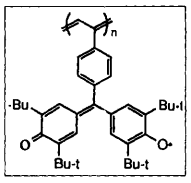
ISSN 0306–0012 CSRVBR 23(3) 147–226 (1994)

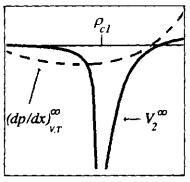
Chemical Society Reviews

Volume 23 Issue 3 Pages 147–226 June 1994



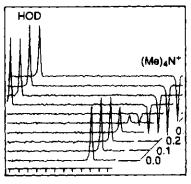
Polyradicals: Synthesis, Spectroscopy, and Catalysis *By J. A. Crayston, A. Iraqi, and J. C. Walton* (pp. 147–153)

Polyradicals are polymers with saturated or conjugated backbones containing a succession of paramagnetic centres. Synthetic strategies and methods of characterization are described with examples of each. Unconjugated polyradicals, *e.g.* poly(TEMPOacrylate), are useful catalysts for the oxidation of amines and alcohols. Conjugated polyradicals include polypyrroles and polythiophenes functionalized with nitroxide, quinone, and viologen units. Polyradical-coated electrodes catalyse redox reactions of organic substrates. Spin cooperation may be induced by certain structural features. Developments in the search for organic ferromagnets are surveyed. Possibilities for superconductivity in polyradicals are briefly treated.



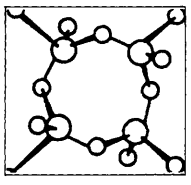
Chemistry in Near-critical Fluids *By Roberto Fernández-Prini and M. Laura Japas* (pp. 155–163)

With the increasing popularity of supercritical fluids as media for physical and chemical processes, much effort has been devoted to understand the peculiar behaviour shown by near-critical fluids. Their observed macroscopic behaviour shifts with density from that typical of a liquid to that typical of a gaseous state, passing through a marginally stable region. Microscopic analysis is mainly focused in the interplay of a long-range effect (enhanced solvent susceptibility) and short-range intermolecular contributions as the fluid density varies.



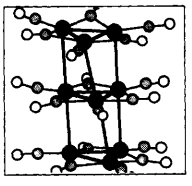
Electrophoretic NMR *By Manfred Holz* (pp. 165–174)

NMR experiments in the presence of the sample of an electric *d*irect *c*urrent in (DCNMR) are now feasible. Thus in complex electrolyte solutions or in fluid macromolecular mixtures distinct charge-carrying species are observable and the sign of their charge and their electrophoretic mobilities can be measured. The author, one of the pioneers in this area, describes the principles and methods of electrophoretic NMR (ENMR), discusses practical experimental problems and their solutions, and gives an overview of actual measurements, applications, and possible future developments of this new class of NMR experiments.



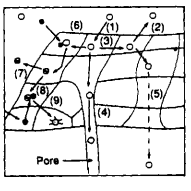
The Hydrides of Aluminium, Gallium, Indium, and Thallium: A Re-evaluation *By Anthony J. Downs and Colin R. Pulham* (pp. 175–184)

Unlike boron, the Group 13 metals aluminium, gallium, indium, and thallium form few well authenticated hydrides, the status of which has suffered over the years from either neglect or controversy. Recent experimental advances (leading, for example, to the synthesis and characterization of gallane) have now stimulated, and in turn profited from, relatively sophisticated quantum mechanical analyses. We draw on a combination of experiment and theory to re-assess these compounds, to review their properties, as well as some of the issues remaining unresolved, and to signal ways in which such studies may be turned to account.



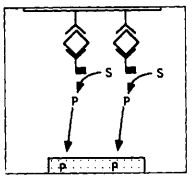
Trimetallic Units as Building Blocks in Cluster Chemistry *By D. Imhof and L. M. Venanzi* (pp. 185–193)

Metal centres with d^{10}-electron configuration readily form trimetallic units, which can add one or more metal atoms or ions. Thus, preformed Pt_3-units $\{Pt_3\}$, react with metal cations, and even metal atoms, forming tetrametallic, pentametallic, or heptametallic clusters. The $\{Pt_3\}$-units are generally of the type $[Pt_3(\mu_2\text{-}L)_3L'_3]$, *e.g.* $[Pt_3(\mu_2\text{-}CO)_3(PR_3)_3]$. Trimetallic units containing the coinage metals $\{M_3\}^{3+}$ can be assembled by reacting transition-metal hydrides of the type $[M'H_mL''_n]$ (M' = Ru, Os, Rh, Ir) with the corresponding metal cations, *e.g.* $[RhH_3(triphos)]$ (triphos = $CH_3C(CH_2PPh_2)_3$) and one equivalent of $Ag(CF_3SO_3)$ give $[Ag_3(\mu\text{-}H)_6Rh_3(triphos)_3](CF_3SO_3)_3$. Some of the homo- ($Pt_3$) and heterometallic ($Pt_3Cu$ and Pt_3Ag) clusters, supported on, *e.g.*, alumina, have been used as catalyst precursors for the dehydrogenation of methylcyclohexane to toluene.



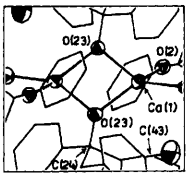
Towards a Laboratory Strategy for the Study of Heterogeneous Catalysis in Stratospheric Ozone Depletion *By Martin R. S. McCoustra and Andrew B. Horn* (pp. 195–204)

Recent observations suggest that stratospheric ozone depletion over the poles in wintertime may be linked to heterogeneous processes occurring upon low temperature particle surfaces, in addition to homogeneous gas-phase reactions. *In situ* measurements are difficult, necessitating the development of laboratory methods for the accurate determination of heterogeneous reaction parameters for a wide variety of atmospheric constituent gases with stratospheric particle surfaces. In this review, some techniques currently being applied to the simulation of representative surfaces and techniques for probing chemistry thereon will be discussed.



Affinity Biosensors *By Dónal Leech* (pp. 205–213)

Recent advances in the development and application of affinity biosensors are presented in this review. Current assay technology for the detection of ligand binding to antibodies, receptors, DNA, and other binding proteins and selected approaches to the develpment of reversible, non-destructive affinity biosensors are discussed. The problems to be overcome for the commercialization of practical affinity biosensors are examined and future trends in affinity biosensor research are predicted.



Homo- and Hetero-metallic Alkoxides of Group 1, 2, and 12 Metals *By R. C. Mehrotra, A. Singh, and S. Sogani* (pp. 215–225)

The preparation, properties, and recent structural elucidations of homo- and hetero-metallic alkoxides as well as oxo-alkoxides of Group 1, 2, and 12 metals are critically reviewed. The applicability of new soluble alkoxy derivatives in the preparation of ultrahomogeneous materials by the sol–gel process is discussed. The potential future areas of developments are exemplified by uniquely stable heterotrimetallic coordination systems, opening up possibilities for the molecular design of single source precursors.

Articles that will appear in forthcoming issues include

Syntheses, Structures, and Properties of Methanofullerenes **F. Diederich, L. Isaacss, and D. Philp**

Crystal Engineering of Diamondoid Networks **M. J. Zaworotko**

Solution Chemistry of Lanthanide Macrocyclic Complexes **F. Arnaud-Neu**

Microelectrodes: New Dimensions in Electrochemistry **R. J. Forster**

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