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IN THIS ISSUE

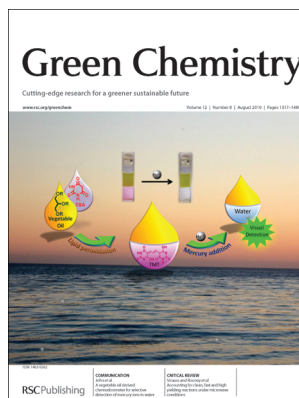
ISSN 1463-9262 CODEN GRCHFJ 12(8) 1317–1480 (2010)



Cover

See Harmer *et al.*, pp. 1410–1416. Corn derived glucose is fermented to propane diol and then polymerized to the polymer polytrimethylene ether glycol.

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Inside cover

See John *et al.*, pp. 1345–1348. Detecting toxic mercury in water using vegetable oil.

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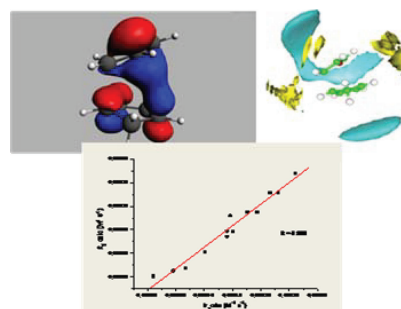
CRITICAL REVIEWS

1330

The solvent effect on the Diels–Alder reaction in ionic liquids: multiparameter linear solvation energy relationships and theoretical analysis

Cinzia Chiappe,* Marco Malvaldi and Christian Silvio Pomelli

The solvent effect of ionic liquids on the Diels–Alder reaction is discussed, considering their ability to give specific interactions and 3D structures.

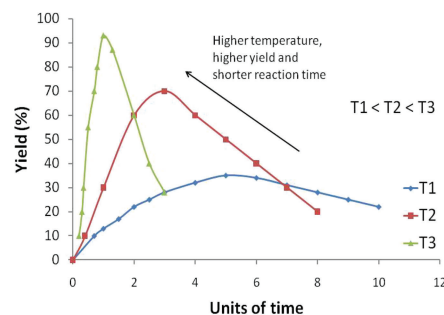


1340

Accounting for clean, fast and high yielding reactions under microwave conditions

Christopher Roy Strauss* and David W. Rooney

Through rapid heating and subsequent quenching, microwave activation affords faster, cleaner and higher yielding reactions than conventional methods.



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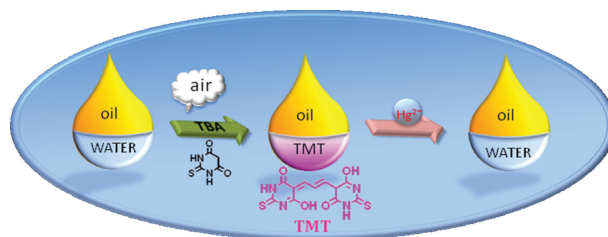
COMMUNICATIONS

1345

A vegetable oil derived chemodosimeter for the selective detection of Hg^{2+} in aqueous media: a potential green laboratory method

Swapnil Rohidas Jadhav, Kuthanapillil Jyothish and George John*

An *in situ*-generated byproduct from the naturally occurring autoxidation of vegetable oil has been utilized to develop a thione-containing chemodosimeter for the selective detection of aqueous mercury ions (Hg^{2+}) at nanomolar concentrations through a one-pot synthesis/detection technique.

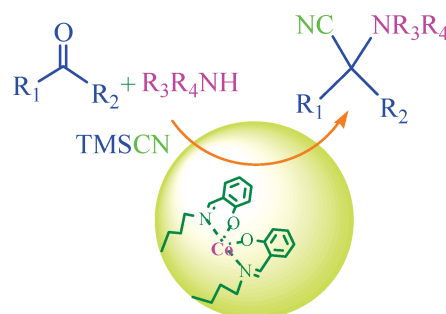


1349

Efficient Co(II) heterogeneously catalysed synthesis of α -aminonitriles at room temperature via Strecker-type reactions

Fatemeh Rajabi,* Sara Ghiassian and Mohammad Reza Saidi*

Mesoporous organosilica cobalt(II) Schiff base complex: an easily recoverable catalyst for the synthesis of α -aminonitriles at room temperature.

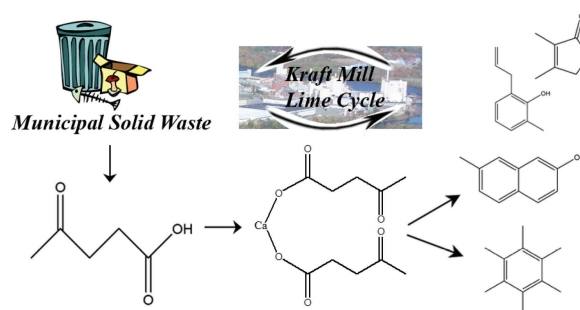


1353

Energy densification of levulinic acid by thermal deoxygenation

Thomas J. Schwartz, Adriaan R. P. van Heiningen and M. Clayton Wheeler*

Levulinic acid is converted to high molecular weight, high energy density fuel precursors using a unique process which is readily integrated into a kraft pulp mill based biorefinery.

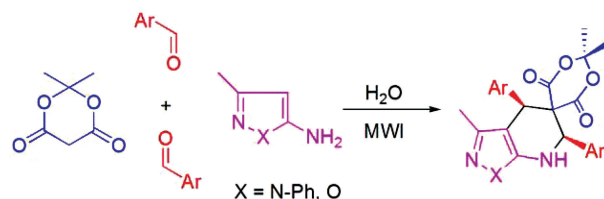


1357

New multicomponent domino reactions (MDRs) in water: highly chemo-, regio- and stereoselective synthesis of spiro{[1,3]dioxanopyridine}-4,6-diones and pyrazolo[3,4-*b*]pyridines

Ning Ma, Bo Jiang, Ge Zhang, Shu-Jiang Tu,* Walter Wever and Guigen Li*

New multicomponent domino reactions (MDRs) have been conducted in water for the synthesis of spiro{pyrazolo[1,3]dioxanopyridine}-4,6-diones, spiro{isoxazolo[1,3]dioxanopyridine}-4,6-diones and pyrazolo[3,4-*b*]pyridines.



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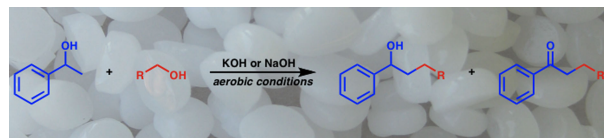
COMMUNICATIONS

1362

Green alcohol couplings without transition metal catalysts: base-mediated β -alkylation of alcohols in aerobic conditions

Laura J. Allen and Robert H. Crabtree*

Benzylic secondary alcohols can be alkylated in good yields at the β -position with primary alcohols promoted by KOH and NaOH, eliminating the need for toxic and expensive transition metal catalysts.

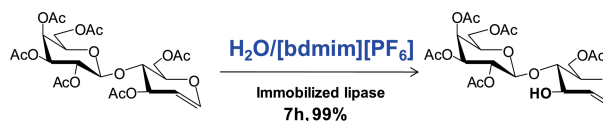


1365

Effect of ionic liquids as additives in the catalytic properties of different immobilized preparations of *Rhizomucor miehei* lipase in the hydrolysis of peracetylated lactal

Marco Filice, Jose M. Guisan* and Jose M. Palomo*

The addition of a small amount of different ionic liquids modified the activity and regioselectivity of different immobilized preparations of *R. miehei* lipase catalyzing the hydrolysis of hexa-*O*-acetyl lactal in aqueous media.

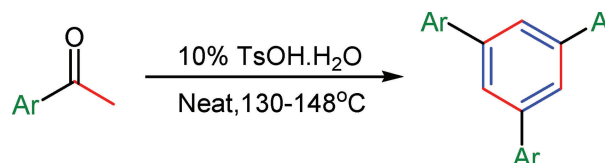


1370

PTSA-catalyzed green synthesis of 1,3,5-triarylbenzene under solvent-free conditions

Yanan Zhao, Jian Li, Chunju Li, Kun Yin, Dongyan Ye and Xueshun Jia*

An economical and green conversion of acetophenones into 1,3,5-triarylbenzenes catalysed by PTSA is described.

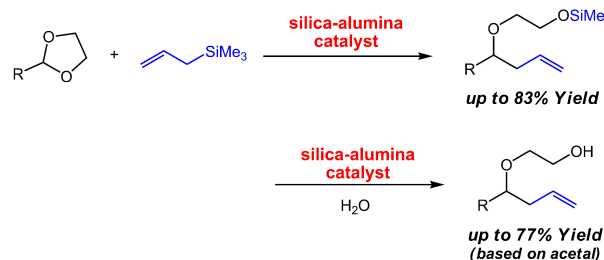


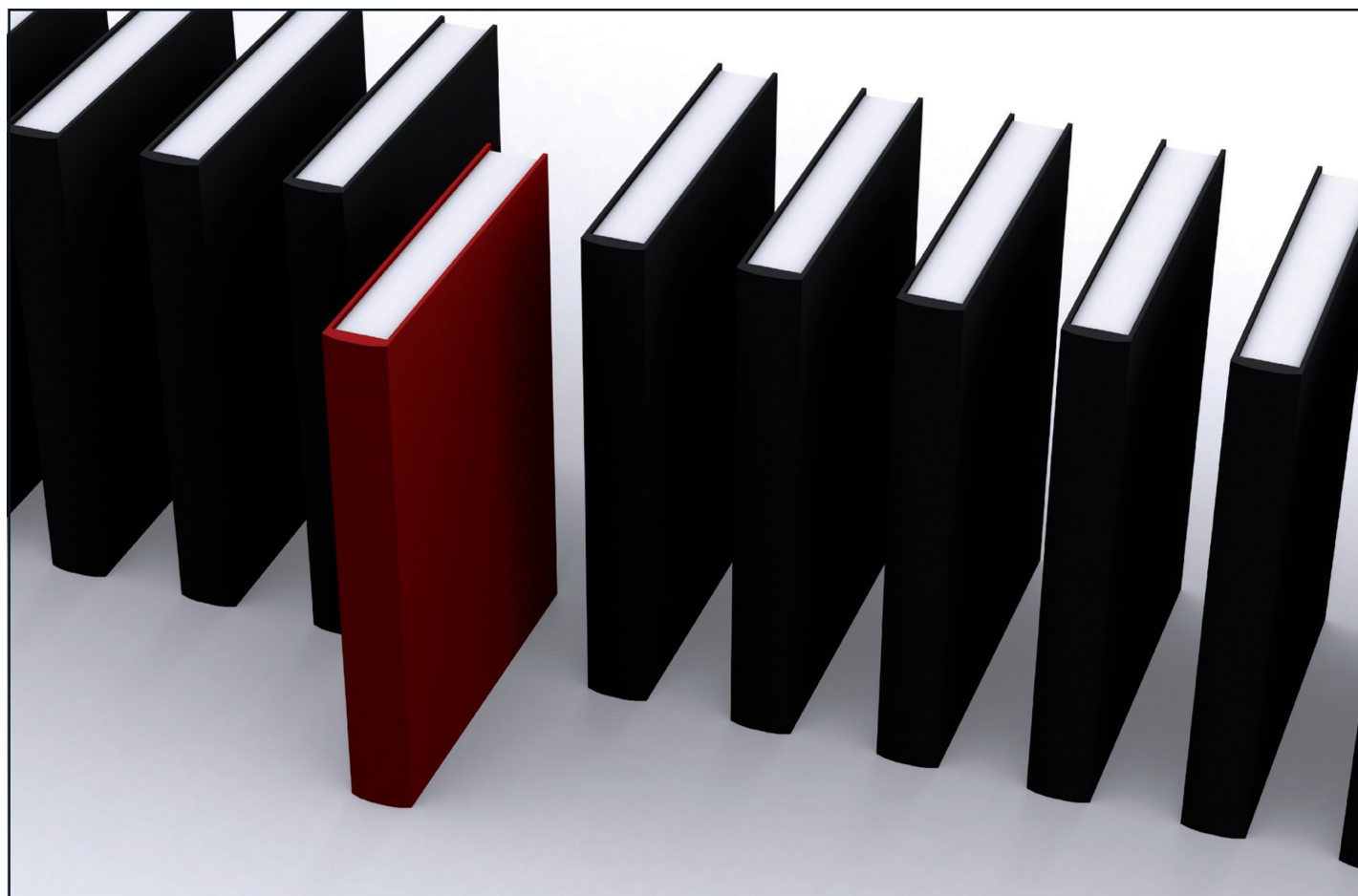
1373

Catalytic ring-opening allylation of cyclic acetals with allylsilanes using silica-alumina

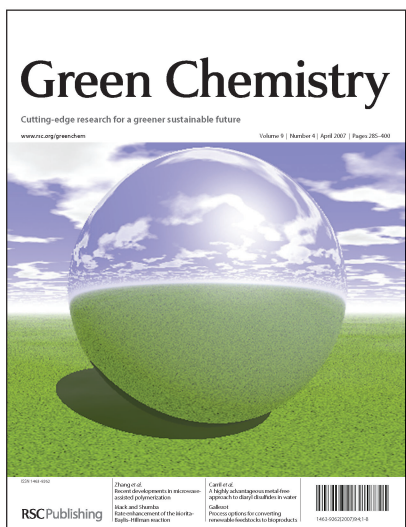
Ken Motokura, Hirokazu Yoneda, Akimitsu Miyaji and Toshihide Baba*

Ring-opening allylation of cyclic acetals with allylsilanes proceeded with silica-alumina catalyst. Consecutive allylation/hydrolysis afforded homoallyloxy alcohol in good to high yields.





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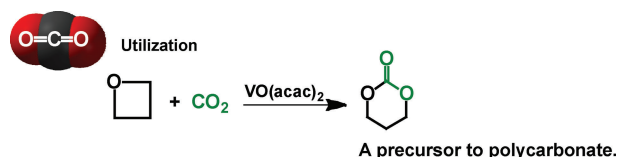
COMMUNICATIONS

1376

A facile catalytic synthesis of trimethylene carbonate from trimethylene oxide and carbon dioxide

Donald J. Darensbourg,* Adolfo Horn Jr and Adriana I. Moncada

A readily available non-toxic metal complex, VO(acac)₂, is shown to be an effective catalyst for the selective formation of trimethylene carbonate from oxetane and carbon dioxide.

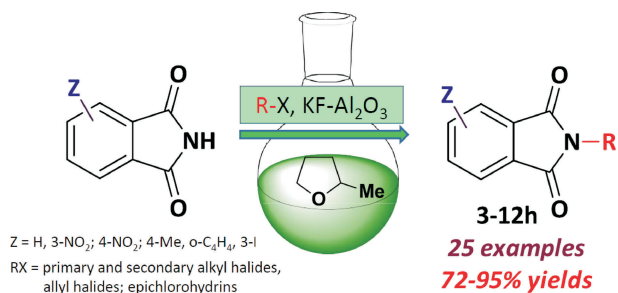


1380

2-Methyltetrahydrofuran as a suitable green solvent for phthalimide functionalization promoted by supported KF

Vittorio Pace, Pilar Hoyos, María Fernández, José V. Sinisterra and Andrés R. Alcántara*

An efficient chemoselective *N*-functionalization of phthalimides by using KF-Alumina in 2-methyltetrahydrofuran, a solvent obtained from renewal sources, is described.



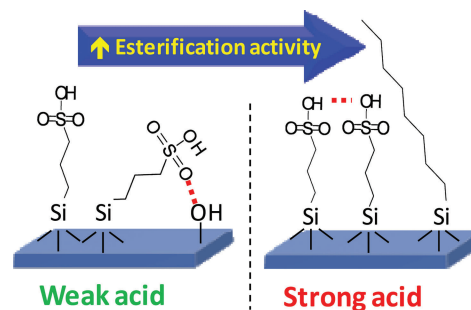
PAPERS

1383

Interdependent lateral interactions, hydrophobicity and acid strength and their influence on the catalytic activity of nanoporous sulfonic acid silicas

Jean-Philippe Dacquin, Hannah E. Cross, D. Robert Brown, Tina Düren, Jennifer J. Williams, Adam F. Lee and Karen Wilson*

Co-functionalisation of MCM sulfonic acid with octyl spectator groups greatly enhances catalyst activity in esterification due to increased acid strength and hydrophobicity.

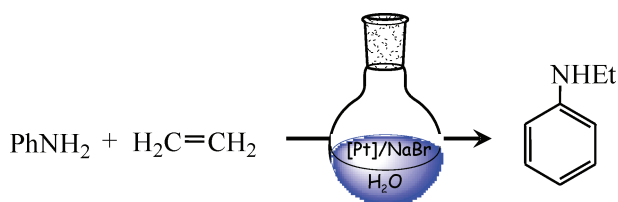


1392

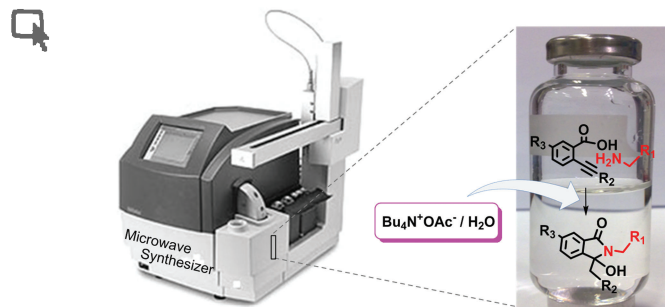
Hydroamination of ethylene by aniline: catalysis in water

Pavel A. Dub, Mireia Rodriguez-Zubiri, Christine Baudequin and Rinaldo Poli*

The atom-economical addition of aniline to ethylene to generate *N*-ethylaniline, catalyzed by PtBr₂/Br⁻, can also be conducted in water using simple alkali salts as sources of the bromide ion.



1397

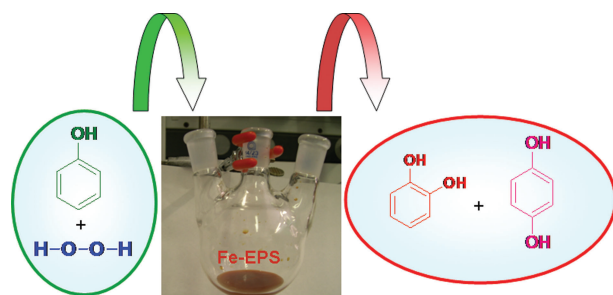


Metal-free tandem reaction in water: An efficient and regioselective synthesis of 3-hydroxyisoindolin-1-ones

Yu Zhou, Yun Zhai, Jian Li, Deju Ye, Hualiang Jiang and Hong Liu*

A mild and effective method was developed for the one-pot construction of 3-hydroxyisoindolin-1-ones *via* a metal-free tandem transformation with excellent regioselectivity. This strategy presents an atom-economical and environmentally friendly transformation, in which two new C–N bonds and one C–O bond are formed in water from two simple starting materials.

1405

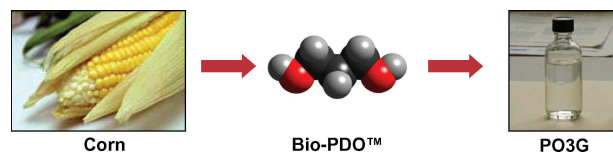


A bio-generated Fe(III)-binding exopolysaccharide used as new catalyst for phenol hydroxylation

Franco Baldi,* Davide Marchetto, Davide Zanchettin, Elisabetta Sartorato, Stefano Paganelli and Oreste Piccolo*

The catalytic and selective hydroxylation of phenol is carried out under environmentally benign reaction conditions in the presence of a Fe(III)-EPS (EPS = exopolysaccharide) catalyst. This work introduces a novel approach to the field of green catalysis, showing how a naturally occurring organism may produce a useful catalyst for organic transformations.

1410

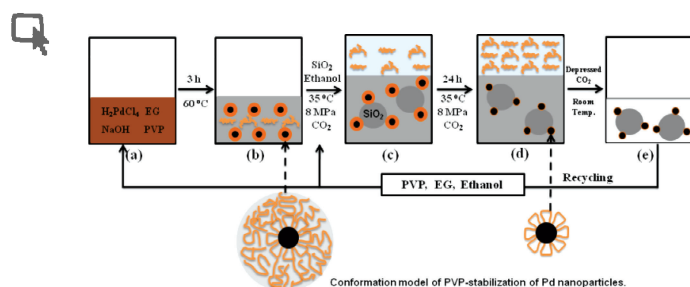


Renewably sourced polytrimethylene ether glycol by superacid catalyzed condensation of 1,3-propanediol

Mark A. Harmer,* David C. Confer, Christian K. Hoffman, Scott C. Jackson, Ann Y. Liauw, Aaron R. Minter, Edward R. Murphy, Rupert E. Spence and Hari B. Sunkara

In this paper we describe the synthesis of a new 100% renewably sourced polymer, polytrimethylene ether glycol (polyol) which is derived from a renewably sourced monomer, 1,3-propanediol (PDO).

1417



A green and efficient route for preparation of supported metal colloidal nanoparticles in scCO₂

Qiang Wang, Haiyang Cheng, Ruixia Liu, Jianmin Hao, Yancun Yu and Fengyu Zhao*

A green and efficient method for dispersing active metal colloidal nanoparticles onto supports uniformly was developed in mixed solvent of ethanol and ethylene glycol in the presence of scCO₂.

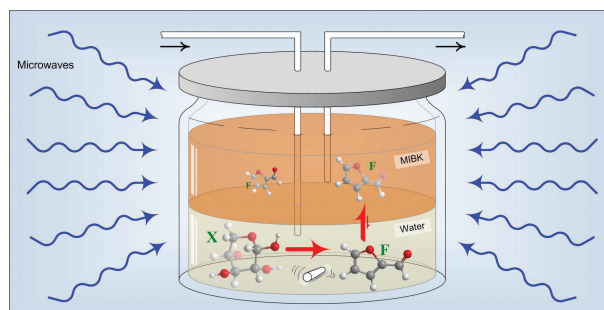
PAPERS

1423

Kinetics of furfural production by dehydration of xylose in a biphasic reactor with microwave heating

Ronen Weingarten, Joungmo Cho, Wm. Curtis Conner, Jr. and George W. Huber*

A kinetic model is reported for the dehydration of xylose to furfural in a biphasic batch reactor with microwave heating. Optimal reaction conditions determine that furfural yields can reach 85%, more than twofold of that obtained in a single phase system.

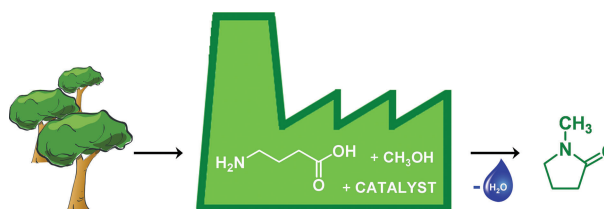


1430

Synthesis of biobased *N*-methylpyrrolidone by one-pot cyclization and methylation of γ -aminobutyric acid

Tijds M. Lammens, Maurice C. R. Franssen, Elinor L. Scott* and Johan P. M. Sanders

Biobased *N*-methylpyrrolidone was prepared by the cyclization of γ -aminobutyric acid (obtained from glutamic acid) to 2-pyrrolidone and subsequent catalytic methylation of 2-pyrrolidone with methanol to *N*-methylpyrrolidone. This was done in a one-pot procedure.



1437

Formation of imines by selective gold-catalysed aerobic oxidative coupling of alcohols and amines under ambient conditions

Søren Kegnæs, Jerrick Mielby, Uffe V. Mentzel, Claus H. Christensen and Anders Riisager*

Imines are selectively formed by oxidative coupling of alcohols and amines when catalyzed by heterogeneous nanoparticle gold catalysts using molecular oxygen as an oxidant under ambient conditions.

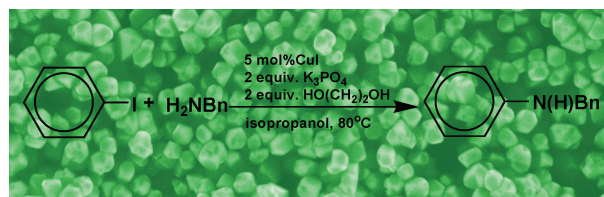


1442

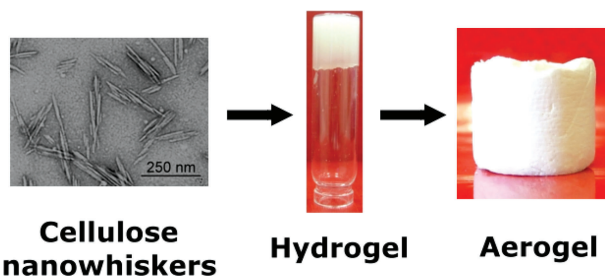
Biinspired synthesis of well faceted CuI nanostructures and evaluation of their catalytic performance for coupling reactions

Shuyan Gao,* Zhengdao Li, Xiaoxia Jia, Kai Jiang and Haibo Zeng*

This is the first report on the nanometre-sized faceted CuI acting as a catalyst for a coupling reaction.



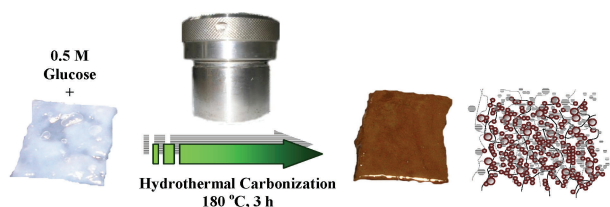
1448

**Cellulose nanowhisker aerogels**

Lindy Heath and Wim Thielemans*

Aerogels were prepared through the self-assembly of various amounts of cellulose nanowhiskers through sonication and drying of the formed gel.

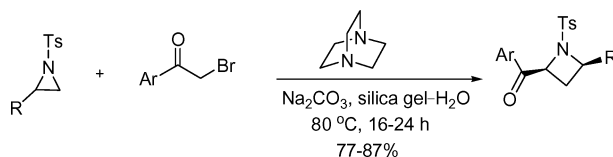
1454

**Novel carbonaceous nanocomposite pellicle based on bacterial cellulose**

Iryanti Fatyasari Nata and Cheng Kang Lee*

Easily retrievable carbonaceous nanocomposite pellicle was prepared by hydrothermal carbonization of bacterial cellulose (BC) pellicle soaked in glucose solution. The carbonaceous nanoparticles formed *in situ* were anchored on the nanofibers' surface and demonstrate a high adsorption capacity towards heavy metal ions.

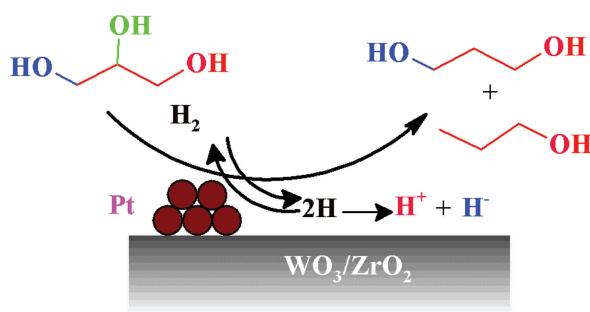
1460

**The first example of ring expansion of *N*-tosylaziridines to 2-aryl-*N*-tosylazetidines with nitrogen ylides in an aqueous medium**

Garima, Vishnu P. Srivastava and Lal Dhar S. Yadav*

The first example of tertiary amine catalyzed ring expansion reaction of *N*-tosylaziridines to 2-aryl-*N*-tosylazetidines with nitrogen ylides formed *in situ* from phenacyl bromide derivatives in a silica gel-water system is reported.

1466

**Aqueous-phase deoxygenation of glycerol to 1,3-propanediol over Pt/WO₃/ZrO₂ catalysts in a fixed-bed reactor**

Li-Zhen Qin, Min-Jie Song and Chang-Lin Chen*

Aqueous-phase deoxygenation of glycerol to 1,3-PDO was conducted continuously over Pt/WO₃/ZrO₂ catalyst at low temperature. This reaction exhibits high selectivity for deoxygenation of the secondary over the primary OH group and no degradation.

AUTHOR INDEX

- Alcántara, Andrés R., 1380
 Allen, Laura J., 1362
 Baba, Toshihide, 1373
 Baldi, Franco, 1405
 Baudequin, Christine, 1392
 Brown, D. Robert, 1383
 Chen, Chang-Lin, 1466
 Cheng, Haiyang, 1417
 Chiappe, Cinzia, 1330
 Cho, Joungmo, 1423
 Christensen, Claus H., 1437
 Confer, David C., 1410
 Conner, Jr., Wm. Curtis, 1423
 Crabtree, Robert H., 1362
 Cross, Hannah E., 1383
 Dacquain, Jean-Philippe, 1383
 Darensbourg, Donald J., 1376
 Dub, Pavel A., 1392
 Düren, Tina, 1383
 Fernández, María, 1380
 Filice, Marco, 1365
 Franssen, Maurice C. R., 1430
 Gao, Shuyan, 1442
 Garima, 1460
 Ghiassian, Sara, 1349
 Guisan, Jose M., 1365
 Hao, Jianmin, 1417
 Harmer, Mark A., 1410
 Heath, Lindy, 1448
 Hoffman, Christian K., 1410
 Horn Jr, Adolfo, 1376
 Hoyos, Pilar, 1380
 Huber, George W., 1423
 Jackson, Scott C., 1410
 Jadhav, Swapnil Rohidas, 1345
 Jia, Xiaoxia, 1442
 Jia, Xueshun, 1370
 Jiang, Bo, 1357
 Jiang, Hualiang, 1397
 Jiang, Kai, 1442
 John, George, 1345
 Jyothish, Kuthanapillil, 1345
 Kegnas, Søren, 1437
 Lammens, Tijs M., 1430
 Lee, Adam F., 1383
 Lee, Cheng Kang, 1454
 Li, Chunju, 1370
 Li, Guigen, 1357
 Li, Jian, 1370, 1397
 Li, Zhengdao, 1442
 Liauw, Ann Y., 1410
 Liu, Hong, 1397
 Liu, Ruixia, 1417
 Ma, Ning, 1357
 Malvaldi, Marco, 1330
 Marchetto, Davide, 1405
 Mentzel, Uffe V., 1437
 Mielby, Jerrick, 1437
 Minter, Aaron R., 1410
 Miyaji, Akimitsu, 1373
 Moncada, Adriana I., 1376
 Motokura, Ken, 1373
 Murphy, Edward R., 1410
 Nata, Iryanti Fatyasari, 1454
 Pace, Vittorio, 1380
 Paganelli, Stefano, 1405
 Palomo, Jose M., 1365
 Piccolo, Oreste, 1405
 Poli, Rinaldo, 1392
 Pomelli, Christian Silvio, 1330
 Qin, Li-Zhen, 1466
 Rajabi, Fatemeh, 1349
 Riisager, Anders, 1437
 Rodriguez-Zubiri, Mireia, 1392
 Rooney, David W., 1340
 Saidi, Mohammad Reza, 1349
 Sanders, Johan P. M., 1430
 Sartorato, Elisabetta, 1405
 Schwartz, Thomas J., 1353
 Scott, Elinor L., 1430
 Sinisterra, José V., 1380
 Song, Min-Jie, 1466
 Spence, Rupert E., 1410
 Srivastava, Vishnu P., 1460
 Strauss, Christopher Roy, 1340
 Sunkara, Hari B., 1410
 Thielemans, Wim, 1448
 Tu, Shu-Jiang, 1357
 van Heiningen, Adriaan R. P., 1353
 Wang, Qiang, 1417
 Weingarten, Ronen, 1423
 Wever, Walter, 1357
 Wheeler, M. Clayton, 1353
 Williams, Jennifer J., 1383
 Wilson, Karen, 1383
 Yadav, Lal Dhar S., 1460
 Ye, Deju, 1397
 Ye, Dongyan, 1370
 Yin, Kun, 1370
 Yoneda, Hirokazu, 1373
 Yu, Yancun, 1417
 Zanchettin, Davide, 1405
 Zeng, Haibo, 1442
 Zhang, Ge, 1357
 Zhao, Fengyu, 1417
 Zhao, Yanan, 1370
 Zhou, Yu, 1397

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