

CONTENTS

Preface	V
International Advisory Board and Organizing Committee.	XIII
Sponsors	XIV
Oxidation of Saturated Hydrocarbons	
The Selective Functionalisation of Saturated Hydrocarbons. Gif and All That	
D.H.R. Barton, D. Doller.....	1
Catalytic Oxidation of Hydrocarbons. New Approaches	
A.E. Shilov.....	11
Studies of Mechanism in Thermal and Photochemical Alkane Functionalization Reactions Catalyzed by Oxidatively Resistant Metalloporphyrin Analogues (IMAs) and Isopolytungstates	
C.L. Hill, R.F. Renneke, M. Faraj.....	21
Selective Functionalisation of Saturated Hydrocarbons by Oxo Ruthenium Complexes	
M.M. Taqui Khan.....	31
Over-Oxidation of Cyclohexane by the Gif System in an Atmosphere of Pure Oxygen	
U. Schuchardt, E.V. Spinacé, V. Mano.....	47
Selective Oxidation of Some Hydrocarbons	
Kyu Wan Lee, Kyung Yun Choi, Ki Won Jun, D.H.R. Barton.....	55
Oxidation of a Methyl Group in 2,3-Dihydro-2,2,4-Trimethyl-1H-1,5-Benzodiazepine by O ₂ in the Presence of Metal Ions	
Z. Szeverényi, L.I. Simándi.....	
Oxidation of Unsaturated Hydrocarbons	
A Perspective of Catalytic Oxidation	
G. Read.....	71
The Activation of Molecular Oxygen by Transition Metal Complexes	
R.S. Drago.....	83
Cobalt-Schiff Base Complex Promoted Oxygenation of Alkynes	
A. Nishinaga, K. Maruyama, T. Mashino, K. Yoda, H. Okamoto.....	93
Nitrate and Nitrite Ligands as Mediators in Palladium-Catalyzed Oxidation of Olefins	
V.A. Likholobov.....	
Metalloporphyrin-Catalyzed Epoxidation of Propylene	
R. Iwanejko, P. Leduc, T. Mlodnicka, J. Poltowicz.....	
Molecular Oxygen as Oxidant in Heteropolyanion Catalyzed Oxidation	
R. Neumann. M. Levin.....	121

Oxidation of Aromatic Hydrocarbon Derivatives

Ruthenium Catalyzed Oxidation of Nitrogen-Containing Heteroaromatic Compounds	
T. Hara, M. Horii.....	129
Oxidation of Naphthalene on Palladium Based Catalyst	
K. Sasaki, A. Kunai, Y. Kuroda, T. Kitano.....	127

Oxidation of Hydroxy Compounds

Selective Oxidation of Alcohols by Dioxiranes	
R. Curci, M. Fiorentino, C. Fusco, R. Mello.....	147
Oxidation of Alcohols by Ruthenium(II)-Complexes	
M. Bressan, M. Mengarda, A. Morvillo.....	155
On the Mechanism of Ironporphyrin-Catalyzed Aerobic Carbon-Carbon Bond Cleavage of vic-Diols in the Presence of NAD(P)H Model Compounds	
K. Sasaki, M. Tachibana, A. Murakawa, M. Nakano, M. Sakai, Y. Sakakibara, T. Okamoto.....	163
Cobalt Phthalocyanine Catalysis in Autoxidation of 2-Aminophenol by O ₂	
Z. Szeverényi, E.R. Milaeva, L.I. Simándi.....	171
Cobalt Complex with 2,2'-Bipyridyl Immobilized on Disperse Silica Surface in the Reaction of p-Hydroquinone Oxidation. Comparison of the Homogeneous and Heterogeneous Catalysis Results	
T.N. Yakubovich, N.I. Ermokhina, Y.I. Bratushko, Y.L. Zub, A.A. Chuiko.....	179
The Copper(II)-Catalyzed Autoxidation of Catechol in Aqueous Solution	
J. Balla, T. Kiss.....	189

Biomimetic Oxidations

Selective Oxidations with Dioxygen Catalyzed by Ruthenium and Rhodium Complexes	
B.R. James.....	195
Transformation of Fe(III)TMP N-Oxide to a Two Electron Oxidized Equivalent of Fe(III)TMP Complex	
Y. Watanabe, K. Takehira, M. Shimizu, T. Hayakawa, H. Orita, M. Kaise.....	213
Electroassisted Oxidation of <i>cis</i> -Cyclooctene and Adamantane by Molecular Oxygen Catalyzed by Polypyrrole Manganese Porphyrin Films	
F. Bedioui, S. Gutierrez Granados, L. Gaillon, C. Bied-Charreton, J. Devynck.....	221
Enhanced Electronic Delocalization in Face-to-Face Diporphyrins. Implication in the Unique Reactivity of the Cobalt Derivatives Towards Dioxygen and in the 4-Electron Reduction Mechanism of O ₂	
V. Le Mest, M. I. Her, J.P. Collman.....	229

Copper Complexes as Catalysts

Biomimetic Binding and Activation of Dioxygen with Copper Complexes Z. Tyeklár, K.D. Karlin.....	237
Kinetics and Thermodynamics of Dioxygen Interaction with Copper A.D. Zuberbühler.....	249
Preparation and Reactions of μ -Peroxo Complexes of Copper and Iron as Models for Tyrosinase and Methane Monooxygenase N. Kitajima, Y. Moro-oka.....	259
Quercetin 2,3-Dioxygenase Mimicking Chemistry G. Speier.....	269
Novel Oxidation of Phenols by a Copper(II) Complex Catalyst/O ₂ System K. Takehira, M. Shimizu, Y. Watanabe, T. Hayakawa, H. Orita.....	279

Iron Complexes as Catalysts

Iron- and Cobalt-Induced Activation of HOOH and of Dioxygen for the Ketonization of Methylenic Carbons, the Dioxygenation of Arylolefins and Catechols, and the Monooxygenation of Hydrocarbons D.T. Sawyer, Ceshing Sheu, Hui-Chan Tung, A. Sobkowiak.....	285
Reaction of Iron(III) Tetra(4-N-Methylpyridyl)Porphyrin with Tertiary- Butyl Hydroperoxide in Aqueous Solution M.J. Davies, R.E. Gammon, J.R. Lindsay Smith, R.J. Lower.....	297
Heme-Hydrogen Peroxide Complexes Formation as Studied by ESR and Optical Spectroscopy K. Tajima, M. Shigematsu, J. Jinno, K. Ishizu, H. Ohya-Nishiguchi.	305
The Role of Threonine 252 in the Oxygen Activation by Cytochrome P-450cam: Mechanistic Studies by Site-Directed Mutagenesis H. Shimada, Y. Watanabe, M. Imai, R. Makino, H. Koga, T. Horiuchi, Z. Ishimura.....	313
EPR and Optical Studies on Non-Heme Iron, Substrate and Dioxygen Ternary Complexes in the Catechol Dioxygenase Model Reaction Systems S. Fujii, H. Ohya-Nishiguchi, N. Hirota.....	321

Cobalt Complexes as Catalysts

Binding and Activation of Molecular Oxygen within the Cavity of the Dinuclear Cobalt Bisdien Macrocyclic Complex: Reactions with Bridging Coordinated Bifunctional Reducing Substrates A.E. Martell, R.J. Motekaitis.....	331
Interaction of Molecular Oxygen with Transition Metal Centers in Electrocatalytic Synthesis of Peroxo Species G. Costa, C. Tavagnacco, G. Balducci, R. Kumar.....	337
A Study of the Intermediate of Catechol Dioxygenase Model Reaction by Co(III)Tetramine Complexes and Catechols S. Nakashima, H. Ohya-Nishiguchi, N. Hirota, S. Tsuboyama, T. Chijimatsu.....	347

Electronic-Structural Correlations of Dioxygen Binding and Activation by Binuclear Copper and Cobalt Complexes	
E. I. Solomon, M. J. Baldwin, P. K. Ross, F. Tuczec.....	357
Oxidations with Oxo and Peroxo Complexes and H_2O_2	
Intramolecular Reactivity of Oxo-Alkyl Complexes of Molybdenum and Tungsten	
H. Arzoumanian, H. Krentzien, H. Teruel.....	367
Oxidation of Alcohols and Diols by Peroxometal Complexes	
S. Campestrini, F. Di Furia, G. Modena, F. Novello.....	375
Titanium-Promoted Enantioselective Oxidation of Thioethers and Synthetic Applications	
V. Conte, F. Di Furia, G. Licini, G. Modena, G. Sbampato.....	385
Ruthenium and Osmium Carboxylato Oxo Complexes as Organic Oxidants	
W. P. Griffith, M. Jolliffe.....	395
Reactivity of Organopalladium Compounds Towards Early Transition Metal Peroxides: O-Insertion vs. C-X-Coupling	
P. L. Alsters, H. T. Teunissen, J. Boersma, G. Van Koten.....	401
Lactonization of Cyclic Ketones with Hydrogen Peroxide Catalyzed by Platinum(II) Complexes	
M. Del Todesco Frisone, R. Giovanetti, F. Pinna, G. Strukul.....	
A Novel Oxidation of Internal Alkynes with Hydrogen Peroxide Catalyzed by Peroxotungstophosphates	
Y. Ishii, Y. Sakata.....	411
The Mechanism of Catalytic Chemiluminescence of Luminol	
H. Ojima, K. Nonoyama.....	417
Thermal and Photochemical Catalysis by Polyoxometallates. Regeneration of Catalyst by Dioxygen	
A. Hiskia, E. Papaconstantinou.....	
Epoxidation of Cyclohexene Catalyzed by Oxoperoxometallates Under Phase-Transfer Conditions	
L. J. Csányi, K. Jáky.....	437
Structure and Reactivity of Fe(III)TPP-Oxygen-Skatole Ternary Complex in Tryptophan Dioxygenase Model Reaction System	
K. Tajima, M. Yoshino, T. Edo, K. Ishizu, H. Ohya-Nishiguchi.....	
Hydroxylation of Phenol Catalyzed by Metal Phthalocyanines	
Y. Masri, M. Hronec.....	
Phthalocyanine Derivatives as Catalysts for Soft Peroxidative Oxidations	
V. M. Derkacheva, S. V. Barkanova, O. L. Kaliya, E. A. Luk'yanets.....	461
Hydroperoxide Oxidation of Cyclohexane Catalyzed by Metal Complexes of Azaporphines	
S. V. Barkanova, I. A. Zheltukhin, O. L. Kaliya, V. N. Kopranev	
E. A. Luk'yanets.....	471

Polymer-Bound Iron(III) Porphyrins as Oxidation Catalysts in Aqueous Solution K. J. Lower, J. R. Lindsay Smith.....	481
Cobalt-Shiff Base Complex Catalyzed Dehydrogenation of Amines with <i>tert</i> -Butyl Hydroperoxide K. Maruyama, T. Kusakawa, Y. Higuchi, A. Nishinaga.....	489
Homolytic Reactivity of Peroxovanadium Complexes M. Bonchio, V. Conte, F. Coppa, F. Di Furia, G. Modena.....	497
Interaction of Hydrogen Peroxide and Copper(II): A Peroxidic Oxidizing Reagent P. Capdevielle, M. Maumy.....	505
Kinetic Resolution of Oxiranes by Chiral Molybdenum(VI) (Oxodiperoxo) α -Hydroxy Acid Amide/Diol Reagents F. Betschinger, K. Hintzer, U. Leyrer, V. Schurig.....	513
New Insights into the Catalytic Activity of Polyoxometallates for Oxidation with Hydrogen Peroxide J.-M. Brégeault, C. Aubry, G. Chottard, N. Platzter, F. Chauveau, C. Huet, H. Ledon.....	521
Oxidation of Primary and Secondary Aliphatic Amines by $Mo(O)(O_2)_2L'L''$ ($L'=H_2O$, $L''=Hexamethylphosphoramide$) F. Porta, S. Tollari, F. Ragaini, C. Crotti.....	531
The Sharpless Epoxidation of 3-Methyl-2-Buten-1-ol Using Various Organic Hydroperoxides E. Höft, H.-J. Hamann, L. Rüffer, M. Jáky.....	537
Attempted Catalytic Epoxidation of Alkenes Using a Metal Hydroperoxide: Dioxygen Insertion into a Pt-H Bond T. T. Wenzel.....	545
Singlet Oxygen Reactions	
1,2,4-Trioxanes, the Chemistry of a New Class of Saturated Heterocycles C. W. Jefford.....	555
Regioselectivity of Singlet Oxygen Ene Reactions. The Non-Bonding Large Group Effect M. Orfanopoulos, M. Stratakis, Y. Elemen, I. Smonou.....	565
Industrial Applications	
Industrial Catalytic Oxidations: An Overview R. A. Sheldon.....	573
Catalytic Cu(II) Induced Reactions W. Buijs, R. Offermanns, L. Frijns.....	595
Why not Ozone? H. Ledon.....	603
Deactivation Mechanisms in Liquid Phase Oxidations Caused by Carboxylic Acids W. Partenheimer, J. A. Kaduk.....	

Hydroperoxides in Hydrocarbons Liquid Phase Oxidation S. Ciborowski.....	623
Miscellaneous Systems	
Alkylcarbonate Synthesis by New Catalytic System Mi-Yon Lee, Dae-Chul Park.....	631
Oxidation of Ethylbenzene by Phenazine-di-N-Oxide Radical Cation E.M. Koldasheva, Y.V. Geletii, V.V. Strelets, A.E. Shilov.....	641
Syntheses and Catalytic Properties of Iron Triphenylphosphine Oxide Complexes I. Ondrejčková, V. Vancová, G. Ondrejovič.....	649
A Mechanistic Study of the Formation of Maleic Anhydride on a Vanadyl Pyrophosphate Surface B. Schiøtt, K.A. Jørgensen.....	655
Oxo Transfer from Amine N-Oxides to Copper Salts: Resulting Copper(III) Mediated Oxidation of Organic Ligands M. Maumy, P. Capdevielle.....	665
Cobalt-Schiff Base Complex Catalyzed Epoxidation of Olefins with NaOCl A. Nishinaga, K. Maruyama, M. Kakutani, T. Mashino, T. Umeda.....	675
Synthesis and Molecular Structure of a Novel Biomimetic Tetranuclear Manganese Aggregate R.T. Stibrany, S.M. Gorun.....	681
Author Index.....	689
Subject Index.....	691