



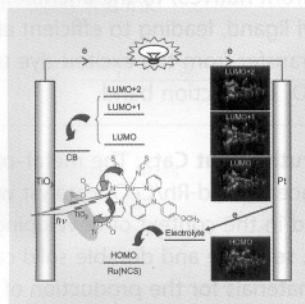
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## COVER PICTURE



The cover picture shows a scheme for a solar cell sensitized by a triarylamine-functionalized ruthenium dye "J6". To engineer an efficient sensitizer, the LUMO of the dye must be sufficiently high in energy to promote efficient charge injection into the TiO<sub>2</sub> film and the HOMO should be sufficiently low in energy for efficient regeneration of the oxidized dye by the hole-transport material/electrolyte. In their Communication on page 901 ff., H. Masuda et al. report a high photon-to-electricity conversion efficiency for the DSSC based on J6. Results from density functional theory calculations suggest that the absorption in the visible region originates from metal-to-ligand charge-transfer transitions from Ru(NCS)<sub>2</sub> to the anchoring bipyridyl ligand, leading to efficient electron transfer from the excited dye to the TiO<sub>2</sub> conduction band (CB).

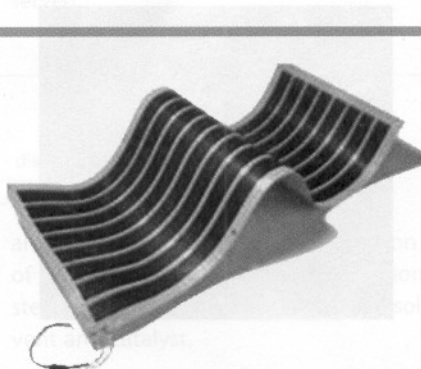
## NEWS

Spotlights on our sister journals

876–877

## REVIEWS

**Soaking up the sun:** Thin-film flexible photovoltaics are paving the way to low-cost electricity. Organic (see picture), inorganic and organic–inorganic solar cells are deposited over flexible substrates by high-throughput (often roll-to-roll printing) technologies to afford lightweight, economic solar modules that can be integrated into various surfaces. (Photo courtesy of Konarka.)



M. Pagliaro,\* R. Ciriminna, G. Palmisano

880–891

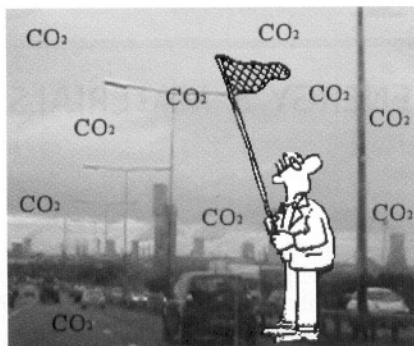
Flexible Solar Cells

## MINIREVIEWS

K. M. K. Yu, I. Curcic, J. Gabriel,  
S. C. E. Tsang\*

893 – 899

Recent Advances in CO<sub>2</sub> Capture and Utilization



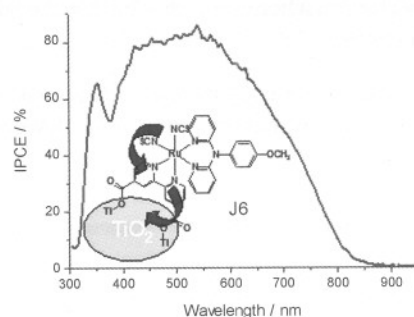
**Fixing the problem:** Reducing global carbon emissions is a challenge that requires urgent global attention. Although some of the proposed routes for the chemical fixation of CO<sub>2</sub> are of commercial interest, they do not necessarily help to mitigate the greenhouse effect. Recent promising activities in the physical capture and chemical fixation of CO<sub>2</sub> are discussed in this Minireview.

## COMMUNICATIONS

Z. Jin, H. Masuda,\* N. Yamanaka,  
M. Minami, T. Nakamura, Y. Nishikitani

901 – 904

Triarylamine-Functionalized Ruthenium Dyes for Efficient Dye-Sensitized Solar Cells

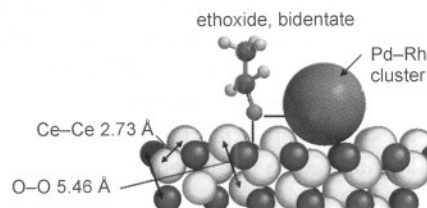


**Super sensitizers:** Solar cells sensitized by triarylamine-functionalized ruthenium dyes (e.g. J6) display a high power conversion efficiency. Density functional theory calculations suggest that absorption in the visible region originates from metal-to-ligand charge-transfer transitions from Ru(NCS) to the anchoring bipyridyl ligand, leading to efficient electron transfer from the excited dye to the TiO<sub>2</sub> conduction band.

H. Idriss,\* M. Scott, J. Llorca, S. C. Chan,  
W. Chiu, P.-Y. Sheng, A. Yee,  
M. A. Blackford, S. J. Pas, A. J. Hill,  
F. M. Alamgir, R. Rettew, C. Petersburg,  
S. D. Senanayake, M. A. Barteau

905 – 910

A Phenomenological Study of the Metal–Oxide Interface: The Role of Catalysis in Hydrogen Production from Renewable Resources

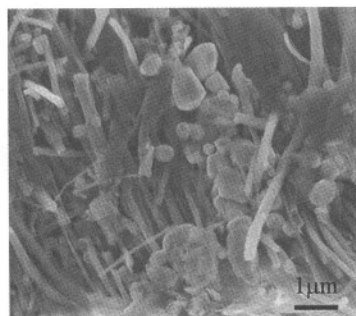


**The truth about Cats:** The metal–oxide interface of a Pd-Rh/CeO<sub>2</sub> catalyst was studied in the context of developing active, selective and durable solid catalytic materials for the production of hydrogen from renewables. The presence of a stable contact between finely dispersed transition-metal clusters (Pd and Rh) on the nanoparticles of the CeO<sub>2</sub> support leads to a highly active and stable catalyst for the steam reforming of ethanol.

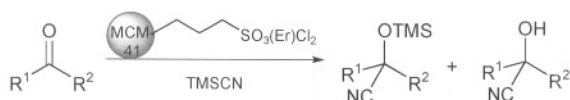
C. Sotowa, G. Origi, M. Takeuchi,  
Y. Nishimura, K. Takeuchi, I. Y. Jang,  
Y. J. Kim, T. Hayashi, Y. A. Kim,\* M. Endo,  
M. S. Dresselhaus

911 – 915

The Reinforcing Effect of Combined Carbon Nanotubes and Acetylene Blacks on the Positive Electrode of Lithium-Ion Batteries



**Carbon—the new black:** The advantages of using carbon nanotubes together with acetylene blacks as cathode fillers include not only enhancement of the electrical and the thermal properties of the electrode but also enhancement of the density of the electrode and a decrease in the electrolyte absorption time. The use of carbon nanotubes as multifunctional fillers in both cathode and anode materials for lithium-ion secondary batteries may increase.



**EvEr green:** A simple synthetic protocol has been developed for the solvent-free cyanosilylation reaction of aldehydes and ketones with trimethylsilyl cyanide (TMSCN) catalysed by a new mesoporous silica supported Er<sup>III</sup> catalyst. The catalyst can be recovered and reused in subsequent reactions without showing any loss of activity (three uses).

rous silica supported Er<sup>III</sup> catalyst. The catalyst can be recovered and reused in subsequent reactions without showing any loss of activity (three uses).

A. Procopio,\* G. Das, M. Nardi, M. Oliverio, L. Pasqua

916–919

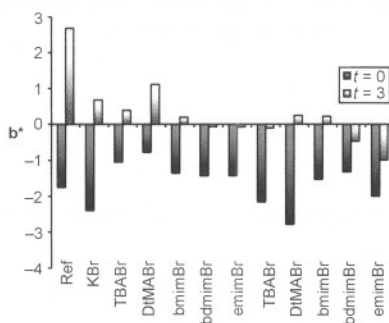
**A Mesoporous Er<sup>III</sup>-MCM-41 Catalyst for the Cyanosilylation of Aldehydes and Ketones under Solvent-free Conditions**



## FULL PAPERS

### Well worth the paper it's written on:

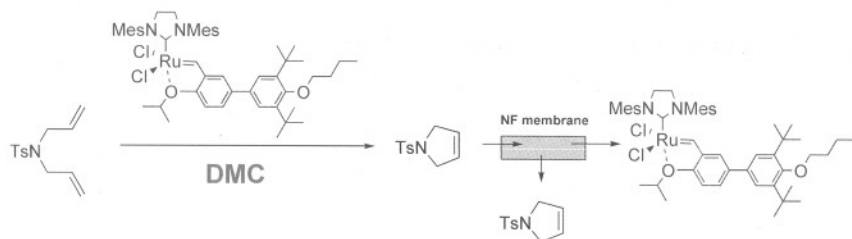
Iron gall inks can deteriorate the paper on which they were used. Stabilization treatments of historical iron gall inked paper consist of deacidification and the addition of antioxidants. A new treatment based on 1-butyl-2,3-dimethylimidazolium bromide (bdmimBr), both in aqueous and alcoholic solution, prevents oxidative deterioration of the paper without yellowing the paper nor discolouring the ink.



G. Ceres, V. Conte,\* V. Mirruzzo, J. Kolar, M. Strlič

921–926

**Imidazolium-Based Ionic Liquids for the Efficient Treatment of Iron Gall Inked Papers**



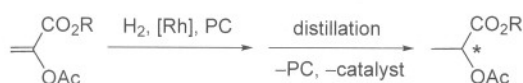
**Repeat performances:** Several enlarged ruthenium-based catalysts were prepared and tested in an olefin metathesis reaction coupled to a nanofiltration (NF) process, aimed at recovering and recycling the catalyst. Retention of the cata-

lyst was as high as 92%, and five catalytic cycles could be performed in a test ring-closing metathesis reaction in dimethyl carbonate (DMC) before a decrease in the catalyst activity was observed.

A. Keraani, T. Renouard, C. Fischmeister,\* C. Bruneau, M. Rabiller-Baudry\*

927–933

**Recovery of Enlarged Olefin Metathesis Catalysts by Nanofiltration in an Eco-Friendly Solvent**



**Very PC:** Unsaturated lactate precursors can be hydrogenated in high yield and with high enantioselectivity in propylene carbonate (PC) using Rh-phospholane catalysts. No additional solvents

are necessary for the further separation of the chiral esters—a simple distillation step separates the product from the solvent and catalyst.

B. Schöffner, V. Andrushko, J. Holz, S. P. Verevkin, A. Börner\*

934–940

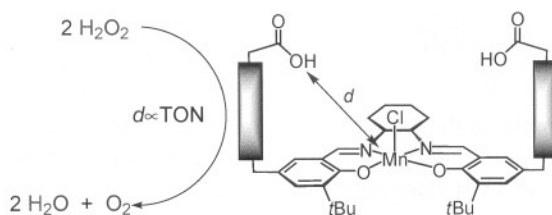
**Rh-Catalyzed Asymmetric Hydrogenation of Unsaturated Lactate Precursors in Propylene Carbonate**



J. Y. Yang, S.-Y. Liu, I. V. Korendovych,  
E. V. Rybak-Akimova, D. G. Nocera\*


941 – 949


 Hangman Salen Platforms Containing  
Dibenzofuran Scaffolds



**Salen's lot:** Manganese complexes of "Hangman" salen ligands incorporating two dibenzofurans functionalized with carboxylic acids were prepared. The size of the molecular cleft controls the production of metal oxo catalysts upon ac-

tivation with  $\text{H}_2\text{O}_2$  as oxidant. The activity of this oxo species in promoting the disproportionation of  $\text{H}_2\text{O}_2$  and olefin epoxidations can be related to the acid-metal distance ( $d$ ).

 Supporting information at  
[www.chemsuschem.org](http://www.chemsuschem.org)  
(see article for access details).

 A video clip is available as Supporting  
Information at [www.chemsuschem.org](http://www.chemsuschem.org)  
(see article for access details).

\* Author to whom correspondence  
should be addressed.

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