

# INDEXES

Volume 20, 1966, contains the cumulative indexes  
for Volumes 1–20

The indexes in this issue cover  
Volumes 21–25

## INDEX OF AUTHORS

- Abel, E. W., 23, 325;  
24, 498
- Abraham, E. P., 21, 231
- Addison, C. C., 25, 289
- Anbar, M., 22, 579
- Ashby, E. C., 21, 259
- Aylward, J. B., 25, 407
- Bamford, C. H., 23, 271
- Barefield, E. K., 22, 457
- Barnes, A. J., 23, 392
- Bartlett, P. D., 24, 473
- Baxter, I., 25, 239
- Beech, G., 23, 410
- Bennetto, H. P., 25, 501
- Berkoff, C. E., 23, 372
- Betts, J., 25, 265
- Blackburn, E. V., 23, 482
- Blandamer, M. J., 24,  
169
- Bolton, P. D., 25, 521
- Bottomley, F., 24, 617
- Boyd, D. R., 22, 95
- Boyle, P. H., 25, 323
- Brandsen, B. H., 21, 474
- Brett, N. H., 24, 185
- Brocklehurst, B., 22, 147
- Bruce, J. M., 21, 405
- Buchanan, J. G. St. C.,  
23, 522
- Buckingham, A. D., 21,  
195
- Buckingham, J., 23, 37
- Buncel, E., 22, 123
- Burgess, J., 22, 276
- Busch, D. H., 22, 457
- Bushby, R. J., 24, 585
- Cadogan, J. I. G., 22,  
222
- Chambers, D. B., 22, 31
- Cherry, R. J., 22, 160
- Christian, S. D., 24, 20
- Clark, R. G., 24, 95
- Clive, D., 22, 435
- Cookson, R. C., 22, 423
- Corey, E. J., 25, 455
- Cornforth, J. W., 23, 125
- Cowell, G. W., 24, 119
- Cox, R. A., 22, 499
- Dale, B. W., 22, 527
- Davidson, I. M. T., 25,  
111
- Davidson, R. S., 21, 249
- Davis, B. A., 25, 239
- Dickens, P. G., 21, 30
- Drake, J. E., 24, 263
- Eglinton, G., 25, 571
- Eschenmoser, A., 24, 366
- Evans, U. R., 21, 29
- Fensham, P. J., 21, 507
- Fox, M. F., 24, 565
- Freedman, R. B., 25, 431
- Garner, C. D., 25, 289
- Gash, B. W., 24, 20
- Gasser, R. P. H., 25, 223
- Geddes, R., 23, 57
- Gill, G. B., 22, 338
- Gillespie, R. J., 25, 553
- Glockling, F., 22, 317
- van Gorkom, M., 22, 14
- Hall, C., 25, 87
- Hall, G. E., 22, 14
- Hallam, H. E., 23, 392
- Hepler, L. G., 25, 521
- Herzberg, G., 25, 201
- Hey, D. H., 25, 483
- Hill, J., 23, 18
- Hopkinson, S. M., 23, 98
- Horspool, W. M., 23,  
204
- Howe, A. T., 21, 507
- Hughes, M. N., 22, 1
- Jefferson, A., 22, 391
- Jones, J. H., 22, 302
- Jones, J. R., 25, 365
- Jones, W. J., 23, 73
- Keenan, A. G., 23, 430
- Kerr, J. A., 22, 549
- Klingsberg, E., 23, 537
- Laane, J., 25, 533
- Lambert, J. D., 21, 67
- Lederer, E., 23, 453
- Ledwith, A., 24, 119
- Lee, A. G., 24, 310
- Lee, J. B., 21, 429
- Light, J. R. C., 22, 317
- Lindoy, L. F., 25, 379
- Lloyd, A. C., 22, 549
- Logan, N., 25, 289
- Luckhurst, G. R., 22,  
179
- Luz, Z., 21, 458
- MacKenzie, K. J. D., 24,  
185
- McAuley, A., 23, 18
- McCaffery, A. J., 23, 552
- McDonald, T. R., 24,  
238
- McFarlane, W., 23, 187
- McKervey, M. A., 22, 95
- McLennan, D. J., 21,  
490
- Maxwell, J. R., 25, 571
- Milne, G. W. A., 22, 75
- Morton, M. J., 25, 553
- Muettterties, E. L., 21,  
109
- Müller, E. W., 23, 177
- Nelson, S. M., 22, 457
- Norbury, A. H., 24, 69
- Norris, A. R., 22, 123
- Nyholm, R., 24, 1
- O'Connor, C., 24, 553
- Orr, B. J., 21, 195
- Parker, W., 21, 331
- Pelletier, S. W., 21, 525
- Penzer, G. R., 21, 43
- Pethrick, R. A., 23, 301
- Pettit, L. D., 25, 1
- Pietra, F., 23, 504
- Pillinger, C. T., 25, 571
- Pollock, J. M., 24, 601
- Pope, M. T., 22, 527
- Radda, G. K., 21, 43
- Rahman, R., 24, 208
- Ramage, R., 21, 331
- Reucroft, J., 25, 135
- Riddell, F. G., 21, 364
- Riddle, C., 24, 263
- Rigby, M., 24, 416
- Roberts, J. S., 21, 331
- Robinson, D. L., 21, 314
- Ruff, I., 22, 199
- Russell, K. E., 22, 123
- Safe, S., 24, 208
- Salmond, W. G., 22, 253
- Sammes, P. G., 24, 37;  
25, 135
- Satchell, D. P. N., 25,  
171
- Satchell, R. S., 25, 171
- Schatz, P. N., 23, 552
- Scheinmann, F., 22, 391
- Schutte, C. J. H., 25, 393
- Sharp, J. H., 24, 185
- Sheldrick, B., 24, 454
- Shorter, J., 24, 433
- Siegmund, R. F., 23, 430
- Silver, B. L., 21, 458

## *Index*

- Singer, K., 24, 238  
Sinha, A. T. P., 24, 69  
Sklarz, B., 21, 3  
Smith, K. M., 25, 31  
Sternhell, S., 23, 236  
Stewart, E. T., 24, 95  
Stone, F. G. A., 23, 325;  
24, 498  
Symons, M. C. R., 22,  
276  
Taha, A. A., 24, 20  
Taylor, A., 24, 208  
Theobald, D. W., 21,  
314  
Thompson, C., 22, 45  
Timmons, C. J., 23, 482  
Uff, B. C., 21, 429  
Urch, D. S., 25, 343  
Waley, S. G., 21, 379  
Walker, D. C., 21, 79  
Wallwork, S. C., 25, 289  
Weatherston, J., 21, 287  
Wehry, E. L., 21, 213  
Weiss, F., 24, 278  
Whittingham, M. S., 22,  
30  
Williams, I., 23, 1  
Williams, R. J. P., 24, 331  
Willmott, A. R., 25, 501  
Winstein, S., 23, 141  
Woodgate, P. D., 23, 522  
Wright, C. M., 21, 109  
Wyn-Jones, E., 23, 301

## INDEX OF TITLES

- Acetylenes, base-catalysed isomerisation of, 24, 585
- Acids, ionization of, and polar substituent effects, 25, 521
- Acidities of carbon acids, 25, 363
- Adiabatic Born-Oppenheimer approximation, 25, 393
- Alkaloids, the chemistry of the C<sub>20</sub>-diterpene, 22, 525
- C-Alkylation, some problems concerning biological, reactions and phytosterol biosynthesis, 23, 453
- Allylic compounds, photochemistry of, 24, 423
- Amalgam electrodes, electrochemical measurements with, 25, 401
- Amide hydrolysis, acidic and basic, 24, 553
- Amino-acid and peptide derivatives, mass spectra of, 22, 302
- Amino-acid analysis and sequence determination, application of computers to, 24, 454
- Ambidentate ligands, the co-ordination of, 24, 69
- Ammonium perchlorate, thermal decomposition of, 23, 430
- Aqueous salt solutions, structure and properties of, 24, 169
- Aromatic nitro-compounds, interaction of, with bases, 22, 123
- Aromatic substitution reactions, nucleophilic and photonucleophilic, mechanisms for, 23, 504
- Arthropod defensive substances, the chemistry of, 21, 287
- Arylhydrazones, the chemistry of, 23, 37
- Asymmetric synthesis, 22, 95
- Autoxidation of hydrocarbons in the liquid phase, kinetics of, 25, 265
- Back-co-ordination in inorganic compounds, 25, 1
- Biochemistry, and chemistry, of insect hormones, 23, 372
- , of phenolic glycosides, 23, 98
- Biochemistry of sodium, potassium, magnesium, and calcium, 24, 331
- Biogenesis, sesquiterpene, 21, 331
- Biological pigments, semiconduction and photoconduction of, 22, 160
- Biosynthesis, some problems concerning biological C-alkylation reactions and phytosterol, 23, 453
- , starch, 23, 57
- Born - Oppenheimer approximation, 25, 393
- Carbanion mechanism of olefin-forming elimination, 21, 490
- Carbon acids, acidities of, 25, 363
- Carbonyls, the chemistry of transition metal: structural considerations, 23, 325
- : synthesis and reactivity, 24, 498
- Cations, halogen and interhalogen, 25, 553
- CENTENARY LECTURE. Computer-assisted analysis of complex synthetic problems, 25, 455
- CENTENARY LECTURE. Field-ion microscopy and the electronic structure of metal surfaces, 23, 177
- CENTENARY LECTURE. Mechanisms of cycloaddition, 24, 473
- CENTENARY LECTURE. Nonclassical ions and homoaromaticity, 23, 141
- CENTENARY LECTURE. Roads to corrins, 24, 366
- Cephalosporin C Group, 21, 231
- Claisen rearrangement, molecular rearrangements related to the, 22, 391
- Clemmensen reduction of difunctional ketones, 23, 522
- Computer-assisted analysis of complex synthetic problems 25, 455
- Computer simulation study of simple liquids, 24, 238
- Computers in chemical analysis, application of: amino-acid analysis and sequence determination, 24, 454
- Conformational analysis, heterocyclic, 21, 364
- Co-ordinated nitrate groups, structural aspects of, 25, 289
- Corrins, roads to, 24, 366
- Crystals, liquid, as solvents in nuclear magnetic resonance, 22, 179
- Cycloaddition, mechanisms of, 24, 473
- Decomposition reactions of radicals, 22, 549
- Diazo-alkanes, developments in the chemistry of, 24, 119

## Index

- Diffusion in ionic solids, 24, 601  
Diterpene alkaloids, the chemistry of the C<sub>20</sub>, 21, 525  
Electrochemical measurements with amalgam electrodes, 25, 501  
Electron, the hydrated, 21, 79  
Electronic structure, field-ion microscopy and the, of metal surfaces, 23, 177  
Electrons, reactions of hydrated, with inorganic compounds, 22, 579  
Electron-transfer, theory of thermal, reactions in solution, 22, 199  
Electron spin resonance, chemical applications of oxygen-17 nuclear and, 21, 458  
—, of the triplet state, 22, 45  
Electronic properties of binary compounds of the first-row transition metals, 21, 507  
Electrophilic oxygen, organic reactions involving, 21, 429  
Elementary particles, 21, 474  
Elements, nuclear spin-spin coupling between directly bound, 23, 187  
Energy transfer, vibration-vibration, in gaseous collisions, 21, 67  
Enzyme action, mechanism of, 21, 379  
Enzyme mechanisms, exploration of, by asymmetric labelling, 23, 125  
Enzymes, mechanism of action and specificity of proteolytic, 23, 1  
Faraday effect, 23, 552  
FARADAY LECTURE. Spectra and structures of molecular ions, 25, 201  
Field-ion microscopy and the electronic structure of metal surfaces, 23, 177  
Free radicals, hydrogen abstraction in the liquid phase by, 21, 249  
Geochemistry, organic, 25, 571  
Glycosides, phenolic, the chemistry and biochemistry of, 23, 98  
Grignard reagents. Compositions and mechanisms of reaction, 21, 259  
Halogen and interhalogen cations, 25, 553  
Heterocyclic conformational analysis, 21, 364  
Heterocyclic quinones, synthesis of, 25, 239  
Hormones, the chemistry and biochemistry of insect, 23, 372  
Hydrated electrons, reactions of, with inorganic compounds, 22, 578  
Hydrazine, the reactions of transition-metal complexes with, 24, 617  
Hydrides of silicon and germanium, volatile compounds with elements of groups V and VI, 24, 263  
Hydrocarbons, kinetics of autoxidation in the liquid phase, 25, 265  
Hydrogen abstraction in the liquid phase by free radicals, 21, 249  
Hydrous layer silicates and their related hydroxides, the thermal decomposition of, 24, 185  
Hyponitrites, 22, 1  
Inert gases, the reactions of ions and excited atoms of the, 22, 147  
Infrared studies of matrix-isolated species, 23, 392  
Inorganic compounds, reactions of hydrated electrons with, 22, 579  
Insect hormones, the chemistry and biochemistry of, 23, 372  
Internal rotation, the determination of the energies associated with, 23, 301  
Interproton, correlation of, spin-spin coupling constants with structure, 23, 236  
Ionic solids, diffusion in, 24, 601  
Ionization of acids, and polar substituent effects, 25, 521  
Ions, molecular, spectra and structures of, 25, 201  
—, nonclassical, and homoaromaticity, 23, 141  
—, and excited atoms of the inert gases, the reactions of, 22, 147  
Ion-solvent and ion-ion interactions by magnetic resonance techniques, study of, 22, 276  
Iron, cobalt, and nickel complexes having anomalous magnetic moments, 22, 457  
Isoalloxazines (Flavines), the chemistry and biological function of, 21, 43  
Isopoly-vanadates, -niobates, and -tantallates, 22, 527  
Ketones, the Clemmensen reduction of difunctional, 23, 522  
Kinetics, of hydrocarbon autoxidation in the liquid phase, 25, 265

- Lasers, 23, 73
- Lead tetra-acetate, use as oxidant for organic nitrogen compounds, 25, 407
- Lewis acidity, quantitative aspects of, 25, 171
- Light-induced reactions of quinones, 21, 405
- Liquid phase, hydrogen abstraction in the, by free radicals, 21, 249
- Macromolecular structure and properties of ribonucleic acids, 22, 499
- Magnetic moments, anomalous, iron, cobalt and nickel complexes with, 22, 457
- Magnetic resonance techniques, study of ion-solvent and ion-ion interactions by, 22, 276
- Mass spectra of amino-acid and peptide derivatives, 22, 302
- , of organometallic compounds, 22, 317
- Mass spectroscopy, application of high resolution, 22, 75
- Matrix-isolated species, infrared studies of, 23, 392
- Metal complex formation, some recent studies in the thermodynamics of, 23, 410
- Metal-ion control in the synthesis of Schiff base complexes, 25, 379
- Metal-ion, complex formation in solution, kinetics and mechanisms of, 23, 18
- Metal surfaces, clean, properties and reactions of, 25, 223
- Metal surfaces, electronic structure of, and field-ion microscopy, 23, 177
- Molecular complexes of water in organic solvents and in the vapour phase, 24, 20
- Molecular hyperpolarisabilities, 21, 195
- Molecular ions, spectra and structures of, 25, 201
- Molecular polyhedra of high coordination number, 21, 109
- Molecular rearrangements related to the Claisen rearrangement, 22, 391
- Multiple bonding in inorganic compounds, 25, 1
- Natural product synthesis, photochemical reactions in, 24, 37
- Niobates, isopoly-, -vanadates, and -tantalates, 22, 527
- Nitrate groups, co-ordinated, structural aspects of, 25, 289
- Nitro- and nitroso-compounds, reduction by trivalent phosphorus reagents, 22, 222
- Nitrogen compounds, organic, oxidation with lead tetra-acetate, 25, 407
- Nuclear and electron spin resonance, oxygen-17, chemical applications of, 21, 458
- Nuclear magnetic resonance, application of Cl, Br and I n.m.r. spectroscopy to the study of physiochemical processes in liquids, 25, 87
- , equivalence of nuclei in high resolution, 22, 14
- , liquid crystals as solvents in, 22, 179
- Nuclear spin-spin coupling between directly bound elements, 23, 187
- Nucleophilic and photonucleophilic aromatic substitution, mechanisms for, 23, 504
- Olefin-forming elimination, carbanion mechanism of, 21, 490
- Olefins, stereoselective and stereospecific synthesis of, 25, 135
- One-dimensional potential energy functions in vibrational spectroscopy, 25, 533
- Optical resolution, methods of, 25, 323
- Organic chemistry of periodates, 21, 3
- Organic geochemistry, 25, 571
- Organic reactions involving electrophilic oxygen, 21, 429
- Organometallic compounds, mass spectra of, 23, 317
- Organothallium chemistry, 24, 310
- Oxidation of organic nitrogen compounds with lead tetra-acetate, 25, 407
- Oxygen, organic reactions involving electrophilic, 21, 429
- Oxygen-17 nuclear and electron spin resonance, chemical applications of, 21, 458
- PEDLER LECTURE. Exploration of enzyme mechanisms by asymmetric labelling, 23, 125

## Index

- PEDLER LECTURE. Spirodiene rearrangements, 25, 483
- Periodates, organic chemistry of, 21, 3
- Phenolic glycosides, the chemistry and biochemistry of, 23, 98
- Phosphorus reagents, tervalent, reduction of nitro- and nitroso-compounds by, 22, 222
- Photochemical behaviour of transition-metal complexes, 21, 213
- Photochemical reactions in natural product synthesis, 24, 37
- Photochemistry of some allylic compounds, 22, 423
- Photocyclisation of stilbene analogues, 23, 482
- Photolysis of simple inorganic anions in solution, 24, 565
- Phytosterol biosynthesis, some problems concerning biological C-alkylation reactions and, 23, 453
- Polar, steric, and resonance effects in organic reactions, the separation of, linear free energy relationships by the use of, 24, 433
- Polar substituent effects and the ionization of acids, 25, 521
- Polyhedra, molecular, of high coordination number, 21, 109
- Polymerisation, solid-phase addition, 23, 271
- Polysulphides, the stereochemistry of, 24, 208
- Proteins, chemical reactions of, applications in studies of their structure and function, 25, 431
- Pyrrolic compounds, recent developments in the chemistry of, 25, 31
- Quantum mechanics, one-dimensional potential energy functions in vibrational spectroscopy, 25, 533
- , the adiabatic Born-Oppenheimer approximation, 25, 393
- Quinones, heterocyclic, synthesis of, 25, 239
- , light-induced reactions of, 21, 213
- 1,2-Quinones, synthetic; synthesis and thermal reactions, 23, 204
- Radicals, decomposition reactions of, 22, 549
- Rearrangements of spirodienes, 25, 483
- Reduction, Clemmensen, of difunctional ketones, 23, 522
- Reduction of nitro- and nitroso-compounds by tervalent phosphorus reagents, 22, 222
- RNA, macromolecular structure and properties of, 22, 499
- Rusting, the mechanism of, 21, 29
- Schiff base complexes, metal-ion control in the synthesis of, 25, 379
- Semiconduction and photoconduction of biological pigments, 22, 160
- Sesquiterpene biogenesis, 21, 331
- Silicon and germanium, hydrides, volatile compounds with elements of Groups V and VI, 24, 263
- Silicon radical chemistry, 25, 111
- Simple inorganic anions in solution, the photolysis of, 24, 565
- Simple liquids, the study of, by computer simulation, 24, 238
- Solid-phase addition polymerisation, 23, 271
- Solvents, liquid crystals as, in nuclear magnetic resonance, 22, 179
- Spectra and structures of molecular ions, 25, 201
- Spectroscopy, vibrational, one-dimensional potential energy functions in, 25, 533
- , X-ray emission, 25, 343
- Spirodiene rearrangements, 25, 483
- Starch biosynthesis, 23, 57
- Stereochemistry of polysulphides, 24, 208
- Stilbene analogues, the photocyclisation of, 23, 482
- Sulphur heterocycles, valence shell expansion in, 22, 253
- Surfaces, clean metal, properties and reactions of, 25, 223
- Synthesis and thermal reactions of synthetic 1,2-quinones, 23, 204
- Synthesis, asymmetric, 22, 95
- Synthesis, of heterocyclic quinones, 25, 239
- , of Schiff base complexes, metal-ion control in, 25, 379
- , stereoselective and stereospecific, of olefins, 25, 135
- Synthetic problems, computer-assisted analysis of, 25, 455

- Tantalates, isopoly-, -vandates, and -niotates, 22, 527
- Tetracyclines, chemistry of, 22, 435
- Theory of thermal electron-transfer reactions in solution, 22, 199
- Thermal decomposition of ammonium perchlorate, 23, 430
- , of hydrous layer silicates and their related hydroxides, 24, 185
- Thermodynamics, of metal complex formation, some recent studies, 23, 410
- Thiothiophthene no-bond resonance compounds, 23, 537
- TILDEN LECTURE. Biochemistry of sodium, potassium, magnesium, and calcium, 24, 331
- TILDEN LECTURE. Photochemistry of some allylic compounds, 22, 423
- Transition-metal carbonyls, the chemistry of: structural considerations, 23, 325
- : synthesis and reactivity, 24, 498
- Transition-metal complexes, photochemical behaviour of, 21, 213
- , reactions with hydrazines, 24, 617
- , some perfluoro-ligands of, 24, 1
- Transition metals, electronic properties of binary compounds of the first-row, 21, 507
- Trimethylenemethane and related  $\alpha\alpha'$ -disubstituted isobutenes, 24, 278
- Tungsten bronzes and related compounds, 22, 30
- Vibration-vibration energy transfer in gaseous collisions, 21, 67
- Valence-shell expansion in sulphur heterocycles, 22, 253
- Vanadates, isopoly-, -niobates, and -tantalates, 22, 527
- Van der Waal's fluid: a renaissance, 24, 416
- Wavefunctions for small molecules, based on linear combination of atomic orbitals, 24, 95
- Woodward-Hoffmann orbital symmetry rules to concerted organic reactions, application of, 22, 338
- X-Ray emission spectroscopy, 25, 343