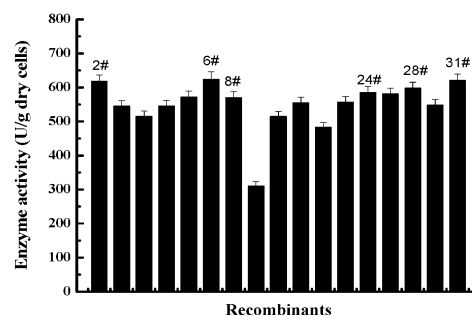


6170

A synergetic whole-cell biocatalyst for biodiesel production

Yunjun Yan,* Li Xu and Min Dai

A novel whole-cell biocatalyst co-displaying two synergetic lipases, *C. antarctica* lipase B and *T. lanuginosus* lipase, on the surface of *P. pastoris* cells was developed for the first time for biodiesel production.



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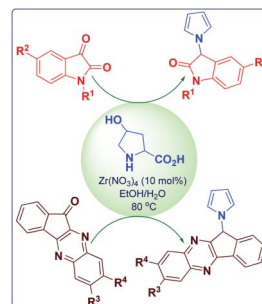
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6174

Zirconium nitrate: a reusable water tolerant Lewis acid catalyst for the synthesis of N-substituted pyrroles in aqueous media

Alireza Hasaninejad,* Mohsen Shekouhy, Mohammad Reza Mohammadzadeh and Abdolkarim Zare

$\text{Zr}(\text{NO}_3)_4$, a water tolerant Lewis acid catalyst, efficiently catalyzes the synthesis of N-substituted pyrroles in aqueous media.

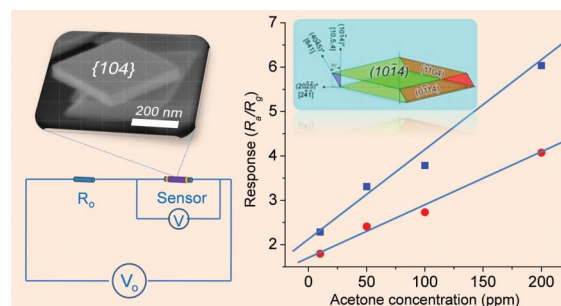


6178

Single crystal $\alpha\text{-Fe}_2\text{O}_3$ with exposed {104} facets for high performance gas sensor applications

Xianghong Liu, Jun Zhang, Shihua Wu, Dongjiang Yang, Porun Liu, Haimin Zhang, Shurong Wang,* Xiangdong Yao, Guangshan Zhu and Huijun Zhao*

Single-crystalline $\alpha\text{-Fe}_2\text{O}_3$ rhombohedral crystals bound by six {104} high-index facets are synthesized by a facile hydrothermal method. They exhibit a significantly enhanced gas sensor performance due to their unique morphology and 100% exposed {104} facets with more absorbed oxygen species.

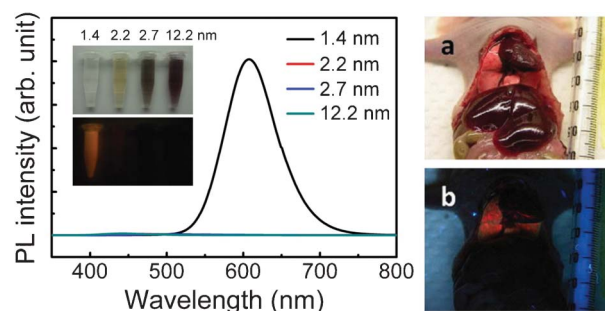


6185

Size control of gold nanoparticles by intense X-ray irradiation: the relevant parameters and imaging applications

Sheng-Feng Lai, Chia-Chi Chien, Wen-Chang Chen,* Yi-Yun Chen, Chang-Hai Wang, Y. Hwu,* C. S. Yang and G. Margaritondo

Size control by X-ray synthesis and MUA (11-mercaptoundecanoic acid) coating make photoluminescent Au nanoparticles very effective in biomedical imaging.

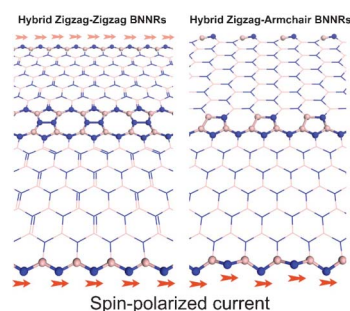


6192

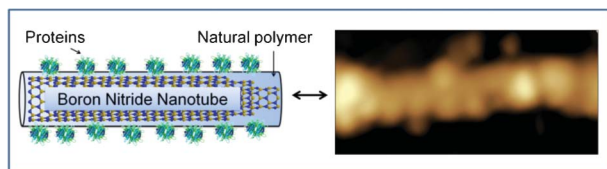
Electronic and magnetic properties of boron nitride nanoribbons with topological line defects

Peizhe Tang, Xiaolong Zou, Shanying Wang, Jian Wu, Haitao Liu and Wenhui Duan*

With no need for selective functionalization or high external electric fields, hybrid BNNRs can exhibit half-metallicity and half-semi-metallicity, dependent on the type of edge and line defect.



6200

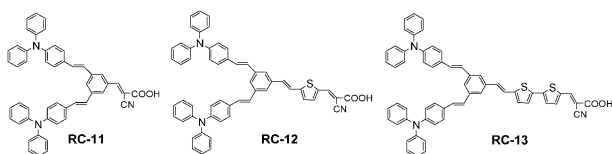


Efficient disentangling of boron nitride nanotubes using water-soluble polysaccharides for protein immobilization

Zhenhong Gao, Chunyi Zhi, Yoshio Bando, Dmitri Golberg, Makoto Komiyama and Takeshi Serizawa*

We report that efficiently disentangled boron nitride nanotubes (BNNTs) can be obtained by functionalization in an aqueous solution with a natural water-soluble polysaccharide, gum arabic (GA). Subsequently, several functional proteins were successfully immobilized onto the surfaces of GA-functionalized BNNTs *via* strong electrostatic interactions under suitable pH conditions.

6209

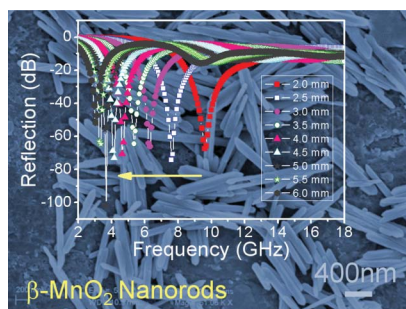


Bistrisphenylamine-based organic sensitizers with high molar extinction coefficients for dye-sensitized solar cells

Dong Wook Chang, Hoi Nok Tsao, Paolo Salvatori, Filippo De Angelis, Michael Grätzel, Su-Moon Park, Liming Dai, Hyo Joong Lee,* Jong-Beom Baek* and Mohammad K. Nazeeruddin*

A series of novel bistrisphenylamine-based organic sensitizers (coded as RC-dyes) with high molar extinction coefficients ($>5.0 \times 10^4 \text{ M}^{-1} \text{ cm}^{-1}$) have been synthesized for dye-sensitized solar cells (DSSCs).

6216

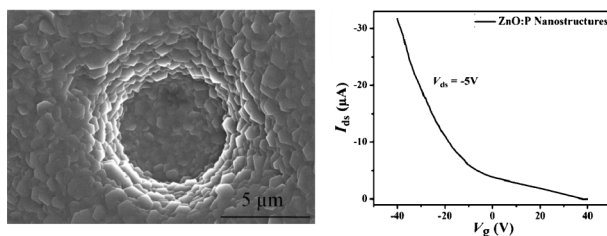


Tunable wave absorption properties of $\beta\text{-MnO}_2$ nanorods and their application in dielectric composites

Guang-Sheng Wang, Li-Zhou Nie and Shu-Hong Yu*

Absorbers filled with $\beta\text{-MnO}_2$ NRs possess excellent microwave absorption properties, and the minimum reflection loss (RL) can be adjusted to different frequencies.

6222



p-type Phosphorus doped ZnO nanostructures: an electrical, optical, and magnetic properties study

Bharati Panigrahy and D. Bahadur*

Highly magnified SEM images of ZnO:P nanostructures showing p-type conductivity.

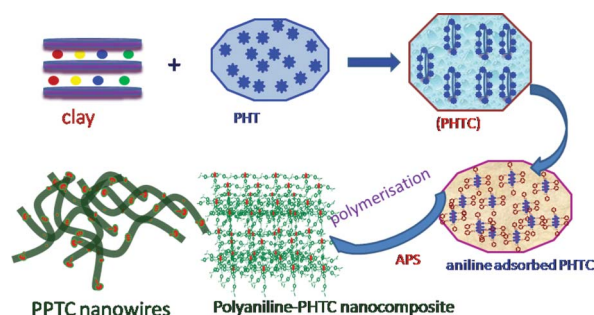
PAPERS

6228

Nanostructured polyaniline-polytitanate-clay composite for photocatalytic applications: preparation and properties

Rajaraman Ramakrishnan, Janardhanan D. Sudha* and Viswan L. Reena

Nanostructured photocatalytic polyaniline-polytitanate-clay composite was prepared by the polymerization of anilinium hydrochloride in a dispersion of polytitanate functionalized clay at room temperature.

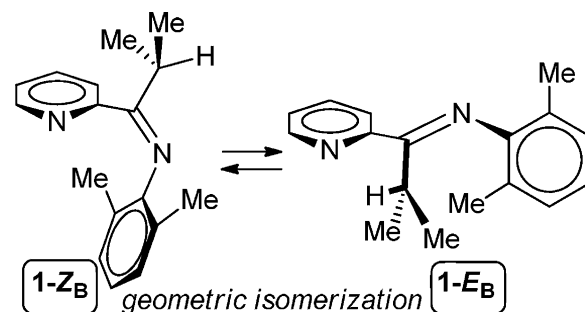


6237

Conformational analysis via calculations and NMR spectroscopy for isomers of the mono(imino)pyridine ligand, 2-((2,6-Me₂-C₆H₃)NC(*i*-Pr))C₅H₄N

Timothy J. Dudley,* Jennifer E. Beck, Earl E. P. Santos, Kathryn A. Johnston, William S. Kassel, William G. Dougherty, Walter J. Boyko and Deanna L. Zubris*

Structural analysis, NMR chemical shifts, and NOE experiments demonstrate that the (imino)pyridine ligand 2-((2,6-Me₂-C₆H₃)NC(*i*-Pr))C₅H₄N exists as equilibrating geometric isomers in solution.

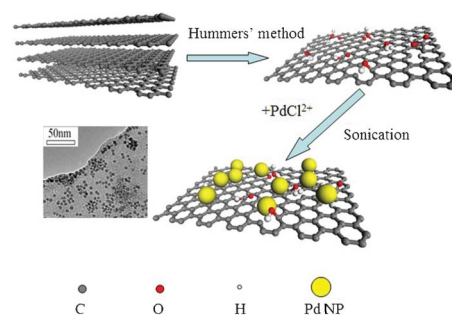


6245

Well-dispersed palladium nanoparticles on graphene oxide as a non-enzymatic glucose sensor

Qiyu Wang, Xiaoqiang Cui,* Jianli Chen, Xianliang Zheng, Chang Liu, Tianyu Xue, Haitao Wang, Zhao Jin, Liang Qiao and Weitao Zheng*

Palladium nanoparticles with excellent uniform size and distribution on graphene oxide were synthesized ultrasonically for use as a non-enzymatic glucose sensor.

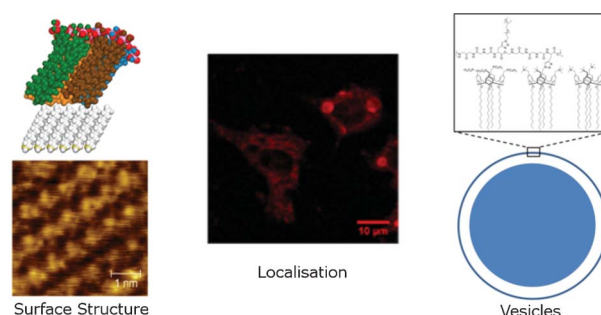


6250

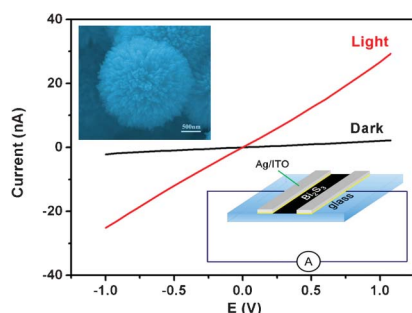
Composite fluorescent vesicles based on ionic and cationic amphiphilic calix[4]arenes

Paul K. Eggers, Thomas Becker, Marissa K. Melvin, Ramiz A. Boulos, Eliza James, Natalie Morellini, Alan R. Harvey, Sarah A. Dunlop, Melinda Fitzgerald, Keith A. Stubbs and Colin L. Raston*

Amphiphilic calixarenes that self-assemble into vesicles have a high uptake in PC-12 cells, and can be wrapped in a peptide-glycol coat for enhanced stability.



6258

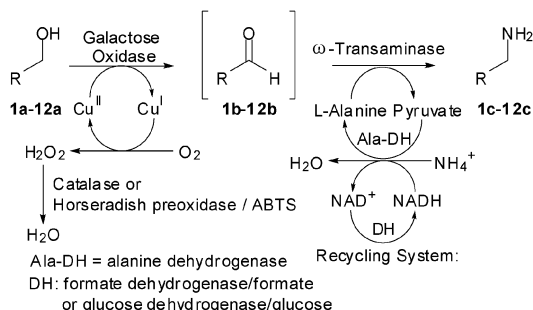


Facile synthesis of hierarchical Bi_2S_3 nanostructures for photodetector and gas sensor

Haohua Li,* Juan Yang, Jianying Zhang and Ming Zhou*

The fabrication of a photodetector and gas sensor based on hierarchical Bi_2S_3 nanostructures is reported.

6262

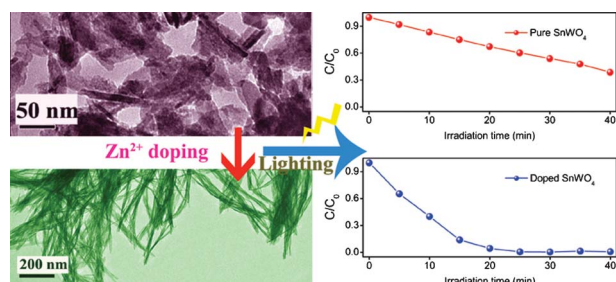


Amination of benzylic and cinnamic alcohols *via* a biocatalytic, aerobic, oxidation–transamination cascade

Michael Fuchs, Katharina Tauber, Johann Sattler, Horst Lechner, Jan Pfeffer, Wolfgang Kroutil and Kurt Faber*

The amination of benzylic and cinnamic alcohols was achieved *via* a biocatalytic, one-pot oxidation–transamination cascade in an aqueous medium at physiological conditions.

6266

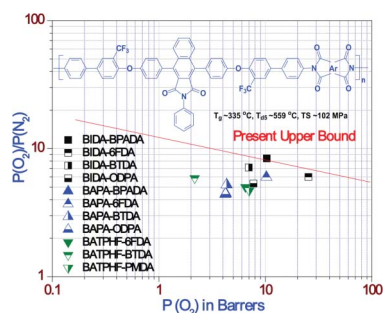


Rapid synthesis of Zn^{2+} doped SnWO_4 nanowires with the aim of exploring doping effects on highly enhanced visible photocatalytic activities

Yiguo Su, Lichun Hou, Chunfang Du, Liman Peng, Kai Guan and Xiaojing Wang*

In this work, we report on the rapid synthesis of $\text{Sn}_{1-x}\text{Zn}_x\text{WO}_4$ nanocrystals with the aim of tailoring their structural, electronic, and photocatalytic properties.

6274



High T_g , processable fluorinated polyimides containing benzoisindole-1,3-dione unit and evaluation of their gas transport properties

Suman Kumar Sen and Susanta Banerjee*

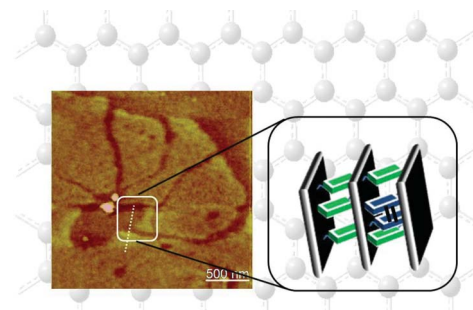
Effect of benzo[*b*]isindole-1,3-dione on the glass transition temperatures and gas transport properties for polyimides have been described. 6FDA based polyimide exhibited the highest permeability coefficient for all the gases whereas BPADA based polyimides exhibited the highest permselectivity, staying closer the latest upper boundary limit drawn by L. M. Robeson.

6290

A covalently linked graphene-oligo(phenylenevinylene) adduct: self-organization and photo-physical properties

H. S. S. Ramakrishna Matte, Ankit Jain and Subi J. George*

Oligo(phenylenevinylene) molecules are covalently attached to graphene using simple chemistry and their assembly and photo-physical properties studied for possible applications in optoelectronics.

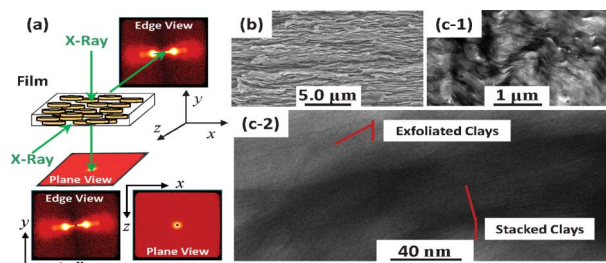


6295

Supramolecular ionic strength-modulating microstructures and properties of nacre-like biomimetic nanocomposites containing high loading clay

Weijun Zhu, Chu-Hua Lu, Feng-Chih Chang and Shiao-Wei Kuo*

A nacre-like polymer clay nanocomposite film by a simple solution casting method as ideal building blocks with intrinsic hard/soft character.

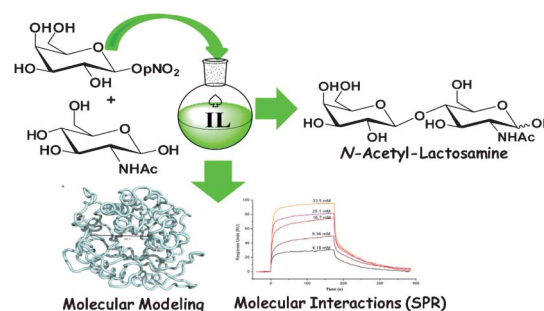


6306

Efficient and selective enzymatic synthesis of *N*-acetyl-lactosamine in ionic liquid: a rational explanation

Manuel Sandoval, Álvaro Cortés, Concepción Civera, Juan Treviño, Eloy Ferreras, Michel Vaultier, José Berenguer, Pedro Lozano and María J. Hernáiz*

A rational explanation of the interaction between ionic liquids and enzymes in the efficient and selective synthesis of *N*-acetyl-lactosamine.

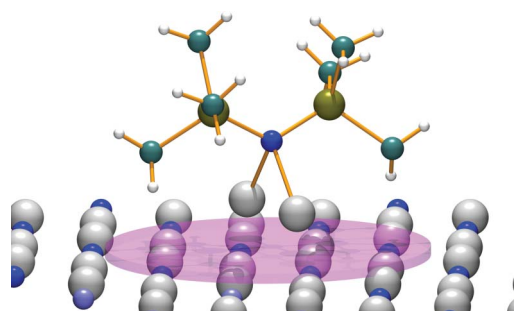


6315

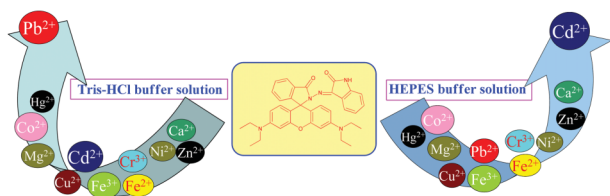
Atomic layer deposition of lithium nitride and carbonate using lithium silylamide

Erik Østreng,* Ponniah Vajeeston, Ola Nilsen and Helmer Fjellvåg

Lithium nitride has been deposited by ALD using lithium silylamide as precursor and lithium carbonate grown with this same precursor as a model system.



6323

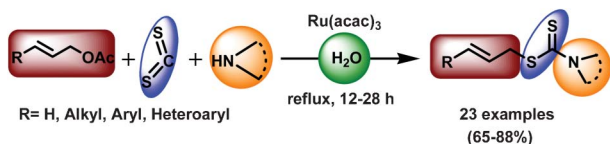


Modulating the selectivity by switching sensing media: a bifunctional chemosensor selectivity for Cd^{2+} and Pb^{2+} in different aqueous solutions

Lin Xu, Yufang Xu, Weiping Zhu, Xiaolong Sun, Zheng Xu and Xuhong Qian*

A new bifunctional rhodamine-based fluorescent probe, **RI**, was designed and synthesized; **RI** can selectively recognize both Cd^{2+} and Pb^{2+} by judicious choice of sensing media. Fluorescence imaging of Cd^{2+} in living cells was also obtained.

6329

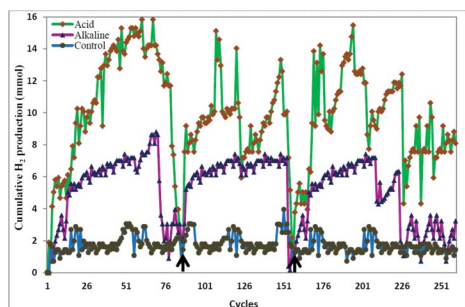


Ruthenium catalysed one-pot synthesis of *S*-allyl and cinnamyl dithiocarbamates using allyl and cinnamyl acetates in water

Sabir Ahammed, Amit Saha and Brindaban C. Ranu*

A convenient and efficient procedure for the synthesis of *S*-allyl/cinnamyl dithiocarbamates has been developed by a one-pot reaction of allyl/cinnamyl acetate, carbon disulfide and amine in presence of $\text{Ru}(\text{acac})_3$ in water.

6336

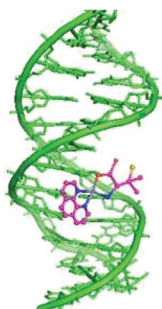


Acidic and alkaline shock pretreatment to enrich acidogenic biohydrogen producing mixed culture: long term synergetic evaluation of microbial inventory, dehydrogenase activity and bio-electro kinetics

R. Kannaiah Goud and S. Venkata Mohan*

Selective enrichment of acidogenic consortia by acid-shock and alkaline-shock methods for enhanced biohydrogen production in association with wastewater treatment was evaluated in anaerobic sequencing batch reactor (AnSBR) for 520 days.

6354



Enantiomeric recognition of chiral L- and D-penicillamine Zinc(II) complexes: DNA binding behavior and cleavage studies

Farukh Arjmand* and Shazia Parveen

Molecular docked model of complex **1a** with DNA dodecamer duplex of sequence $\text{d}(\text{CGCGAATTTCGCG})_2$ (PDB ID: 1BNA).