

# Chem Soc Rev

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## IN THIS ISSUE

ISSN 0306-0012 CODEN CSRVBR 35(12) 1213–1344 (2006)



### Cover

See Stefan Matile *et al.*, page 1269.  
Advanced design strategies for synthetic ion channels and pores consider topics such as “Newtonian” multi-ion hopping to combine selectivity with speed or ligand gating by “hyperboloidal” helix–barrel transitions.  
Image reproduced by permission of Adam L. Sisson, Muhammad Raza Shah, Sheshanath Bhosale and Stefan Matile, *Chem. Soc. Rev.*, 2006, 35, 1269.



### Inside cover

See Eero Kontturi *et al.*, page 1287.  
Examples of modern cellulose films: nanosized cellulose on silica (above) and cellulose/polystyrene blends (below). The background shows chemically pulped wood fibres, the most abundant native source of cellulose.  
Image reproduced by permission of Eero Kontturi, Tekla Tammelin and Monika Österberg, *Chem. Soc. Rev.*, 2006, 35, 1287.

## CHEMICAL SCIENCE

C89

Drawing together the research highlights and news from all RSC publications, *Chemical Science* provides a ‘snapshot’ of the latest developments across the chemical sciences showcasing newsworthy articles, as well as the most significant scientific advances.

# Chemical Science

December 2006/Volume 3/Issue 12

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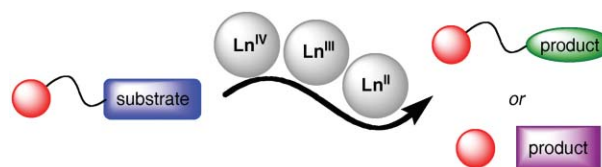
## TUTORIAL REVIEWS

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### Lanthanide reagents in solid phase synthesis

Lisa A. Sloan and David J. Procter\*

**Multi-tasking:** Lanthanide reagents are playing an increasing number of roles in solid phase organic synthesis.



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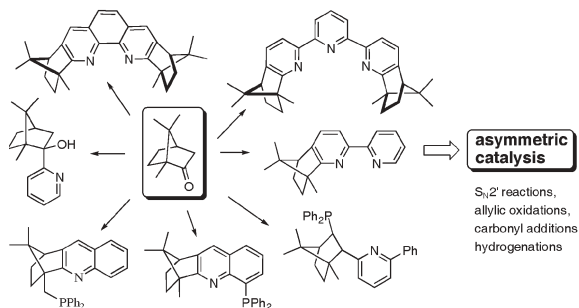
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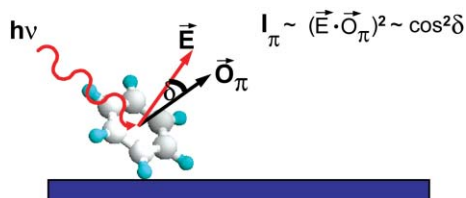


### Synthesis and application in asymmetric catalysis of camphor-based pyridine ligands

Giorgio Chelucci

This tutorial review deals with the synthesis and application in asymmetric catalysis of camphor-based pyridine ligands. It contains a lot of chemistry on ligand synthesis and readers will find it of value and also perhaps an inspiration for the development of more active and improved versions.

1244

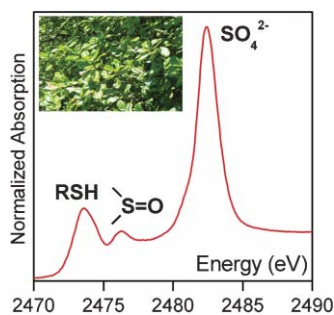


### Near edge X-ray absorption fine structure spectroscopy as a tool to probe electronic and structural properties of thin organic films and liquids

Georg Hähner

Spectroscopy with synchrotron light as a tool to probe electronic and structural properties of thin organic films and liquids.

1256

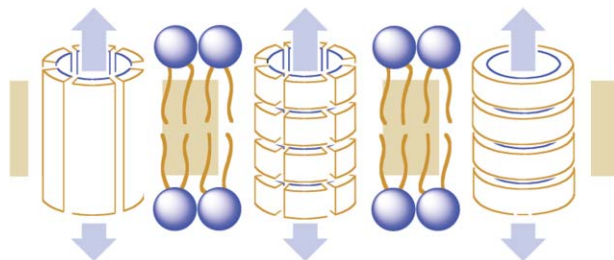


### Sulfur: not a “silent” element any more

Farideh Jalilehvand

Sulfur X-ray absorption near-edge structure (XANES) spectroscopy reveals sulfur functional groups in intact samples (*e.g.* magnolia leaves) in low concentration.

1269



### Synthetic ion channels and pores (2004–2005)

Adam L. Sisson, Muhammad Raza Shah, Sheshanath Bhosale and Stefan Matile\*

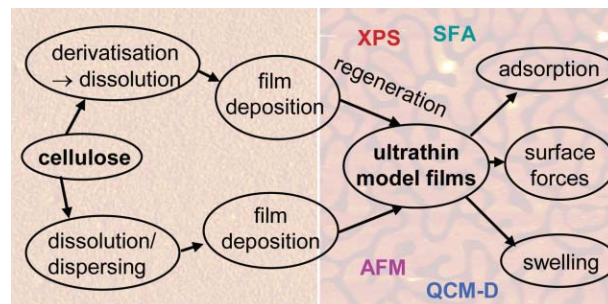
A comprehensive overview of the last two years' creations, with brief introductions to basic principles, methods, and new sources of inspiration.

1287

**Cellulose—model films and the fundamental approach**

Eero Kontturi,\* Tekla Tammelin and Monika Österberg

Ultrathin model films of cellulose, the world's most abundant biopolymer, allow fundamental research which has hitherto remained a small scale activity.

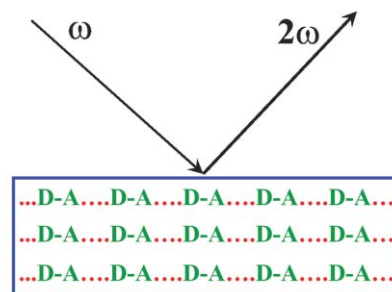


1305

**Dipolar interactions and hydrogen bonding in supramolecular aggregates: understanding cooperative phenomena for 1st hyperpolarizability**

Ayan Datta and Swapan K. Pati\*

Utilizing weak supramolecular forces in designing non-centric aggregates for large 1st hyperpolarizability.



1324

**Electrochemical oxidation of organic pollutants for the wastewater treatment: direct and indirect processes**

Carlos A. Martínez-Huitle\* and Sergio Ferro

The present tutorial review summarizes the results of an extensive selection of papers dealing with electrochemical oxidation, which is proposed as an alternative for treating polluted wastes.



## ADDITION AND CORRECTION

1341

**High-pressure structures and phase transformations in elemental metals**

Malcolm I. McMahon\* and Richard J. Nelmes

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