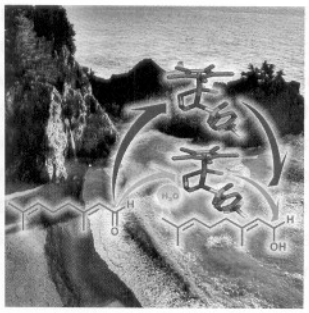
## COVER PICTURE



**The cover picture shows** a reaction scheme for the iridium-catalyzed chemoselective reduction of aldehydes in water, set against a background of clear waters on an unspoilt beach. Catalysis in water is attracting increasing attention in response to calls for environmentally benign and efficient chemical processes. In their Communication on page 71 ff., J. Xiao et al. describe how Ir-*N*-tosyldiamine complexes, previously shown to be excellent catalysts for the transfer hydrogenation of aldehydes in water, also catalyze the reduction of a wide range of aldehydes, including aromatic, aliphatic, heterocyclic, and $\alpha,\beta$-unsaturated aldehydes, in water. The hydrogenation reaction is efficient and chemoselective and proceeds without the need for added organic co-solvents, thus providing an atom-economic and environmentally benign means for aldehyde reduction.

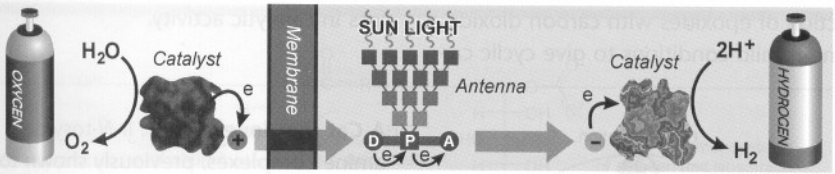
## NEWS



## EDITORIAL BOARD



## REVIEWS






**A leaf out of nature's book**: Will photochemists succeed in their grand challenge to find an artificial means for converting sunlight into fuels? Energy is the most important issue of the 21st century. There is a need to find alternative energy sources to fossil fuels. The most promising choice is solar energy. Chemists, by creating new materials and new processes, can play a key role in solving the energy crisis.

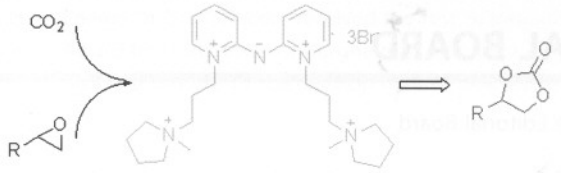
## ESSAYS

**Sustainability in action**: The European Technology Platform for Sustainable Chemistry (SusChem) is a significant focus for sustainable chemical research and innovation in Europe. It offers a unique opportunity to channel research funding into promising areas (particularly, industrial biotechnology, materials technology, and reaction & process design) that can achieve the goals of increased competitiveness and sustainability.

**Giving the "green" light**: In a lecture held before the Société Française de Chimie in Paris in 1908, Giacomo Ciamician contrasted the harsh conditions of chemical synthesis in the laboratory with the mild syntheses carried out by green plants. Ciamician's research, with its focus on photochemical reactions, revealed already 100 years ago several of the tenets of contemporary sustainable/green chemistry.

## COMMUNICATIONS





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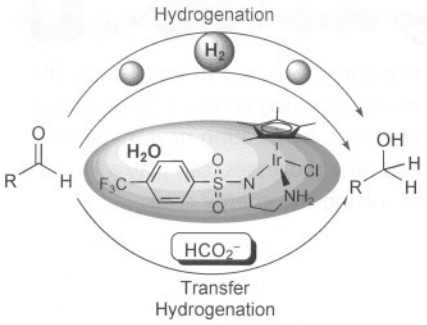
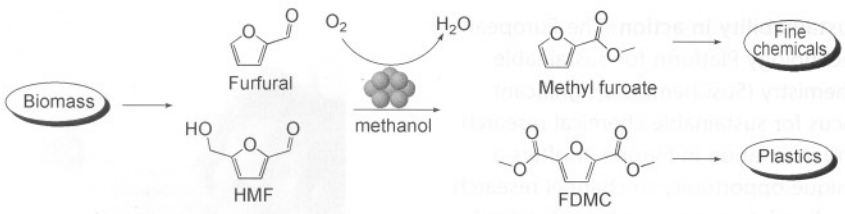
**A quick fix of $CO_2$**: Ionic liquid **1** functions both as efficient organocatalyst and reaction medium in the addition reaction of epoxides with carbon dioxide under mild conditions to give cyclic carbonates. The new ionic liquid is robust and can be recycled and reused continuously without showing any significant loss in catalytic activity.






**A Cat that loves water**: Ir-*N*-tosyldiamine complexes, previously shown to be excellent catalysts for the transfer hydrogenation of aldehydes in water, also catalyze the hydrogenation of aldehydes in water. The reaction is fast and chemoselective, providing a green and efficient method for the reduction of aromatic, aliphatic, heterocyclic, and α,β-unsaturated aldehydes.





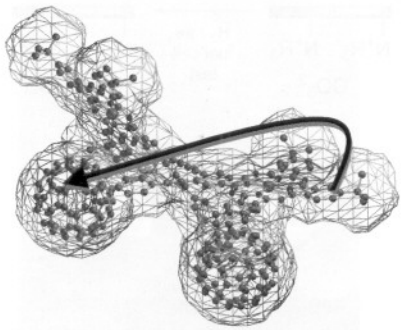

**Aerobic exercise**: The biomass-derived platform chemicals furfural and hydroxymethylfurfural (HMF) are readily oxidized in methanol in the presence of oxygen and a supported gold nanoparticle catalyst to afford the corresponding methyl esters (see scheme). Thus, furfural was oxidized to methyl furoate under very mild conditions, and HMF was converted into furan-2,5-dimethylcarboxylate (FDMC), a potential polymer building block, with high yields.

## FULL PAPERS

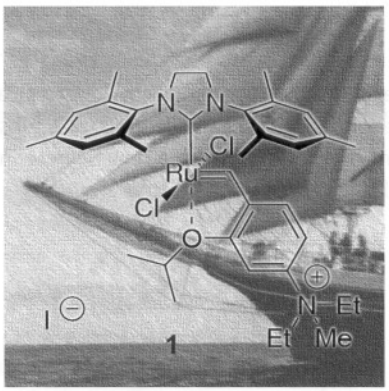




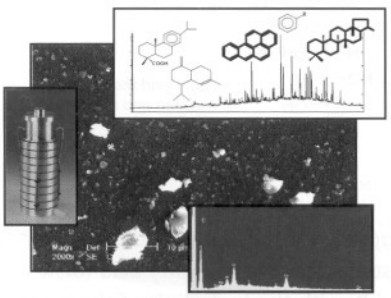
**Communicating through space**: Intramolecular electron transfer from the photoexcited zinc-phthalocyanine (ZnPc) moieties to the electron-accepting $C_{60}$ units governs the overall photoreactivity of a $(ZnPc)_2$-$(C_{60})_2$ tetrad. Through-space charge-transfer interactions facilitated by the proximity of the electro- and photoactive ZnPc and $C_{60}$ units influence the lifetimes of the charge-separated state ($10^{-10}$–$10^{-9}$ s).





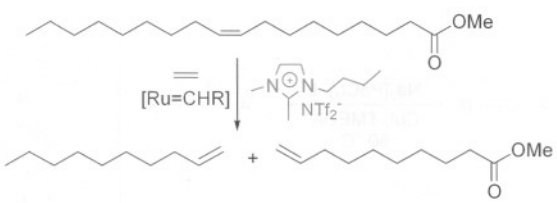

**Moving on to greener waters**: The presence of the electron-withdrawing quaternary ammonium group in Ru complex **1** not only activates the olefin metathesis catalyst electronically but at the same time makes the catalyst more hydrophilic. Catalyst **1** can therefore be efficiently used in traditional media, such as dichloromethane and toluene, as well as in technical-grade alcohols, alcohol–water mixtures, and in neat water.





**Something in the air**: Particulate matter from four sites with different pollution levels, each fractionated into eight samples by size (10–0.43 μm), was characterized according to its component organic compounds and elemental composition. The fine fractions, the most dangerous to human health, are mainly carbonaceous and contain up to 200 organic compounds, including polycyclic aromatic hydrocarbons.






**Oil rush**: The selective cleavage of unsaturated fatty esters from vegetable oils, a renewable feedstock, is an important transformation. The ethenolysis of methyl oleate was performed efficiently in room-temperature ionic liquids with the first-generation Hoveyda ruthenium catalyst to afford 1-decene and methyl 9-decenoate, useful intermediates for the production of lubricants and polyesters. Moreover, the catalyst could be recycled.

# CONTENTS



Supporting information on the WWW (see article for access details).

A video clip is available as Supporting Information on the WWW (see article for access details).

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## INTERVIEW



## SERVICE



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