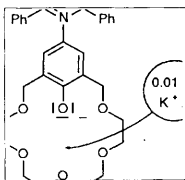


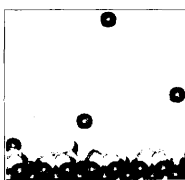
Chemical Society Reviews

Volume 21 Issue 3 Pages 147-214 September 1992



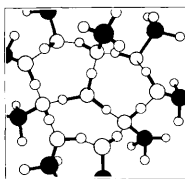
Solvatochromism, Thermochromism, Piezochromism, Halochromism, and Chiro-Solvatochromism of Pyridinium *N*-Phenoxide Betaine Dyes By *Christian Reichardt* (pp. 147-153)

The position of the longest-wavelength, intramolecular charge-transfer absorption band of the solution UV/Vis spectra of pyridinium *N*-phenoxide betaine dyes depends on the polarity of the solvent, the temperature of the solution, the external pressure, the nature and concentration of added salts, and possibly, in the case of homochiral betaine dyes, on the use of chiral solvents. A survey of these peculiar spectral properties of pyridinium *N*-phenoxide betaine dyes is presented. The reasons for this extraordinary behaviour and possible applications (*e.g.* empirical determination of solvent polarities) are discussed.



Molecular Dynamics Simulations of Surface Chemical Reactions By *Barbara J. Garrison* (pp. 155-162)

Molecular dynamics simulations provide a means to examine the atomistic details of chemical reactions and at the same time yield information which can be compared directly with experimental data. This review presents the basic ideas behind molecular dynamics simulations and interaction potentials. Results of molecular dynamics simulations on the probing of surface processes by keV particle bombardment, the molecular beam epitaxial growth of Si, and the F atom etching of Si are discussed.



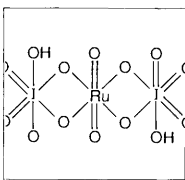
Magic Numbers in Molecular Clusters: A Probe for Chemical Reactivity By *M. Todd Coolbaugh and James F. Garvey* (pp. 163-169)

When neutral van der Waals clusters produced in a supersonic expansion are ionized, the resulting cluster ion distribution can exhibit dramatic intensity anomalies for very specific cluster sizes. These 'magic numbers' typically result from a particularly stable cluster ion geometry generated by the completion of a full solvent shell around a central ion core. This paper reviews the authors' current work which employs magic numbers as a probe, not only of cluster ion structure, but also of chemical reactivity within these species. That is, the appearance of certain magic numbers can be attributed to unique 'cluster reactions' occurring between the ion and the solvating molecules within the cluster.



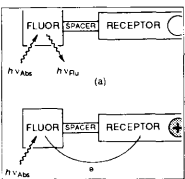
Binuclear Iron Centres in Proteins By *Ralph G. Wilkins* (pp. 171-178)

Binuclear iron sites with bridging ligands feature in a number of important non-haem iron proteins. Haemerythrin is the respiratory protein in marine worms. In addition, there are the enzymes ribonucleotide reductase, important in DNA synthesis; purple acid phosphatases with as yet unknown function; and methane monooxygenase, from methanotropic bacteria, which catalyses the insertion of O into C-H bonds. The variety of techniques used in their structural characterization is described from an historical viewpoint. Finally, the reactivity and mechanisms of action of these proteins are briefly discussed.



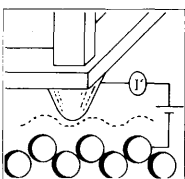
Ruthenium Oxo Complexes as Organic Oxidants By *W. P. Griffith* (pp. 179-185)

A summary is given of the applications of oxoruthenium complexes as catalytic oxidants for organic substrates, mainly but not exclusively for the oxidation of primary alcohols to aldehydes or carboxylic acids and secondary alcohols to ketones. Complexes containing ruthenium(VIII) to (III) inclusive are covered, with an emphasis on recent developments in oxoruthenates(VII) and (VI). Particular attention has been paid to those species which have been structurally or spectroscopically characterized.



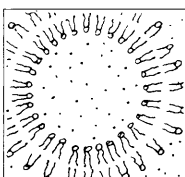
Molecular Fluorescent Signalling with 'Fluor-Spacer-Receptor' Systems: Approaches to Sensing and Switching Devices via Supramolecular Photophysics By *Richard A. Bissell, A. Prasanna de Silva, H. Q. Nimal Gunaratne, P. L. Mark Lynch, Glenn E. M. Maguire, and K. R. A. Samankumara Sandanayake* (pp. 187-195)

The established principle of photoinduced electron transfer is combined with the modular system 'Fluor-Spacer-Receptor' in order to develop rationally an approach to the phenomenon of guest-responsive fluorescence. This approach is highlighted with regard to its flexibility, expandability, and its ability formally to unify a wide variety of fluorescent signalling strategies. Its value for the development of molecular photoionic devices with digital action as well as for the design of sensors for chemical species and properties is pointed out.



Electrochemical Aspects of STM and Related Techniques By *P. A. Christensen* (pp. 197-208)

The application of Scanning Tunneling Microscopy, Scanning Tunneling Spectroscopy, and Atomic Force Microscopy to electrochemistry is reviewed, with particular reference to the practical aspects. A selection of recent work emphasizing the kind of information that can be obtained using these novel techniques is also discussed.



Synthetic Amphiphile Vesicles By *A. M. Carmona-Ribeiro* (pp. 209-214)

At the border between colloids and biomimetic systems, dioctadecyldimethylammonium chloride and dihexadecylphosphate vesicles have had their properties scrutinized during the past decade. Physical and functional properties, responsiveness to the environment, aggregation and fusion, and new uses for synthetic amphiphile vesicles are critically overviewed.

Articles that will appear in forthcoming issues include

The Construction of a Molecular Lego Set **J. F. Stoddart**

Caged Explosives: Metal-Stabilized Chalcogen Nitrides **J. D. Woollins** *et al.*

Peptide Structure from NMR **M. P. Williamson** and **J. P. Waltho**

Zero Oxidation State Compounds of Scandium, Yttrium, and the Lanthanides **F. G. N. Cloke**

Motion of Sorbed Gases in Polymers **W.-Y. Wen**

Individual Solvated Ion Properties and Specificity of Ion Adsorption Effects in Processes at Electrodes **B. E. Conway**

Transition Metal Complexes of Silylenes, Silenes, Disilenes, and Related Species **P. D. Lickiss**

H₃⁺ in Space **S. Miller** and **J. Tennyson**

Ion Pairing and Radical Processes **C. I. F. Watt** and **K. J. Msayib**

Thermodynamic and Related Studies of Amphiphile + Water Systems **M. I. Davis**

Selectivity and Mechanism in Catalytic Asymmetric Synthesis **J. M. Brown**

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