

Recent Reviews. 43

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Reviews are listed in order of appearance in the sources indicated. In multidisciplinary review journals, only those reviews which fall within the scope of this Journal are included. Sources are listed alphabetically in three categories: regularly issued review journals and series volumes, contributed volumes, and other monographs. Titles are numbered serially, and these numbers are used for reference in the index.

Major English-language sources of critical reviews are covered. Encyclopedic treatises, annual surveys such as *Specialist Periodical Reports*, and compilations of symposia proceedings are omitted.

This installment of Recent Reviews covers principally the middle part of the 1996 literature. Previous installment: *J. Org. Chem.* **1996**, 61(20), 7222–8.

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Regularly Issued Journals and Series Volumes

Accounts of Chemical Research

1. Lemieux, R. U. Hot Water Provides the Impetus for Molecular Recognition in Aqueous Solution. **1996**, 8, 373–80.
2. Francisco, J. S.; Maricq, M. M. Making Sure That Hydrofluorocarbons are “Ozone Friendly”. **1996**, 8, 391–7.
3. Katritzky, A. R.; Allin, S. M.; Siskin, M. Aquathermolysis: Reactions of Organic Compounds with Superheated Water. **1996**, 8, 399–406.
4. Sawyer, D. T.; Sobkowiak, A.; Matsushita, T. Metal [ML_x; M = Fe, Cu, Co, Mn]/Hydroperoxide-Induced Activation of Dioxigen for the Oxygenation of Hydrocarbons: Oxygenated Fenton Chemistry. **1996**, 9, 409–16.
5. Miller, L. L.; Mann, K. R. π -Dimers and π -Stacks in Solution and in Conducting Polymers. **1996**, 9, 417–24.
6. Gokel, G. W.; Murillo, O. Synthetic Organic Chemical Models for Transmembrane Channels. **1996**, 9, 425–32.
7. Desiraju, G. R. The C–H···O Hydrogen Bond: Structural Implications and Supramolecular Design. **1996**, 9, 441–50.
8. Vögtle, F.; Dünnwald, T.; Schmidt, T. Catenanes and Rotaxanes of the Amide Type. **1996**, 9, 451–60.
9. Kollman, P. A. Advances and Continuing Challenges in Achieving Realistic and Predictive Simulations of the Properties of Organic and Biological Molecules. **1996**, 10, 461–70.
10. Dolbier, W. R., Jr.; Koroniak, H.; Houk, K. N.; Sheu, C. Electronic Control of Stereoselectivities of Electrocyclic Reactions of Cyclobutenes: A Triumph of Theory in the Prediction of Organic Reactions. **1996**, 10, 471–8.
11. Prestwich, G. D. Touching All the Bases: Synthesis of Inositol Polyphosphate and Polyphosphoinositide Affinity Probes from Glucose. **1996**, 10, 503–13.

Acta Chemica Scandinavica

12. Wintner, E. A.; Rebek, J., Jr. Autocatalysis and the Generation of Self-Replicating Systems. **1996**, 50(6), 469–85.
13. Gothelf, K. V.; Jørgensen, K. A. Metal-Catalyzed Asymmetric 1,3-Dipolar Cycloaddition Reactions. **1996**, 50(8), 652–60.
14. Bäckvall, J. E. Enantiocontrol in Some Palladium- and Copper-Catalyzed Reactions. **1996**, 50(8), 661–5.
15. Lerner, R. A.; Barbas, C. F., III. Using the Process of Reactive Immunization to induce Catalytic Antibodies with Complex Mechanisms: Aldolases. **1996**, 50(8), 672–8.
16. Keinan, E.; Sinha, S. C.; Shabat, D.; Itzhaky, H.; Reymond, J.-L. Asymmetric Organic Synthesis with Catalytic Antibodies. **1996**, 50(8), 679–87.
17. Betz, S. F.; Bryson, J. W.; Passador, M. C.; Brown, R. J.; O’Neil, K. T.; DeGrado, W. F. Expression of *De Novo* Designed α -Helical Bundles. **1996**, 50(8), 688–96.
18. Lee, T.; Sakowicz, R.; Martichonok, V.; Hogan, J. K.; Gold, M.; Jones, J. B. Probing Enzyme Specificity. **1996**, 50(8), 697–706.
19. Rebek, J., Jr. Molecular Recognition and Assembly. **1996**, 50(8), 707–16.

Advances in Heterocyclic Chemistry

20. Meth-Cohn, O. The *t*-Amino Effect: Heterocycles Formed by Ring Closure of *Ortho*-Substituted *t*-Anilines. **1996**, 65, 1–37.
21. Bohle, M.; Liebscher, J. Ring Contraction of Heterocycles by Sulfur Extrusion. **1996**, 65, 39–92.
22. Khlebnikov, A. F.; Novikov, M. S.; Kostikov, R. R. Carbenes and Carbenoids in Synthesis of Heterocycles. **1996**, 65, 93–233.
23. Ibrahim, Y. A.; Elwahy, A. H. M.; Kadry, A. M. Thienopyrimidines: Synthesis, Reactions, and Biological Activity. **1996**, 65, 235–81.
24. Ohkata, K.; Akiba, K.-Y. Cycloadditions and Reactions of Oxa-Aromatics with Nucleophiles. **1996**, 65, 283–374.

25. Valters, R. E.; Fülöp, F.; Korbonits, D. Recent Developments in Ring-Chain Tautomerism II. Intramolecular Reversible Addition Reactions to the C=N, C≡N, C=C, and C≡C Groups. **1996**, *66*, 1-71.
26. Moreno-Mañas, M.; Pleixats, R. Palladium(0)-Catalyzed Allylation of Ambident Nucleophilic Aromatic Heterocycles. **1996**, *66*, 73-129.
27. Ryabukhin, Yu. I.; Korzhavina, O. B.; Suzdalev, K. F. Chemistry of 1,3-Thiazin-4-ones and Their Derivatives. **1996**, *66*, 131-91.
28. Varvounis, G.; Giannopoulos, T. Synthesis, Chemistry and Biological Properties of Thienopyrimidines. **1996**, *66*, 193-283.

Advances in Photochemistry

29. Arai, T.; Tokumaru, K. Present Status of the Photoisomerization About Ethylenic Bonds. **1995**, *20*, 1-57.
30. Francisco, J. S.; Maricq, M. M. Atmospheric Photochemistry of Alternative Halocarbons. **1995**, *20*, 79-163.

Angewandte Chemie, International Edition in English

31. Clayden, J.; Warren, S. Stereocontrol in Organic Synthesis Using the Diphenylphosphoryl Group. **1996**, *35*(3), 241-70.
32. Weber, L. Metallophosphaalkenes from Exotics to Versatile Building Blocks in Preparative Chemistry. **1996**, *35*(3), 271-88.
33. Willner, I. Rubin, S. Control of the Structure and Functions of Biomaterials by Light. **1996**, *35*(4), 367-85.
34. Kauffmann, T. Nonstabilized Alkyl Compounds and Alkyl-Cyano-Ate Complexes of Iron(II) and Cobalt(II) as New Reagents in Organic Synthesis. **1996**, *35*(4), 386-403.
35. Prein, M.; Adam, W. The Schenck Ene Reaction: Diastereoselective Oxyfunctionalization with Singlet Oxygen in Synthetic Applications. **1996**, *35*(5), 477-94.
36. Kutzelnigg, W. Friedrich Hund and Chemistry. **1996**, *35*(6), 572-86.
37. Nicolaou, K. C. The Total Synthesis of Brevetoxin B: A Twelve-Year Odyssey in Organic Synthesis. **1996**, *35*(6), 588-607.
38. Kirby, A. J. Enzyme Mechanisms, Models, and Mimics. **1996**, *35*(7), 706-24.
39. Przybylski, M.; Glocker, M. O. Electrospray Mass Spectrometry of Biomacromolecular Complexes with Non-covalent Interactions—New Analytical Perspectives for Supramolecular Chemistry and Molecular Recognition Processes. **1996**, *35*(8), 806-26.
40. Ganem, B. The Mechanism of the Claisen Rearrangement: Déjà Vu All Over Again. **1996**, *35*(9), 936-45.
41. Henderson, R. A. Protonation of Unsaturated Hydrocarbon Ligands: Regioselectivity, Stereoselectivity, and Product Specificity. **1996**, *35*(9), 946-67.
42. Ryu, I.; Sonada, N. Free-Radical Carbonylations: Then and Now. **1996**, *35*(10), 1050-66.
43. Philp, D.; Stoddart, J. F. Self-Assembly in Natural and Unnatural Systems. **1996**, *35*(11), 1154-96.
44. Hoveyda, A. H.; Morken, J. P. Enantioselective C-C and C-H Bond Formation Mediated Catalyzed by

Chiral Ebthi [ethylenebis(tetrahydroindenyl)] Complexes of Titanium and Zirconium. **1996**, *35*(12), 1262-84.

45. Danishefsky, S. J.; Bilodeau, M. Glycols in Organic Synthesis: The Evolution of Comprehensive and Powerful Strategies for the Assembly of Oligosaccharides and Glycoconjugates of Biological Consequence. **1996**, *35*(13/14), 1380-419.
46. Corriu, R.; Leclercq, D. Recent Developments of Molecular Chemistry for Sol-Gel Processes. **1996**, *35*(13/14), 1420-36.
47. Boger, D. L.; Johnson, D. S. CC-1065 and the Duocarmycins: Understanding Their Biological Function through Mechanistic Studies. **1996**, *35*(13/14), 1438-74.
48. Nadin, A.; Nicolaou, K. C. Chemistry and Biology of the Zaragozic Acids (Squalestatins). **1996**, *35*(15), 1622-56.
49. James, T. D.; Sandanayake, K. R. A. S.; Shinkai, S. Saccharide Sensing with Molecular Receptors Based on Boronic Acid. **1996**, *35*(17), 1710-22.
50. Egli, M. Structural Aspects of Nucleic Acid Analogs and Antisense Oligonucleotides. **1996**, *35*(17), 1894-909.
51. Sträter, N.; Lipscomb, W. N.; Klabunde, T.; Krebs, B. Two-Metal Ion Catalysis in Enzymatic Acyl- and Phosphoryl-Transfer Reactions. **1996**, *35*(18), 2024-55.
52. Schelhaas, M.; Waldmann, H. Protecting Group Strategies in Organic Synthesis. **1996**, *35*(18), 2056-83.

Chemical Reviews

53. Sardina, F. J.; Rapoport, H. Enantiospecific Synthesis of Heterocycles from α -Amino Acids. **1996**, *96*(6), 1825-72.
54. Laali, K. K. Stable Ion Studies of Protonation and Oxidation of Polycyclic Arenes. **1996**, *96*(6), 1873-906.
55. Tafesh, A. M.; Weiguny, J. A Review of the Selective Catalytic Reduction of Aromatic Nitro Compounds into Aromatic Amines, Isocyanates, Carbamates, and Ureas Using CO. **1996**, *96*(6), 2035-52.
56. Gibson, D. H. The Organometallic Chemistry of Carbon Dioxide. **1996**, *96*(6), 2063-96.
57. Alder, R. W.; East, S. P. In/Out Isomerism. **1996**, *96*(6), 2097-112.

Chemical Society Reviews

58. Diamond, D.; McKerverey, M. A. Calixarene-based Sensing Agents. **1996**, *25*(1), 15-24.
59. Collison, D.; Garner, C. D.; Joule, J. A. The Structure and Mode of Action of the Cofactor of the Oxomolybdoenzymes. **1996**, *25*(1), 25-32.
60. Harriman, A.; Sauvage, J.-P. A Strategy for Constructing Photosynthetic Models: Porphyrin-containing Modules Assembled Around Transition Metals. **1996**, *25*(1), 41-8.
61. Exner, O.; Krygowski, T. M. The Nitro Group as Substituent. **1996**, *25*(1), 71-5.
62. Cardillo, G.; Tomasini, C. Asymmetric Synthesis of β -Amino Acids and α -Substituted β -Amino Acids. **1996**, *25*(2), 117-28.
63. Yus, M. Arene-catalysed Lithiation Reactions. **1996**, *25*(3), 155-62.
64. Easton, C. J.; Lincoln, S. F. Chiral Discrimination by Modified Cyclodextrins. **1996**, *25*(3), 163-70.

- 65.** Bowden, K.; Grubbs, E. J. Through-bond and Through-space Models for Interpreting Chemical Reactivity in Organic Reactions. **1996**, *25*(3), 171–8.
- 66.** Cativiela, C.; García, J. I.; Mayoral, J. A.; Salvatella, L. Modelling of Solvent Effects on the Diels–Alder Reaction. **1996**, *25*(3), 209–18.
- 67.** Perkins, M. J. A Radical Reappraisal of Gif Reactions. **1996**, *25*(4), 229–36.
- 68.** Barton, D. H. R. On the Mechanism of Gif Reactions. **1996**, *25*(4), 237–9.
- 69.** Rebek, J., Jr. Assembly and Encapsulation with Self-complementary Molecules. **1996**, *25*(4), 255–64.
- 70.** Kresge, A. J. Ingold Lecture: Reactive Intermediates: Carboxylic Acid Enols and Other Unstable Species. **1996**, *25*(4), 275–80.
- 71.** Boyd, D. R.; Sharma, N. D. The Changing Face of Arene Oxide–Oxepine Chemistry. **1996**, *25*(4), 289–96.

Chemistry and Industry

- 72.** Lee, K. B.; Hu, L. S. Biotechnology: Past, Present, Future. **1996**, (9), 334–8.
- 73.** Cannarsa, M. J. Single Enantiomer Drugs: New Strategies and Directions. **1996**, (10), 374–8.
- 74.** Jones, J. M. Fat Substitutes: Natural Promise or Potential Disaster? **1996**, (13), 494–8.
- 75.** Snowden, M. J.; Murray, M. J.; Chowdry, B. Z. Some Like it Hot! Thermo-Sensitive Polymers. **1996**, (14), 531–4.
- 76.** Oxley, D. F. The World Market for Polypropylene. **1996**, (14), 535–40.
- 77.** Kritchevsky, D. The Effects of Dietary *Trans* Fatty Acids. **1996**, (15), 565–7.
- 78.** Ward, M. D. Current Developments in Molecular Wires. **1996**, (15), 568–73.

Chemistry in Britain

- 79.** O'Driscoll, C. Designs on C₆₀. **1996**, *32*(9), 32–7.
- 80.** Martin, C. TFAs—A Fat Lot of Good? **1996**, *32*(10), 34–6.

CHEMTECH

- 81.** Taft, R. W.; Berthelot, M.; Laurence, C.; Leo, A. J. Hydrogen Bonds and Molecular Structure. **1996**, *26*(7), 20–9.
- 82.** Parsons, E. J. Organic Reactions in Very Hot Water. **1996**, *26*(7), 30–34.

CHEMTRACTS: Organic Chemistry

- 83.** Curran, D. P. Combinatorial Organic Synthesis and Phase Separation: Back to the Future. **1996**, *9*(2), 75–87.
- 84.** Boger, D. L. Cycloaddition Reactions of Azadienes, Cyclopropanone Ketals, and Related Systems: Scope and Applications. **1996**, *9*(3), 149–89.

Chirality

- 85.** Nicoud, R.-M.; Jaubert, J.-N.; Rupprecht, I.; Kinkel, J. Enantiomeric Enrichment of Non-Racemic Mixtures of Binaphthol with Non-Chiral Packings. **1996**, *8*(3), 234–43.

- 86.** White, R. H.; Roberts, M. F.; Gorkovenko, A. Naturally Occurring 1,3,4,5-Hexanetetracarboxylic Acid has Meso Stereochemistry. **1996**, *8*(3), 291–3.
- 87.** Lipkowitz, K. B.; Stoehr, C. M. Detailed Experimental and Theoretical Analysis of Chiral Discrimination: Enantioselective Binding of R/S/Methyl Mandelate by β -Cyclodextrin. **1996**, *8*(4), 341–50.

- 88.** Majer, Z.; Hollosi, M.; Kirin, S. I.; Sunjic, V. Chiroptical Properties and Conformation of Chiral Enamines of 2-(2'-Pyrido, or quinolino) acetophenone. **1996**, *8*(3), 244–8.

Contemporary Organic Synthesis

- 89.** Harrison, T. Saturated Nitrogen Heterocycles. **1996**, *3*(4), 259–75.
- 90.** Dawson, G. J.; Bower, J. F.; Williams, J. M. J. Catalytic Applications of Transition Metals in Organic Synthesis. **1996**, *3*(4), 277–93.
- 91.** Collins, I. Saturated and Unsaturated Lactones. **1996**, *3*(4), 295–321.
- 92.** North, M. Amines and Amides. **1996**, *3*(4), 323–43.
- 93.** Norley, M. C. Synthetic Approaches to Rapamycin. **1996**, *3*(5), 345–71.
- 94.** McNab, H. Synthetic Applications of Flash Vacuum Pyrolysis. **1996**, *3*(5), 373–96.
- 95.** Jarowicki, K.; Kocienski, P. Protecting Groups. **1996**, *3*(5), 397–431.
- 96.** Gallagher, P. T. The Synthesis of Quinones. **1996**, *3*(5), 433–46.

Heterocycles

- 97.** D'Auria, M. Photochemical Reactions Involving Pyrroles. Part I. **1996**, *43*(6), 1305–34.
- 98.** D'Auria, M. Photochemical Reactions Involving Pyrroles. Part II. **1996**, *43*(7), 1529–58.
- 99.** Sliwa, W. Cycloaddition Reactions of Pyridinium Ylides and Oxidopyridiniums. **1996**, *43*(9), 2005–29.

Natural Product Reports

- 100.** Dräger, G.; Kirschning, A.; Thiericke, R.; Zerlin, M. Decanolides, 10-membered Lactones of Natural Origin. **1996**, *13*(5), 365–75.
- 101.** Berlinck, R. G. S. Natural Guanidine Derivatives. **1996**, *13*(5), 377–409.
- 102.** Ferreira, D.; Bekker, R. Oligomeric Proanthocyanides: Naturally Occurring O-Heterocycles. **1996**, *13*(5), 411–33.
- 103.** Lewis, J. R. Muscarine, Oxazole, Imidazole, Thiazole, and Peptide Alkaloids, and Other Miscellaneous Alkaloids. **1996**, *13*(5), 435–67.

Progress in the Chemistry of Organic Natural Products

- 104.** Gunatilaka, A. A. L. Triterpenoid Quinone-methides and Related Compounds (Celasrolids). **1996**, *67*, 1–123.
- 105.** Walser-Volken, P.; Tamm, C. The Spirostaphylotrichins and Related Microbial Metabolites. **1996**, *67*, 125–65.
- 106.** Gribble, G. W. Naturally Occurring Organohalogen Compounds—A Comprehensive Survey. **1996**, *68*, 1–423.

Pure and Applied Chemistry

- 107.** Trost, B. M. Asymmetric Introduction of Heteroatoms. **1996**, *68*(4), 779–84.

- 108.** West, R.; Denk, M. Stable Silylenes: Synthesis, Structure, Reactions. **1996**, *68*(4), 785–88.
- 109.** Fišera, L. Huisgen, R.; Kalwisch, I.; Langhals, E.; Li, X.; Mloston, G.; Polborn, K.; Rapp, J.; Sicking, W.; Sustmann, R. New Thione Chemistry. **1996**, *68*(4), 789–98.
- 110.** Jefford, C. W. Heterocyclic Templates for Assembling α -Hydroxy- β -Amino Acids, Sphingosines and Indolizidines. **1996**, *68*(4), 799–804.
- 111.** Oae, S. Ligand Coupling Reactions of Hypervalent Species. **1996**, *68*(4), 805–12.
- 112.** Canle, M.; Lawley, A.; McManus, E. C.; O'Ferrall, R. A. M. Rate and Equilibrium Constants for Oxazolidine and Thiazolidine Ring-Opening Reactions. **1996**, *68*(4), 813–8.
- 113.** Pinhey, J. T. Organolead(IV) Triacetates in Organic Synthesis. **1996**, *68*(4), 819–24.
- 114.** King, J. F.; Gill, M. S.; Klassen, D. F. Mechanisms of Reactions of Sulfonyl Compounds with Nucleophiles in Protic Media. **1996**, *68*(4), 825–30.
- 115.** Padwa, A.; Ni, Z.; Watterson, S. H. Cycloaddition Reactions of Unsaturated Sulfones. **1996**, *68*(4), 831–6.
- 116.** Yoon, N. M. Selective Reduction of Organic Compounds with Aluminum and Boron Hydrides. **1996**, *68*(4), 843–8.
- 117.** Kim, D. H.; Li, Z.-H.; Lee, S. S.; Kim, K. R.; Chung, S. J.; Kim, E.-J. Use of Heteroatom-containing Small Cyclic Compounds for Enzyme Inhibitor Design. **1996**, *68*(4), 849–52.
- 118.** Glass, R. S.; Radspinner, A. M.; Singh, W. P. Sulfur Cation Radicals. **1996**, *68*(4), 853–8.
- 119.** Gilchrist, T. L.; Gonsalves, A. M. d'A. R.; Pinho e Melo, T. M. V. D. The Use of 2-Azadienes in the Diels–Alder Reaction. **1996**, *68*(4), 859–62.
- 120.** Metzner, P. New Developments of Thiocarbonyl Compounds and Sulfines in Organic Synthesis. **1996**, *68*(4), 863–68.
- 121.** Ishii, A.; Hoshino, M.; Nakayama, J. Recent Advances in Chemistry of Dithiiranes and Small Ring Compounds Containing Two Chalcogen Atoms. **1996**, *68*(4), 869–74.
- 122.** Takaya, T. Discovery of Neurokinin Antagonists. **1996**, *68*(4), 875–80.
- 123.** Zefirov, N. S. Novel Reagents of Iodine(+III) and Sulfur. **1996**, *68*(4), 881–90.
- 124.** Wentrup, C.; Fulloon, B. E.; Moloney, D. W. J.; Bibas, H.; Wong, M. W. Novel Heterocumulene (RN=C=C=C=X) and Ketene Rearrangements. **1996**, *68*(4), 891–94.
- 125.** Okazaki, R. New Aspects of Low-coordinated Organosilicon Compounds. Thermal Dissociation of Disilenes into Silylenes. **1996**, *68*(4), 895–900.
- 126.** Yuan, C.; Li, S.; Li, C.; Chen, S.; Huang, W.; Wang, G.; Pan, C.; Zhang, Y. New Strategy for the Synthesis of Functionalized Phosphonic Acids. **1996**, *68*(4), 907–12.
- 127.** Cohen, T. The Production of Cyclopropanes From Organosulfur Compounds and a Novel Cyclopropane Ring Expansion. **1996**, *68*(4), 913–18.
- 128.** Chan, T. H. Organometallic-type Reactions in Aqueous Media Mediated by Indium: Applications to the Synthesis of Carbohydrates. **1996**, *68*(4), 919–24.
- 129.** Ruano, J. L. G.; Carretero, J. C.; Carreño, M. C.; Cabrejas, L. M. M.; Urbano, A. The Sulfinyl Group as a Chiral Inductor in Asymmetric Diels–Alder Reactions. **1996**, *68*(4), 925–30.
- 130.** Chung, S.-K.; Chang, Y.-T.; Ryu, Y. A Divergent Approach Toward Synthesis of *Myo*-Inositol Phosphates: Acyl Migrations and Regioselectivity. **1996**, *68*(4), 931–6.
- 131.** Block, E.; Cai, X.-J.; Uden, P. C.; Zhang, X.; Quimby, B. D.; Sullivan, J. J. *Allium* Chemistry: Natural Abundance of Organoselenium Compounds From Garlic, Onion and Related Plants and in Human Garlic Breath. **1996**, *68*(4), 937–44.
- 132.** De Lucchi, O. High Symmetry Chiral Auxiliaries Containing Heteroatoms. **1996**, *68*(4), 945–50.
- 133.** Drabowicz, J.; Martin, J. C. Stereochemistry of Spirosulfuranes and Their Oxides: Static and Dynamic Aspects. **1996**, *68*(4), 951–6.
- 134.** Kessler, H.; Gratias, R.; Hessler, G.; Gurrath, M.; Müller, G. Conformation of Cyclic Peptides. Principle Concepts and the Design of Selectivity and Superactivity in Bioactive Sequences by “Spatial Screening”. **1996**, *68*(6), 1201–6.
- 135.** Sandanayake, K. R. A. S.; James, T. D.; Shinkai, S. Molecular Design of Sugar Recognition Systems by Sugar-diboronic Acid Macrocyclization. **1996**, *68*(6), 1207–12.
- 136.** Parker, D.; Katakay, R.; Kelly, P. M.; Palmer, S. Selectivity in the Binding and Detection of Charge Diffuse Ions. **1996**, *68*(6), 1219–24.
- 137.** Atkinson, I. M.; Groth, A. M.; Lindoy, L. F.; Matthews, O. A.; Meehan, G. V. New Cage and Linked Macrocyclic Systems for Metal Ion and Small Molecule Binding. **1996**, *68*(6), 1231–6.
- 138.** Grynszpan, F.; Aleksyuk, O.; Biali, S. E. Synthesis and Reactions of Large-ring Spirodienone Calixarene Derivatives. **1996**, *68*(6), 1249–54.
- 139.** Langford, S. J.; Stoddart, J. F. Self-assembly in Chemical Systems. **1996**, *68*(6), 1255–60.
- 140.** Rebek, J., Jr. Molecular Assembly and Encapsulation. **1996**, *68*(6), 1261–6.
- 141.** Wang, K.; Gokel, G. W. The Use of Mass Spectrometry to Assess Complexation Phenomena in Receptor Compounds. **1996**, *68*(6), 1267–72.
- 142.** van Wageningen, A. M. A. Synthesis of Supramolecular Structures via Combination of Calix[4]arenes with Other Medium-sized Building Blocks. **1996**, *68*(6), 1273–78.
- 143.** Reetz, M. T. Molecular Recognition and Stereotopic Group Recognition. **1996**, *68*(6), 1279–84.
- 144.** Williams, A. F. Oligopolydentate Ligands for Helices and Metallacycles. **1996**, *68*(6), 1285–90.
- 145.** Sessler, J. L.; Kral, V.; Hoehner, M. C.; Aileen Chin, K. O. A.; Davila, R. M. New Texaphyrin-type Expanded Porphyrins. **1996**, *68*(6), 1291–5.
- 146.** Duax, W. L.; Ghosh, D.; Pletnev, V.; Griffin, J. F. Three-dimensional Structures of Steroids and Their Protein Targets. **1996**, *68*(6), 1297–302.
- 147.** Goodman, M.; Shao, H. Peptidomimetic Building Blocks for Drug Discovery: An Overview. **1996**, *68*(6), 1303–8.
- 148.** Parmer, V. S.; Bisht, K. S.; Pati, H. N.; Sharma, N. K.; Kumar, A.; Kumar, N.; Malhotra, S.; Singh, A.; Prasad, A. K.; Wengel, J. Novel Biotransformations on Peracylated Polyphenolics by Immobilized Lipases in Microemulsion-based Gels and on Carbohydrates by *Candida antartica* Lipase. **1996**, *68*(6), 1309–14.
- 149.** Potapov, V. K.; Azhikina, T. L.; Demin, V. V.; Limborskaja, S. A.; Sverdlov, E. D. Modified Oligonucleotides as a Tool for DNA Sequencing, Fingerprinting and Mapping. **1996**, *68*(6), 1315–20.

150. Rüterjans, H.; Lohr, F.; Blumel, M.; Pfeiffer, S.; Engelke, J.; Spitzner, N.; Schmidt, J. M. Refined NMR Solution Structures of Proteins using Homo- and Heteronuclear Couplings, Relaxation Time Measurements and Relaxation Matrix Analysis. **1996**, *68*(6), 1329–34.

151. Stepanov, V. M. Proteinases as Catalysts in Peptide Synthesis. **1996**, *68*(6), 1335–40.

152. Tatsuta, K. Total Synthesis and Chemical Design of Useful Glycosidase Inhibitors. **1996**, *68*(6), 1341–6.

153. Voelter, W.; Khan, K. M.; Shekhani, M. S. Anhydro Sugars, Valuable Intermediates in Carbohydrate Syntheses. **1996**, *68*(6), 1347–53.

154. Vogel, E. Porphyrinoid Macrocycles: A Cornucopia of Novel Chromophores. **1996**, *68*(7), 1355–60.

155. Irie, M. Photochromatic Diarylethenes for Photonic Devices. **1996**, *68*(7), 1367–72.

156. Wagner, R. W. Boron-dipyrrromethane Dyes for Incorporation in Synthetic Multi-pigment Light-harvesting Arrays. **1996**, *68*(7), 1373–80.

157. Leezenberg, P. B.; Fayer, M. D.; Frank, C. W. Photophysical Studies of Probes Bound to Cross-link Junctions in Poly(dimethyl siloxane) Elastomers and Nanocomposites. **1996**, *68*(7), 1381–8.

158. McArdle, C. B. Functional Dyes in Electro-optic and Imaging Applications. **1996**, *68*(7), 1389–94.

159. Crano, J. C.; Flood, T.; Knowles, D.; Kumar, A.; Van Gemert, B. Photochromatic Compounds: Chemistry and Application in Ophthalmic Lenses. **1996**, *68*(7), 1395–8.

160. Daub, J.; Beck, M.; Knorr, A.; Spreitzer, H. New Molecular Systems for Functional Dye-based Molecular Switching of Luminescence. **1996**, *68*(7), 1399–404.

161. Loew, L. M. Potentiometric Dyes: Imaging Electrical Activity of Cell Membranes. **1996**, *68*(7), 1405–10.

162. Ogoshi, H.; Kuroda, Y.; Mizutani, T.; Hayashi, T. Synthetic Strategies of Multifunctional Porphyrins as Receptors. **1996**, *68*(7), 1411–6.

163. Okamoto, Y.; Kaku, T.; Shundo, R. Design and Application of Novel Functional Dyes Containing Polymers for Biosensors and Organic Syntheses. **1996**, *68*(7), 1417–22.

164. Miley, J. Polymeric Colorants. **1996**, *68*(7), 1423–8.

165. Seto, J.; Tamura, S.; Asai, N.; Kishii, N.; Kijima, Y.; Matsuzawa, N. Macrocyclic Functional Dyes: Applications to Optical Disk Media, Photochemical Hole Burning and Non-linear Optics. **1996**, *68*(7), 1429–34.

166. de Silva, A. P.; Nimal Gunaratne, H. Q.; Gunnlaugsson, T.; McCoy, C. P.; Maxwell, P. R. S.; Rademacher, J. T.; Rice, T. E. Photoionic Devices with Receptor-functionalized Fluorophores. **1996**, *68*(7), 1443–48.

167. Garnier, F. Thin Film Transistors Based on Molecular Semiconductors. **1996**, *68*(7), 1455–62.

168. Whitehall, J. K.; Chang, H. K.; Fox, M. A.; Galoppini, E.; Watkins, D. M.; Fox, H.; Hong, B. Anisotropic Energy and Electron Migration in Multichromophores Laden Polymers on Metal Surfaces. **1996**, *68*(7), 1469–74.

169. Wang, Y. Semiconductor Nanoclusters and Fullerenes: A New Class of Sensitizing Dyes for Photoconductive Polymers. **1996**, *68*(7), 1475–8.

170. Breslow, R.; Connors, R.; Zhu, Z. Mechanistic Studies using Antihydrophobic Agents. **1996**, *68*(8), 1527–33.

171. Gribble, G. W. The Diversity of Natural Organochlorines in Living Organisms. **1996**, *68*(9), 1699–712.

Recueil des Travaux Chimiques des Pays-Bas

172. Scheerder, J.; Engbersen, J. F. J.; Reinhoudt, D. N. Synthetic Receptors for Anion Complexation. **1996**, *115*(6), 307–20.

173. Hage, R. Oxidation Catalysis by Biomimetic Manganese Complexes. **1996**, *115*(9), 385–96.

Russian Chemical Reviews

174. Luk'yanov, S. M.; Koblik, A. V. Acid-Catalysed Acylation of Carbonyl Compounds. **1996**, *65*(1), 1–26.

175. Kunzevich, A. D.; Golovkov, V. F.; Rembovsky, V. R. Dibenzo-*p*-Dioxins. Methods of Synthesis, Chemical Qualities and Danger Assessment. **1996**, *65*(1), 27–40.

176. Schvekhgeimer, M.-G. A. Heterylferrocenes. The Synthesis and Applications. **1996**, *65*(1), 41–80.

177. Krinichnyi, V. I. The Nature and Dynamics of Nonlinear Excitations in Conducting Polymers: Polyacetylene. **1996**, *65*(1), 81–94.

178. Zeigarnik, A. V.; Bruk, L. G.; Temkin, O. N.; Likhobov, V. A.; Maier, L. I. Computer-Assisted Mechanistic Studies. **1996**, *65*(2), 117–30.

179. Vinogradov, M. G.; Zinenkov, A. V. Chemistry of Methylene-cyclobutane. **1996**, *65*(2), 131–45.

180. Bondarenko, O. B.; Saginova, L. G.; Zyk, N. V. Synthesis and Properties of Cyclic Sulfinates–Sultines. **1996**, *65*(2), 146–66.

181. Prokopov, N. I.; Gritskova, I. A.; Cherkasov, V. R.; Chalykh, A. E. The Synthesis of Uniform Polymer Functional Microspheres for Immunoassay. **1996**, *65*(2), 167–80.

182. Arutyunov, V. S.; Basevich, V. Ya.; Vedenev, V. I. Direct Gas-Phase Oxidation of Natural Gas to Methanol and Other Oxygenates at High Pressures. **1996**, *65*(3), 197–224.

183. Gavrilov, K. N.; Mikhel, I. S. Chemistry of Hydrophosphorane Compounds. **1996**, *65*(3), 225–48.

184. Vinogradova, S. V.; Vasnev, V. A.; Vygodskii, Ya. S. Cardo Polyheteroarylenes. Synthesis, Properties, Peculiarities. **1996**, *65*(3), 249–78.

185. Siling, M. I.; Laricheva, T. N. Titanium Compounds as Catalysts for Esterification and Transesterification Reactions. **1996**, *65*(3), 279–86.

186. Shtephan, E. D.; Vvedenskii, V. Yu. The Tautomerism of Heterocyclic Thiols. Five-Membered Heterocycles. **1996**, *65*(4), 307–14.

187. Klabunovskii, E. I. Catalytic Asymmetric Synthesis of β -Hydroxyacids and Their Esters. **1996**, *65*(4), 329–44.

188. Sergeeva, L. M.; Gorbach, L. A. Gradient Interpenetrating Polymer Networks: Preparing and Properties. **1996**, *65*(4), 345–54.

189. Sergeev, D. S.; Zarytova, V. F. Interaction of Bleomycin and Their Oligonucleotide Derivatives with Nucleic Acids. **1996**, *65*(4), 355–78.

190. Koval, I. V. Synthesis and Application of the Sulphenamides. **1996**, *65*(5), 421–440.

Science

191. Klassen, J. K.; Nathanson, G. M. Hydrogen-Bond Breaking and Proton Exchange in Collisions of Gaseous Formic Acid with Liquid Sulfuric Acid. **1996**, *273*, 333–5.

192. Houk, K. N.; Nakamura, K.; Sheu, C.; Keating, A. E. Gating as a Control Element in Constrictive Binding and Guest Release by Hemicarcerands. **1996**, *273*, 627–9.

Sulfur Reports

193. Pavlova, Z. F.; Lipina, E. S.; Perekalin, V. V. Conjugated 1,2- and 1,4-Nitrothio(sulfonyl)alkenes and -Dienes. **1995**, *16(2)*, 149–72.

194. Pedersen, C. T. 1,2-Dithiole-3-thiones and 1,2-Dithiol-3-ones. **1995**, *16(2)*, 173–221.

195. Shainyan, B. A. Polyhalovinyl Sulfones as Polyfunctional Electrophilic Substrates in Reactions with Nucleophiles. **1995**, *16(2)*, 223–34.

196. El-Sayed, I.; Abdel-Megeed, M. F.; Yassin, S. M.; Senning, A. The Chemistry of Chlorodithioformates. **1995**, *16(2)*, 235–97.

197. Carmack, M. Fifty Years of Research in Sulfur Chemistry. **1995**, *16(2)*, 299–342.

198. Yassin, S. M. The Chemistry of C-Sulfonyldithioformates. **1995**, *16(2)*, 343–60.

199. Both Nielsen, S.; Senning, A. Chemistry of 1,2-Dithietes. **1995**, *16(2)*, 371–91.

200. Sadekov, I. D.; Rivkin, B. B.; Maksimenko, A. A.; Sadekova, E. I. Synthesis and Reactions of Diorganyl Tellurides. **1995**, *17(1)*, 1–88.

201. Deryagina, E. N.; Voronkov, M. G. Chalcogen-Centered Radicals. **1995**, *17(1)*, 89–127.

202. Douglass, I. B.; Douglass, M. L. Adventures in Organosulfur Chemistry. **1995**, *17(1)*, 129–55.

203. Nedolya, N. A.; Trofimov, B. A.; Senning, A. α,β -Unsaturated Isothiocyanates. **1995**, *17(2)*, 183–395.

204. McWhinnie, W. R.; Sadekov, I. D.; Minkin, V. I. Structural and Chemical Consequences of Intramolecular NO \rightarrow Te Coordination in Organotellurium Compounds. **1996**, *18(2)*, 295–335.

205. Brosius, A.; Haas, A.; Herkt, S. Perfluoroalkane- and Perfluoroarene-Chalcogen Oxo Acids. Synthesis, Reactions, and Structures. **1996**, *18(2)*, 361–77.

206. Herak, J. J. 4-Oxoazetidine-2-Sulfinic Acid and its Derivatives. **1996**, *18(2)*, 379–92.

Tetrahedron

207. Jones, G. R.; Landais, Y. The Oxidation of the Carbon–Silicon Bond. **1996**, *52(22)*, 7599–662.

208. Basavaiah, D.; Rao, P. D.; Hyma, R. S. The Baylis–Hillman Reaction—A Novel Carbon–Carbon Bond-Forming Reaction. **1996**, *52(24)*, 8001–62.

209. Tozer, M. J.; Herpin, T. F. Methods for the Synthesis of Gem-Difluoromethylene Compounds. **1996**, *52(26)*, 8619–83.

210. Heumann, A.; Reglier, M. The Stereochemistry of Palladium-Catalyzed Cyclization Reactions. C. Cascade Reactions. **1996**, *52(28)*, 9289–346.

211. Wipf, P.; Jahn, H. Synthetic Applications of Organochlorozirconocene Complexes. **1996**, *52(40)*, 12853–910.

212. Schiesser, C. H.; Wild, L. M. Free-Radical Homolytic Substitution—New Methods for Formation of Bonds to Heteroatoms. **1996**, *52(42)*, 13265–314.

Contributed Volumes

Advances in Electron Transfer Chemistry.

Volume 3. Mariano, P. S., Ed. JAI Press: Greenwich, CT, 1996.

213. Lewis, F. D. Photoaddition Reactions of Amines with Aryl Olefins and Arenes.

214. Johnston, L. J.; Schepp, N. P. Kinetics and Mechanisms for the Reactions of Alkene Radical Cations.

215. Albin, A.; Fasani, E.; Freccero, M. The Photochemical Reaction between Arenenitriles and Benzylic Donors.

216. Cossy, J.; Pete, J.-P. Applications of Photoinduced Electron Transfer Processes to Ketone, Aldehyde, and Ester Derivatives in Organic Synthesis.

Progress in Heterocyclic Chemistry. Volume 8.

Suschitzky, H., Gribble, G. W., Eds. Pergamon: Oxford, U.K., 1996.

217. Kappe, T.; Kappe, C. O. Geminal Diazides of Heterocycles.

218. Sibi, M. P.; Ji, J. Radical Methods in the Synthesis of Heterocyclic Compounds.

219. Padwa, A. Three-Membered Ring Systems.

220. Parrick, J.; Mehta, L. K. Four-Membered Ring Systems.

221. Russell, R. K.; Press, J. B. Five-Membered Ring Systems. Thiophenes & Se, Te Analogs.

222. Sundberg, R. J. Five-Membered Ring Systems. Pyrroles and Benzo Derivatives.

223. Reck, S.; Friedrichsen, W. Five-Membered Ring Systems. Furans and Benzo Derivatives.

224. Lang, S. A., Jr.; Lee, V. J. Five-Membered Ring Systems. With More Than One N Atom.

225. Tanaka, R. Five-Membered Ring Systems. With N and S (Se) Atoms.

226. Aitken, R. A.; Hill, L. Five-Membered Ring Systems. With O & S (Se, Te) Atoms.

227. Boyd, G. V. Five-Membered Ring Systems. With O & N Atoms.

228. Toomey, J. E.; Murugan, R. Six-Membered Ring Systems. Pyridine and Benzo Derivatives.

229. Groziak, M. P. Six-Membered Ring Systems. Diazines and Benzo Derivatives.

230. Hurst, D. T. Six-Membered Ring Systems. Triazines, Tetrazines and Fused Ring Polyaza Systems.

231. Hepworth, J. D.; Heron, B. M. Six-Membered Ring Systems. With O and/or S Atoms.

232. LeCount, D. J. Seven-Membered Rings.

233. Newkome, G. R. Eight-Membered and Larger Rings.

Monographs

- 234.** Auner, N.; Weis, J., Eds. *Organosilicon Chemistry II: From Molecules to Materials*. VCH: Weinheim, Germany, 1996.
- 235.** Baggott, J. *Perfect Symmetry: The Accidental Discovery of Buckminsterfullerene*. Oxford University Press: Oxford, U.K., 1996.
- 236.** Britton, G.; Liaaen-Jensen, S.; Pfander, H., Eds. *Carotenoids, Vol. 2: Synthesis*. Birkhaeuser: Boston, MA, 1996.
- 237.** De Vito, S. C., Ed. *Designing Safer Chemicals*. The Royal Society of Chemistry: Cambridge, U.K., 1996.
- 238.** Dressler, H. *Recorcinol. Its Uses and Derivatives*. Plenum: New York, 1994.
- 239.** MacNicol, D. D.; Toda, F.; Bishop, R., Eds. *Comprehensive Supramolecular Chemistry, Vol. 6: Solid-State Supramolecular Chemistry: Crystal Engineering*. Pergamon: Oxford, U.K., 1996.
- 240.** Nicolaou, K. C.; Sorensen, E. J. *Classics in Total Synthesis. Targets, Strategies, Methods*. VCH: Weinheim, 1996.
- 241.** Olah, G. A.; Molnár, Á. *Hydrocarbon Chemistry*. Wiley: New York, 1995.
- 242.** Page, P., Ed. *Organosulfur Chemistry. Synthetic Aspects*. Academic Press: London, 1995.
- 243.** Patai, S.; Rappoport, Z., Eds. *Chemistry of Halides, Pseudo-Halides and Azides, Part 2*. Wiley: Chichester, U.K., 1995.
- 244.** Perrine, D. M. *The Chemistry of Mind-Altering Drugs*. The Royal Society of Chemistry: Cambridge, U.K., 1996.
- 245.** Procter, G. *Asymmetric Synthesis*. Oxford University Press: Oxford, U.K., 1995.
- 246.** Rahman, A.-u. *Stereoselective Synthesis (Part K)*. [In: *Stud. Nat. Prod. Chem. 1996; 18*] Elsevier: Lausanne, Switzerland, 1996.
- 247.** Roberts, S. M.; Turner, N. J.; Willetts, A. J.; Turner, M. K. *Introduction to Biocatalysis Using Enzymes and Micro-Organisms*. Cambridge University Press: Cambridge, 1995.
- 248.** Silverman, G. S.; Rakita, P. E., Eds. *Handbook of Grignard Reagents*. [In: *Chem. Ind. 1996; 64*] Dekker: New York, 1996.
- 249.** Smallwood, I. M. *Handbook of Organic Solvent Properties*. Arnold: London, U.K., 1996.
- 250.** Stephenson, G. R., Ed. *Advanced Asymmetric Synthesis*. Chapman & Hall: London, U.K., 1996.
- 251.** Tyman, J. H. P., Ed. *Synthesis in Lipid Chemistry*. The Royal Society of Chemistry: Cambridge, U.K., 1996.
- 252.** Waldmann, H., Ed. *Organic Synthesis Highlights II*. VCH, Weinheim, Germany, 1995.
- 253.** Walling, C. *Fifty Years of Free Radicals (Series: Profiles, Pathways and Dreams)*. American Chemical Society: Washington, DC, 1995.

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