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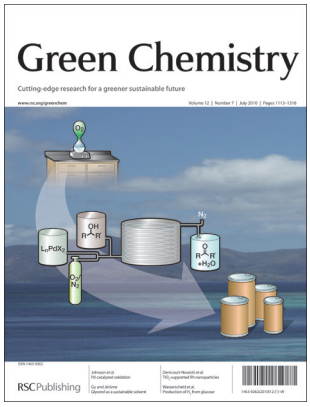
ISSN 1463-9262 CODEN GRCHFJ 12(7) 1113–1316 (2010)



Cover
See Johnson, Yates and Stahl *et al.*, pp. 1180–1186.
A continuous-flow tube reactor developed by the Stahl group (Wisconsin) and Eli Lilly enables safe and scalable aerobic oxidation reactions to be implemented in pharmaceutical synthesis.

Image reproduced by permission of Shannon Stahl and Betsy True from *Green Chemistry*, 2010, **12**, 1180.

Inside cover
See Shchipunov *et al.*, pp. 1187–1195.
Jellification of chitosan solutions through regulated self-organization with oppositely charged polysaccharides.

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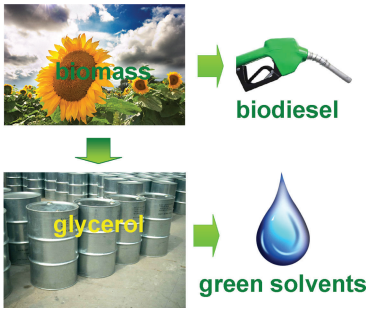
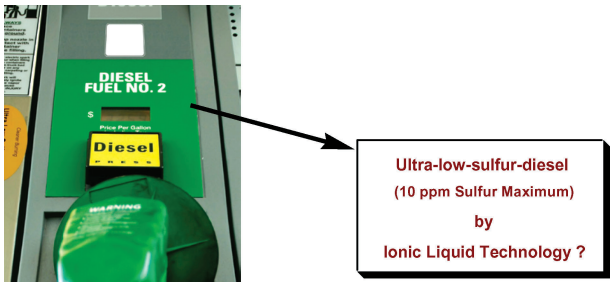
CRITICAL REVIEWS





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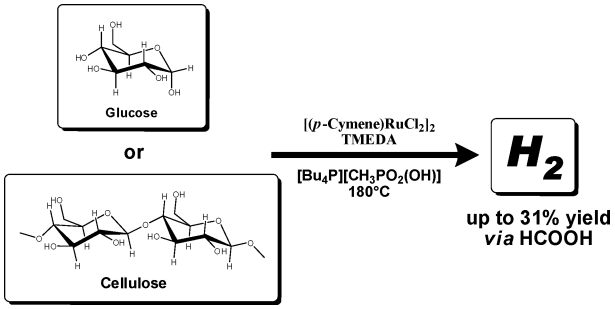
Catalytic production of hydrogen from glucose and other carbohydrates under exceptionally mild reaction conditions

N. Taccardi, D. Assenbaum, M. E. M. Berger, A. Bösmann, F. Enzenberger, R. Wölfel, S. Neuendorf, Volker Goeke, N. Schödel, H. -J. Maass, H. Kistenmacher and P. Wasserscheid*

Ionic liquids dissolve biogenic feedstock like cellulose, which can be used to produce hydrogen. The biomass thermally decomposes to formic acid that is catalytically transformed to hydrogen and CO_2.



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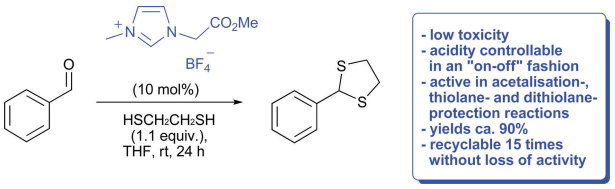
Highly recyclable, imidazolium derived ionic liquids of low antimicrobial and antifungal toxicity: A new strategy for acid catalysis

Lauren Myles, Rohitkumar Gore, Marcel Špulák, Nicholas Gathergood* and Stephen J. Connon*

Imidazolium derived catalysts have been developed which are aprotic and of low antimicrobial and antifungal toxicity, yet which can act as efficient Brønsted acidic catalysts in the presence of protic additives. These can be utilised at low loadings and can be recycled repeatedly.



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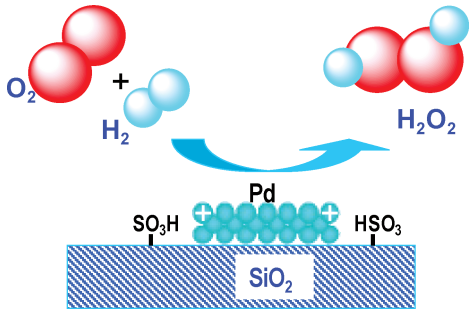
Direct synthesis of hydrogen peroxide on palladium catalyst supported on sulfonic acid-functionalized silica

Gema Blanco-Brieva, M. Pilar de Frutos Escrig, Jose M. Campos-Martin and Jose L. G. Fierro*

Direct synthesis of H_2O_2 has been successfully achieved at high-concentration and high selectivity at realistic reaction temperatures (313 K) on Pd-loaded sulfonic acid-functionalized silica using non-acidic solutions.



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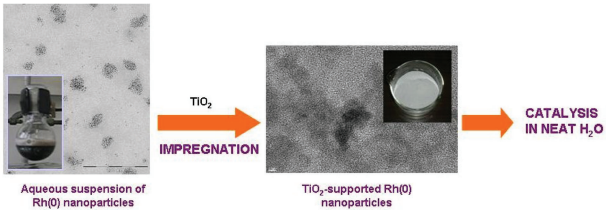
TiO_2-supported Rh nanoparticles: From green catalyst preparation to application in arene hydrogenation in neat water

Claudie Hubert, Audrey Denicourt-Nowicki,* Patricia Beaunier and Alain Roucoux*

TiO_2-supported Rh(0) nanoparticles were synthesized by an easy method under mild conditions in neat water. The characterized materials with sizes between 3–4 nm proved to be highly active catalysts for arene hydrogenation in water with TOFs up to 33 333 h^{-1}.



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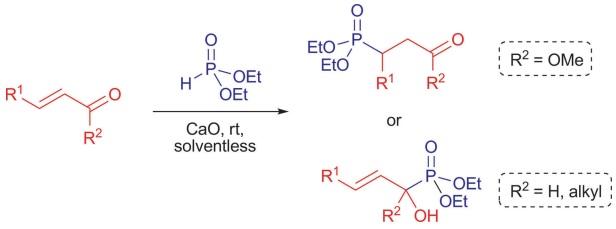

A green procedure for the regio- and chemoselective hydrophosphonylation of unsaturated systems using CaO under solventless conditions

Elisa Martínez-Castro, Óscar López, Inés Maya, José G. Fernández-Bolaños* and Marino Petrini*

Regioselectivity in the CaO-promoted nucleophilic addition of diethyl phosphite to α,β-unsaturated systems follows a definite trend depending on the nature of the substituent on carbonyl.

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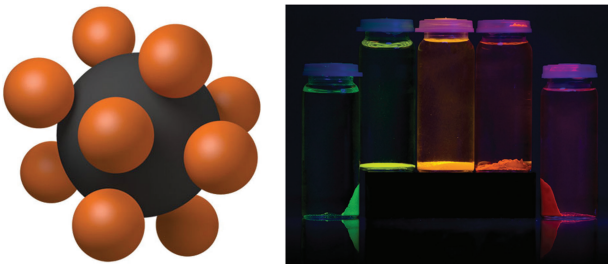
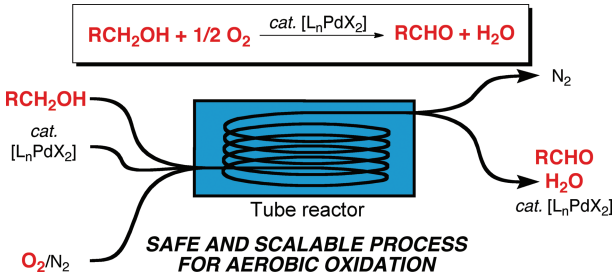


Nanosized luminescent superparamagnetic hybrids

Cameron W. Evans, Colin L. Raston and K. Swaminathan Iyer*

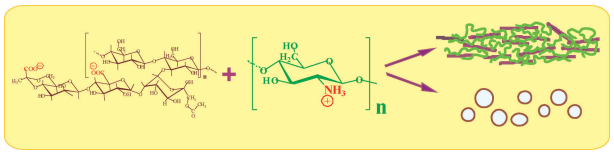
We demonstrate an aqueous self-assembly route to fabricate nanohybrids combining cadmium telluride quantum dots and magnetite nanoparticles. The resulting nanocomposite displays both photoluminescence and superparamagnetic behaviour.



Development of safe and scalable continuous-flow methods for palladium-catalyzed aerobic oxidation reactions

Xuan Ye, Martin D. Johnson,* Tianning Diao, Matthew H. Yates* and Shannon S. Stahl*

A continuous flow reactor has been developed for the application of Pd-catalyzed aerobic oxidation reactions in process-scale pharmaceutical synthesis.



Hydrogels formed through regulated self-organization of gradually charging chitosan in solution of xanthan

Yury Shchipunov,* Sergei Sarin, Il Kim and Chang-Sik Ha

Monolithic hydrogels or capsules are formed through the electrostatic interactions of anionic polysaccharide with chitosan that are gradually charged in the course of a progressive pH decrease by chemical acidulant.

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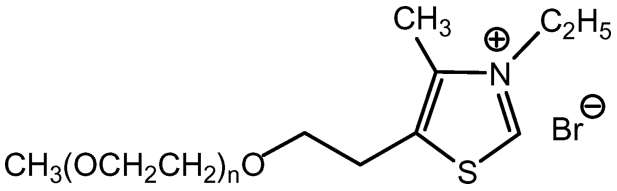

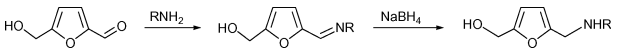

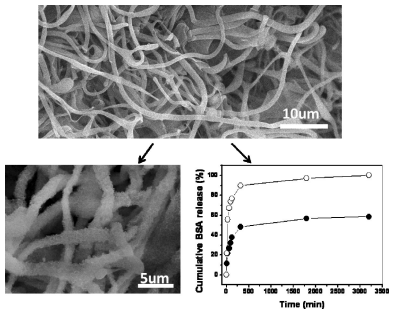

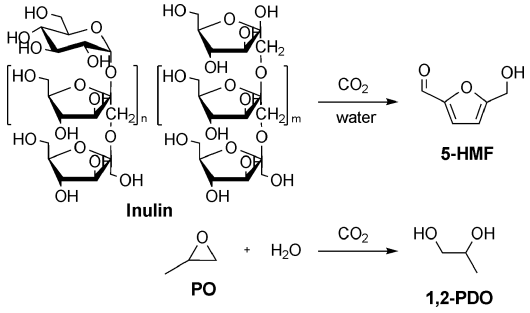

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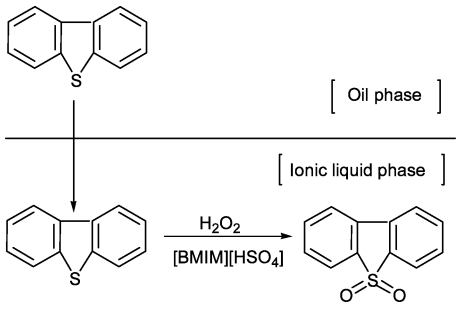

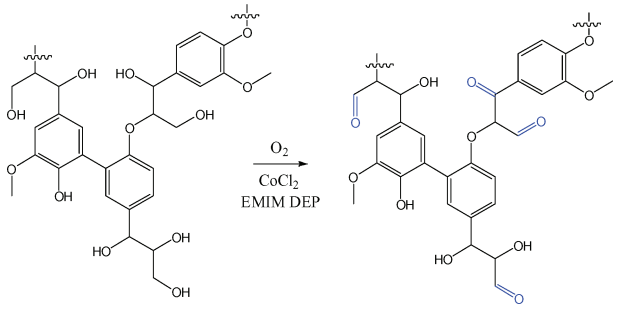

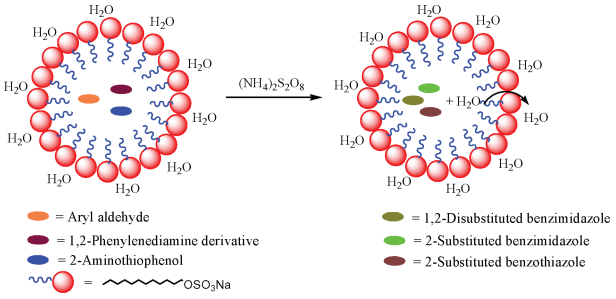

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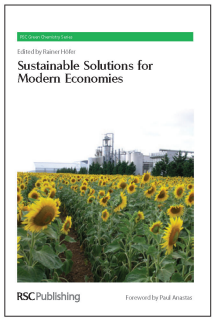

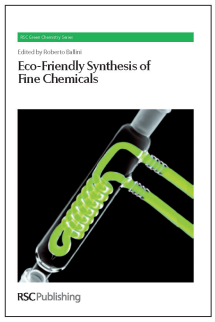

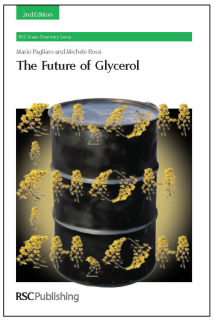

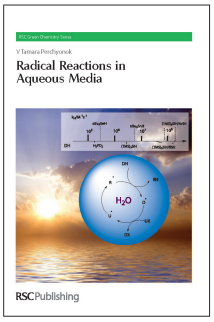

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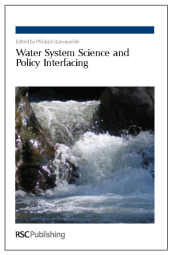

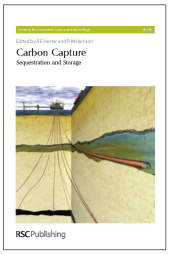

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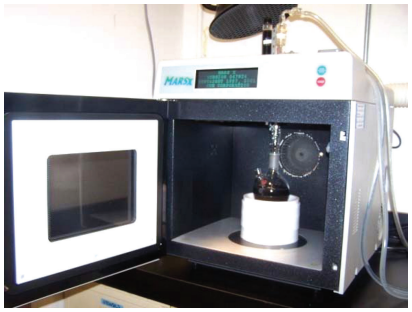

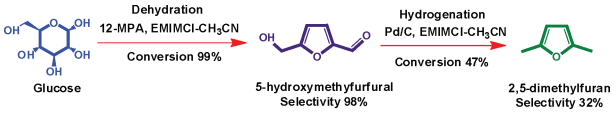

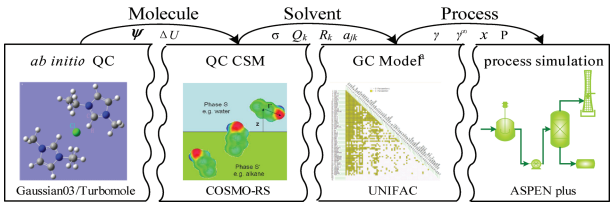

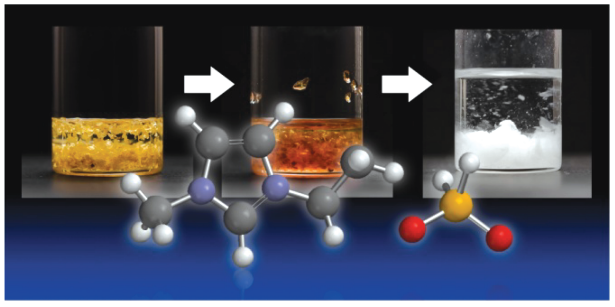

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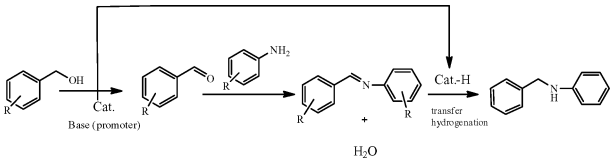
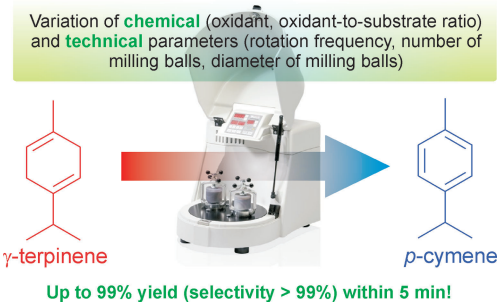


Highly active and selective supported iron oxide nanoparticles in microwave-assisted *N*-alkylations of amines with alcohols

Camino Gonzalez-Arellano, Kenta Yoshida, Rafael Luque* and Pratibha L. Gai

Ironing your chemistry: the efficient microwave-assisted *N*-alkylation of amines with benzyl alcohols can be performed using supported iron oxide nanoparticles on mesoporous materials *via* a hydrogen autotransfer process.

1288

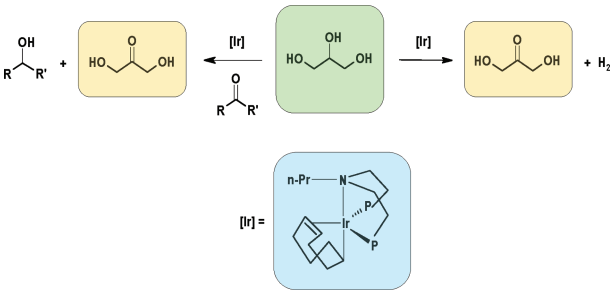


Solvent-free dehydrogenation of γ-terpinene in a ball mill: investigation of reaction parameters

Tony Szuppa, Achim Stolle,* Bernd Ondruschka and Wieland Hopfe

A solvent-free dehydrogenation reaction in a ball mill is used to assess chemical and technical variables for this reaction model. Experiments revealed that $KMnO_4$ can be replaced by less hazardous oxidants ($NaIO_4$, Oxone®), retaining excellent selectivity.

1295

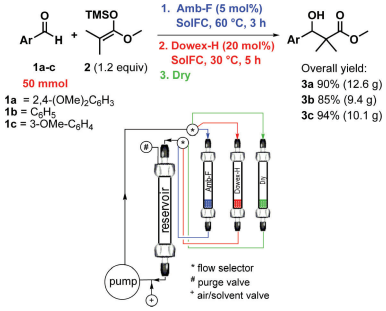


Dehydrogenation of glycerol to dihydroxyacetone catalyzed by iridium complexes with P–N ligands

Corrado Crotti, Jan Kašpar and Erica Farnetti*

Glycerol transfer dehydrogenation to dihydroxyacetone is catalyzed by $[Ir(\sigma,\eta^2\text{-}C_8H_{13})(PNP)]$ (PNP = Pr^n-$N(CH_2CH_2PPh_2)_2$) without a basic cocatalyst; the occurrence of acceptor-less glycerol dehydrogenation is also demonstrated.

1301



An E-factor minimized protocol for the preparation of methyl β-hydroxy esters

Francesco Fringuelli, Daniela Lanari, Ferdinando Pizzo and Luigi Vaccaro*

An automated protocol for the Mukaiyama aldol reaction on a cyclic continuous-flow reactor allowed minimization of the waste production.

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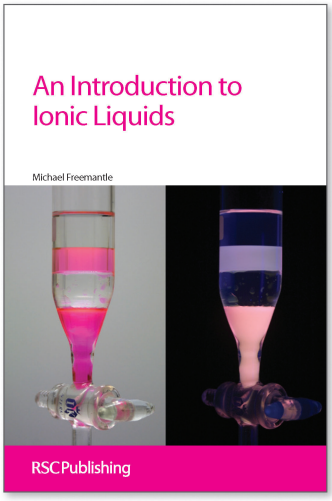

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