

# JOC *Recent Reviews*

Number 81

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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 early part of the 2006 literature. Previous installment: *J. Org. Chem.* **2006**, 71(7), 2926–34.

**Supporting Information Available:** A file containing this Recent Review compilation in Microsoft Word and the data in plain text that can be imported into Endnote (using Refer style) and Reference Manager databases. This material is available free of charge via the Internet at <http://pubs.acs.org>.

## Regularly Issued Journals and Series Volumes

### Accounts of Chemical Research

1. Krylov, A. I. Spin-Flip Equation-of-Motion Coupled-Cluster Electronic Structure Method for a Description of Excited States, Bond Breaking, Diradicals, and Triradicals. **2006**, 39(2), 83–91.
2. Watson, I. D. G.; Yu, L.; Yudin, A. K. Advances in Nitrogen Transfer Reactions Involving Aziridines. **2006**, 39(3), 194–206.
3. Sigman, M. S.; Jensen, D. R. Ligand-Modulated Palladium-Catalyzed Aerobic Alcohol Oxidations. **2006**, 39(3), 221–9.
4. Moss, R. A. Diazirines: Carbene Precursors Par Excellence. **2006**, 39(4), 267–72.

### Advances in Organometallic Chemistry

5. Piers, W. E. The Chemistry of Perfluoroaryl Boranes. **2005**, (52), 1–76.
6. Fernandez, E. J.; Laguna, A.; Olmos, M. E. Recent Developments in Arylgold(I) Chemistry. **2005**, (52), 77–141.
7. Kim, B.-H.; Woo, H.-G. Dehydrocoupling, Redistributive Coupling, and Addition of Main Group 4 Hydrides. **2005**, (52), 143–74.
8. Picard, J.-P. Silylmethylamines and Their Derivatives: Chemistry and Biological Activities. **2005**, (52), 175–375.

### Aldrichimica Acta

9. Pears, D. A.; Smith, S. C. Polyurea-Encapsulated Palladium Catalysts: The Development and Application of a New and

Versatile Immobilized-Homogeneous-Catalyst Technology. **2005**, 38(1), 23–32.

10. Molander, G. A.; Figueroa, R. Organotrifluoroborates: Expanding Organoboron Chemistry. **2005**, 38(2), 49–56.
11. Curran, D. P. Organic Synthesis with Light-Fluorous Reagents, Reactants, Catalysts, and Scavengers. **2006**, 39(1), 3–9.

### Angewandte Chemie, International Edition in English

12. Hashmi, A. S. K. The Catalysis Gold Rush: New Claims. **2005**, 44(43), 6990–3.
13. Wentholt, P. G. Toward the Systematic Decomposition of Benzene. **2005**, 44(44), 7170–2.
14. Dwars, T.; Paetzold, E.; Oehme, G. Reactions in Micellar Systems. **2005**, 44(44), 7174–99.
15. Kawase, T. Allenophane and Allenoacetylenic Macrocycles: A New Class of Chiral Cyclophanes. **2005**, 44(45), 7334–6.
16. Lambert, C. Hexaarylbenzenes—Prospects for Toroidal Delocalization of Charge and Energy. **2005**, 44(45), 7337–9.
17. Zeitler, K. Extending Mechanistic Routes in Heterazolium Catalysis—Promising Concepts for Versatile Synthetic Methods. **2005**, 44(46), 7506–10.
18. Ma, S.; Gu, Z. 1,4-Migration of Rhodium and Palladium in Catalytic Organometallic Reactions. **2005**, 44(46), 7512–7.
19. Dubbaka, S. R.; Vogel, P. Organosulfur Compounds: Electrophilic Reagents in Transition-Metal-Catalyzed Carbon–Carbon Bond-Forming Reactions. **2005**, 44(47), 7674–84.

- 20.** Cardona, F.; Goti, A. The Discovery of Novel Metal-Induced Reactions of Nitrones: Not Only Electrophiles and Reagents for [3+2] Cycloadditions. **2005**, *44*(48), 7832–5.
- 21.** Ma, S.; Yu, S.; Gu, Z. Gold-Catalyzed Cyclization of Enynes. **2005**, *45*(2), 200–3.
- 22.** Marques, M. M. B. Catalytic Enantioselective Cross-Mannich Reaction of Aldehydes. **2006**, *45*(3), 348–52.
- 23.** Guo, H.-C.; Ma, J.-A. Catalytic Asymmetric Tandem Transformations Triggered by Conjugate Additions. **2006**, *45*(3), 354–66.
- 24.** Pihko, P. M. Enantioselective  $\alpha$ -Fluorination of Carbonyl Compounds: Organocatalysis or Metal Catalysis? **2006**, *45*(4), 544–7.
- 25.** Lindstroem, U. M.; Andersson, F. Hydrophobically Directed Organic Synthesis. **2006**, *45*(4), 548–51.
- 26.** Shun, A. L. K. S.; Tykwinski, R. R. Synthesis of Naturally Occurring Polyynes. **2006**, *45*(7), 1034–57.
- 27.** Hahn, F. E. Heterocyclic Carbenes. **2006**, *45*(9), 1348–52.
- 28.** Gibson, S. E.; Lecci, C. Amino Acid Derived Macrocycles—An Area Driven by Synthesis or Application? **2006**, *45*(9), 1364–77.
- 29.** Gingras, M.; Raimundo, J.-M.; Chabre, Y. M. Persulfated Aromatic Compounds. **2006**, *45*(11), 1686–712.
- 30.** Mayr, H.; Ofial, A. R. The Reactivity-Selectivity Principle: An Imperishable Myth in Organic Chemistry. **2006**, *45*(12), 1844–54.
- 31.** Miller, J. S. Tetracyanoethylene (TCNE): The Characteristic Geometries and Vibrational Absorptions of Its Numerous Structures. **2006**, *45*(16), 2508–25.
- Canadian Journal of Chemistry**
- 32.** Cowie, M. 2003 Alcan Award Lecture—Roles of the Adjacent Metals in the Coupling of Methylene Groups Promoted by Heterobinuclear Complexes of Group 8 and 9 Metals. **2005**, *83*(8), 1043–55.
- 33.** Kosower, E. M. The Art of Discovery in Biophysical Organic Chemistry. **2005**, *83*(9), 1207–11.
- 34.** Cox, R. A. A Comparison of the Mechanisms of Hydrolysis of Benzimidates, Esters, and Amides in Sulfuric Acid Media. **2005**, *83*(9), 1391–9.
- 35.** Glover, S. A.; Rauk, A.; Buccigross, J. M.; Campbell, J. J.; Hammond, G. P.; Mo, G.; Andrews, L. E.; Gillson, A.-M. E. The HERON Reaction—Origin, Theoretical Background, and Prevalence. **2005**, *83*(9), 1492–509.
- 36.** Scott, J. M. W. On the Displacement Reactions of Organic Substances in Water. **2005**, *83*(9), 1667–719.
- The Chemical Record**
- 37.** Mori, K. Synthetic Examination of Incorrectly Proposed Structures of Biomolecules. **2005**, *5*(1), 1–16.
- 38.** Ishibashi, H. Controlling the Regiochemistry of Radical Cyclizations. **2006**, *6*(1), 23–31.
- Chemical Reviews**
- 39.** Aho, J. E.; Pihko, P. M.; Rissa, T. K. Nonanomeric Spiroketals in Natural Products: Structures, Sources, and Synthetic Strategies. **2005**, *105*(12), 4406–40.
- 40.** Sunazuka, T.; Omura, S. Total Synthesis of  $\alpha$ -Pyrone Meroterpenoids, Novel Bioactive Microbial Metabolites. **2005**, *105*(12), 4559–80.
- 41.** Chang, J.; Reiner, J.; Xie, J. Progress on the Chemistry of Dibenzocyclooctadiene Lignans. **2005**, *105*(12), 4581–609.
- 42.** Yoder, R. A.; Johnston, J. N. A Case Study in Biomimetic Total Synthesis: Polyolefin Carbocyclizations to Terpenes and Steroids. **2005**, *105*(12), 4730–56.
- 43.** Beaudry, C. M.; Malerich, J. P.; Trauner, D. Biosynthetic and Biomimetic Electrocyclizations. **2005**, *105*(12), 4757–78.
- 44.** Doemling, A. Recent Developments in Isocyanide Based Multicomponent Reactions in Applied Chemistry. **2006**, *106*(1), 17–89.
- 45.** Marco-Contelles, J.; Carreiras, M. d. C.; Rodriguez, C.; Villarroya, M.; Garcia, A. G. Synthesis and Pharmacology of Galantamine. **2006**, *106*(1), 116–133.
- 46.** Braunstein, P. Bonding and Organic and Inorganic Reactivity of Metal-Coordinated Phosphinoenolates and Related Functional Phosphine-Derived Anions. **2006**, *106*(1), 134–59.
- 47.** Hapiot, F.; Tilloy, S.; Monflier, E. Cyclodextrins as Supramolecular Hosts for Organometallic Complexes. **2006**, *106*(3), 767–81.
- 48.** Wenz, G.; Han, B.-H.; Mueller, A. Cyclodextrin Rotaxanes and Polyrotaxanes. **2006**, *106*(3), 782–817.
- 49.** Parenty, A.; Moreau, X.; Campagne, J. M. Macrolactonizations in the Total Synthesis of Natural Products. **2006**, *106*(3), 911–39.
- 50.** Zeni, G.; Luedtke, D. S.; Panatieri, R. B.; Braga, A. L. Vinyllic Tellurides: From Preparation to Their Applicability in Organic Synthesis. **2006**, *106*(3), 1032–76.
- 51.** Sartori, G.; Maggi, R. Use of Solid Catalysts in Friedel–Crafts Acylation Reactions. **2006**, *106*(3), 1077–104.

**Chemical Society Reviews**

- 52.** Li, C.-J.; Chen, L. Organic Chemistry in Water. **2006**, *35*(1), 68–82.
- 53.** Lang, S.; Murphy, J. A. Azide Rearrangements in Electron-Deficient Systems. **2006**, *35*(2), 146–56.
- 54.** Jemmis, E. D.; Jayasree, E. G.; Parameswaran, P. Hypercarbons in Polyhedral Structures. **2006**, *35*(2), 157–68.
- 55.** Benniston, A. C.; Harriman, A. Charge on the Move: How Electron-Transfer Dynamics Depend on Molecular Conformation. **2006**, *35*(2), 169–79.
- 56.** Cravotto, G.; Cintas, P. Power Ultrasound in Organic Synthesis: Moving Cavitation Chemistry from Academia to Innovative and Large-Scale Applications. **2006**, *35*(2), 180–96.
- 57.** Surry, D. S.; Spring, D. R. The Oxidation of Organo-cuprates: An Offbeat Strategy for Synthesis. **2006**, *35*(3), 218–25.
- 58.** Gladiali, S.; Alberico, E. Asymmetric Transfer Hydrogenation: Chiral Ligands and Applications. **2006**, *35*(3), 226–36.
- 59.** Samec, J. S. M.; Baeckvall, J.-E.; Andersson, P. G.; Brandt, P. Mechanistic Aspects of Transition Metal-Catalyzed Hydrogen Transfer Reactions. **2006**, *35*(3), 237–48.
- 60.** Shibasaki, M.; Matsunaga, S. Design and Application of Linked-BINOL Chiral Ligands in Bifunctional Asymmetric Catalysis. **2006**, *35*(3), 269–79.

**Chemistry—A European Journal**

- 61.** Oestreich, M. Chirality Transfer from Silicon to Carbon. **2006**, *12*(1), 30–7.

- 62.** Billard, T. Synthetic Applications of  $\beta$ -Fluoroalkylated  $\alpha,\beta$ -Unsaturated Carbonyl Compounds. **2006**, *12*(4), 974–9.
- 63.** Ottosson, H.; Steel, P. G. Silylenes, Silenes, and Disilenes: Novel Silicon-Based Reagents for Organic Synthesis? **2006**, *12*(6), 1576–85.

### CHEMTRACTS: Organic Chemistry

- 64.** Pluth, M. D.; Bergman, G.; Raymond, K. N. Encapsulation of Cationic Organometallic Guests by a Chiral Self-Assembled Supramolecular Cage: Enantioselective Binding, Dynamic Resolution, and Selective C–H Bond Activation. **2004**, *17*(10), 515–22.
- 65.** Michon, C.; Angelici, R. J. Novel Chiral Functionalized N-Heterocyclic Carbenes and Their Rhodium(I) Complexes: Applications in Asymmetric Catalysis. **2004**, *17*(10), 534–41.
- 66.** Kellogg, R. M. Aerobic Ruthenium-Catalyzed Oxidative Cyanation of Tertiary Amines with Sodium Cyanide. **2004**, *17*(11), 581–4.
- 67.** Patil, N. T.; Yamamoto, Y. Enantioselective Catalytic Allylation of Carbonyl Groups: Umpolung of  $\pi$ -Allyl Palladium Complexes. **2004**, *17*(11), 600–5.
- 68.** Kellogg, R. M. Direct Substitution of the Hydroxy Group in Alcohols with Silyl Nucleophiles Catalyzed by Indium Trichloride. **2004**, *17*(11), 606–10.
- 69.** Kellogg, R. M. Highly Efficient Addition of Activated Methylene Compounds to Alkenes Catalyzed by Gold and Silver. **2004**, *17*(11), 611–5.
- 70.** Schmidt, D. R. Catalytic, Highly Enantio- and Diastereoselective Pinacol Coupling Reaction with a New Tethered Bis(8-Quinolinolato) Ligand. **2005**, *18*(1), 52–6.
- 71.** Belyk, K. Highly Enantioselective Catalytic Acyl Pictet–Spengler Reactions. **2005**, *18*(1), 57–64.
- 72.** Rosen, J. Enantioselective Organocatalytic Reduction of  $\alpha,\beta$ -Unsaturated Aldehydes. **2005**, *18*(1), 65–71.

### Coordination Chemistry Reviews

- 73.** Da Re, R. E.; Hopkins, M. D. Electronic Spectroscopy and Photophysics of Metal-Alkylidene Complexes. **2005**, *249*(13–14), 1396–409.
- 74.** Bond, A. D. Organic Ammonium Halides as Analogues of Main-Group Amide/Imide Complexes in the Solid State: Extension of Ring-Laddering and Ring-Stacking Principles. **2005**, *249*(19–20), 2035–55.
- 75.** Tsipis, C. A. DFT Study of “All-Metal” Aromatic Compounds. **2005**, *249*(24), 2740–62.
- 76.** Di Bari, L.; Salvadori, P. Solution Structure of Chiral Lanthanide Complexes. **2005**, *249*(24), 2854–79.
- 77.** Drozdak, R.; Allaert, B.; Ledoux, N.; Dragutan, I.; Dragutan, V.; Verpoort, F. Ruthenium Complexes Bearing Bidentate Schiff Base Ligands as Efficient Catalysts for Organic and Polymer Syntheses. **2005**, *249*(24), 3055–74.
- 78.** Soederberg, B. C. G. Transition Metals in Organic Synthesis: Highlights for the Year 2003. **2006**, *250*(3–4), 300–87.
- 79.** Gupta, I.; Ravikanth, M. Recent Developments in Heteroporphyrins and Their Analogues. **2006**, *250*(3–4), 468–518.

### Current Medicinal Chemistry

- 80.** Poupaert, J.; Carato, P.; Colacino, E. 2(3H)-Benzoxazolone and Bioisosters as “Privileged Scaffold” in the Design of Pharmacological Probes. **2005**, *12*(7), 877–85.

### Current Organic Chemistry

- 81.** Vogels, C. M.; Westcott, S. A. Recent Advances in Organic Synthesis Using Transition Metal-Catalyzed Hydroborations. **2005**, *9*(7), 687–99.
- 82.** Trabocchi, A.; Guarna, F.; Guarna, A.  $\gamma$ - and  $\delta$ -Amino Acids: Synthetic Strategies and Relevant Applications. **2005**, *9*(12), 1127–53.
- 83.** Gomez-Paloma, L.; Monti, M. C.; Terracciano, S.; Casapullo, A.; Riccio, R. Chemistry and Biology of Anti-Inflammatory Marine Natural Products. Phospholipase A2 Inhibitors. **2005**, *9*(14), 1419–27.
- 84.** Maes, B. U. W.; Tapolcsanyi, P.; Meyers, C.; Matyus, P. Palladium-Catalyzed Reactions on 1,2-Diazines. **2006**, *10*(3), 377–417.
- 85.** Diaz, D. D.; Miranda, P. O.; Padron, J. I.; Martin, V. S. Recent Uses of Iron(III) Chloride in Organic Synthesis. **2006**, *10*(4), 457–76.

### Current Topics in Medicinal Chemistry

- 86.** von Moos, E.; Ben, R. N. Recent Advances in the Synthesis of C-Linked Glycoconjugates. **2005**, *5*(14), 1351–61.
- 87.** Yuan, X.; Linhardt, R. J. Recent Advances in the Synthesis of C-Oligosaccharides. **2005**, *5*(14), 1393–430.
- 88.** Agrofoglio, L. A.; Nolan, S. P. Olefin Metathesis Route to Antiviral Nucleosides. **2005**, *5*(15), 1541–58.

### European Journal of Organic Chemistry

- 89.** Troyanov, S. I.; Kemnitz, E. Synthesis and Structures of Fullerene Bromides and Chlorides. **2005**, *(23)*, 4951–62.
- 90.** Ohfune, Y.; Shinada, T. Enantio- and Diastereoselective Construction of  $\alpha,\alpha$ -Disubstituted  $\alpha$ -Amino Acids for the Synthesis of Biologically Active Compounds. **2005**, *(24)*, 5127–43.
- 91.** Amemiya, R.; Yamaguchi, M. GaCl<sub>3</sub> in Organic Synthesis. **2005**, *(24)*, 5145–50.
- 92.** Enders, D.; Saint-Dizier, A.; Lannou, M.-I.; Lenzen, A. The Phospha-Michael Addition in Organic Synthesis. **2006**, *(1)*, 29–49.
- 93.** Tidwell, T. T. Ketene Chemistry After 100 Years. Ready for a New Century. **2006**, *(3)*, 563–76.
- 94.** Hisaki, I.; Sonoda, M.; Tobe, Y. Strained Dehydrobenzoannulenes. **2006**, *(4)*, 833–47.
- 95.** Garcia-Valverde, M.; Torroba, T. Heterocyclic Chemistry of Sulfur Chlorides—Fast Ways to Complex Heterocycles. **2006**, *(4)*, 849–61.
- 96.** Meier, C. CycloSal Phosphates as Chemical Trojan Horses for Intracellular Nucleotide and Glycosyl-Monophosphate Delivery—Chemistry Meets Biology. **2006**, *(5)*, 1081–102.
- 97.** Concellon, J. M.; Rodriguez-Solla, H. Reduction of Multiple Bonds without Hydrogen or Hydride Complexes. Samarium Diiodide as a Mild Reducing Reagent. **2006**, *(7)*, 1613–25.

**Heterocycles**

- 98.** El-Hiti, G. A.; Abdel-Megeed, M. F. Synthesis of Glycosides Containing Quinazolin-4(3H)-One Ring System. **2005**, *65*(12), 3007–41.
- 99.** Chupakhin, O. N.; Itsikson, N. A.; Morzherin, Y. Y.; Charushin, V. N. Anion Receptors. **2005**, *66*, 689–709.
- 100.** Shibasaki, M.; Kanai, M. Synthetic Strategies of Fostriecin. **2005**, *66*, 727–41.
- 101.** Dzyuba, S. V.; Bolshakov, S.; Li, J.; Nakanishi, K. Expanding Structural Diversity of Terpene Trilactones from *Ginkgo Biloba* Extract: Studies Towards Core-Modified Ginkgolides. **2005**, *66*, 743–51.
- 102.** Burger, K.; Hennig, L.; Zeika, O.; Lux, A. Criss-Cross Cycloaddition Reactions with Hexafluoroacetone Azine. Mechanism and Some Synthetic Applications. **2006**, *67*(1), 443–60.
- 103.** Nishimura, Y. Gem-Diamine 1-N-Iminosugars, A New Family of Glycosidase Inhibitors: Synthesis and Biological Activity. **2006**, *67*(1), 461–88.
- 104.** Gautier, A. Phosphate Mimic of Nucleotides, Conformational Influences on the Ribofuranose Conformations. **2006**, *67*(2), 823–37.

**Journal of Fluorine Chemistry**

- 105.** Xue, H.; Verma, R.; Shreeve, J. M. Review of Ionic Liquids with Fluorine-Containing Anions. **2006**, *127*(2), 159–76.

**Journal of Organometallic Chemistry**

- 106.** Basato, M.; Michelin, R. A.; Mozzon, M.; Sgarbossa, P.; Tassan, A. N-Heterocyclic Carbenes from Transition Metal Coordinated Functional Isocyanides of the Type O-(CH<sub>2</sub>Y)-C<sub>6</sub>H<sub>4</sub>N≡C (Y = OSiMe<sub>3</sub>, OH; N<sub>3</sub>; AsR<sup>+</sup>). **2005**, *690*(24–25), 5414–20.
- 107.** Braband, H.; Kueckmann, T. I.; Abram, U. Rhenium and Technetium Complexes with N-Heterocyclic Carbenes—A Review. **2005**, *690*(24–25), 5421–9.
- 108.** Busetto, L.; Zanotti, V. Carbene Ligands in Diiron Complexes. **2005**, *690*(24–25), 5430–40.
- 109.** Diaz-Requejo, M. M.; Perez, P. J. Copper, Silver and Gold-Based Catalysts for Carbene Addition or Insertion Reactions. **2005**, *690*(24–25), 5441–50.
- 110.** Crabtree, R. H. NHC Ligands Versus Cyclopentadienyls and Phosphines as Spectator Ligands in Organometallic Catalysis. **2005**, *690*(24–25), 5451–7.
- 111.** Lappert, M. F. Contributions to the Chemistry of Carbenemetal Chemistry. **2005**, *690*(24–25), 5467–73.
- 112.** Hu, X.; Meyer, K. New Tripodal N-Heterocyclic Carbene Chelators for Small Molecule Activation. **2005**, *690*(24–25), 5474–84.
- 113.** Padwa, A. The Interaction of Rhodium Carbenoids with Carbonyl Compounds as a Method for the Synthesis of Tetrahydrofurans. **2005**, *690*(24–25), 5533–40.
- 114.** Pombeiro, A. J. L. Electron-Donor/Acceptor Properties of Carbynes, Carbenes, Vinylidenes, Allenylenes and Alkynyls as Measured by Electrochemical Ligand Parameters. **2005**, *690*(24–25), 6021–40.

- 115.** Frenking, G.; Sola, M.; Vyboishchikov, S. F. Theoretical Studies of Organometallic Compounds. 53. Chemical Bonding in Transition Metal Carbene Complexes. **2005**, *690*(24–25), 6178–204.

**Natural Product Reports**

- 116.** Michael, J. P. Indolizidine and Quinolizidine Alkaloids. **2005**, *22*(5), 603–26.
- 117.** Michael, J. P. Quinoline, Quinazoline and Acridone Alkaloids. **2005**, *22*(5), 627–46.
- 118.** Bienz, S.; Bisegger, P.; Guggisberg, A.; Hesse, M. Polyamine Alkaloids. **2005**, *22*(5), 647–58.
- 119.** Nicholas, G. M.; Phillips, A. J. Marine Natural Products. Synthetic Aspects. **2006**, *23*(1), 79–99.
- 120.** Hanson, J. R. Steroids. Partial Synthesis in Medicinal Chemistry. **2006**, *23*(1), 100–7.

**Organic Preparations and Procedures International**

- 121.** Miltschitzky, S.; Koenig, B. Small Peptides with a  $\beta$ -Hairpin Structure. **2005**, *37*(4), 307–36.
- 122.** Rai, R.; McAlexander, I.; Chang, C.-W. T. Synthetic Glycodiversification. From Aminosugars to Aminoglycoside Antibiotics. A Review. **2005**, *37*(4), 337–75.
- 123.** Krapcho, A. P. Uses of Sodium Chlorite and Sodium Bromate in Organic Synthesis. A Review. **2006**, *38*(2), 177–216.

**Pure and Applied Chemistry**

- 124.** Diederich, F. Advanced Optoelectronics Materials by Fullerene and Acetylene Scaffolding. **2005**, *77*(11), 1851–63.
- 125.** Lu, X.; Du, Y.; Lu, C. Synthetic Methodology Using Tertiary Phosphines as Nucleophilic Catalysts. **2005**, *77*(12), 1985–90.
- 126.** Yoshifiji, M. Recent Developments in the Chemistry of Low-Coordinated Organophosphorus Compounds. **2005**, *77*(12), 2011–20.
- 127.** Beletskaya, I. P. Transition-Metal-Catalyzed Reactions of Carbon-Heteroatom Bond Formation by Substitution and Addition Processes. **2005**, *77*(12), 2021–7.
- 128.** Block, E.; Dikarev, E. V.; Jin, J.; Li, B.; Petrukhina, M. A.; Zhang, S.-Z. Synthesis, Structure, and Chemistry of Selenium-Containing Four-Membered Rings. **2005**, *77*(12), 2029–32.

- 129.** Ji, J.; Bunnelle, W. H.; Li, T.; Pace, J. M.; Schrimpf, M. R.; Sippy, K. B.; Anderson, D. J.; Meyer, M. D. Discovery of Fused Azetidines as Novel Selective  $\alpha 4\beta 2$  Neuronal Nicotinic Receptor (NNR) Agonists. **2005**, *77*(12), 2041–5.

- 130.** Kanai, M.; Kato, N.; Ichikawa, E.; Shibasaki, M. Recent Progress in Lewis Acid–Lewis Base Bifunctional Asymmetric Catalysis. **2005**, *77*(12), 2047–52.

- 131.** Kim, Y. H.; Jung, D. Y.; Youn, S. W.; Kim, S. M.; Park, D. H. Dual Enantioselective Control by Heterocycles of (S)-Indoline Derivatives. **2005**, *77*(12), 2053–9.

- 132.** Lee, E. Oxacycle Synthesis via Radical Cyclization of  $\beta$ -Alkoxyacrylates. **2005**, *77*(12), 2073–81.

- 133.** Mikolajczyk, M. Asymmetric Cyclopropanation of Chiral (1-Phosphoryl)Vinyl Sulfoxides: A New Approach to Constrained Analogs of Biologically Active Compounds. **2005**, *77*(12), 2091–8.

- 134.** Hissler, M.; Lescop, C.; Reau, R.  $\pi$ -Conjugated Systems: Can Phosphole Offer More than Pyrrole? **2005**, 77(12), 2099–104.
- 135.** Yus, M.; Ramon, D. J. Enantioselective Addition of Organozinc Reagents to Carbonyl Compounds. **2005**, 77(12), 2111–9.
- 136.** Xie, J.-H.; Zhu, S.-F.; Fu, Y.; Hu, A.-G.; Zhou, Q.-L. New Chiral Phosphorus Ligands with Spirobiindane Backbone for Asymmetric Hydrogenations. **2005**, 77(12), 2121–32.
- 137.** Maeda, H.; Furuta, H. A Dozen Years of N-Confusion: From Synthesis to Supramolecular Chemistry. **2006**, 78(1), 29–44.
- 138.** Ma, S. Transition-Metal-Catalyzed Reactions of Allenes. **2006**, 78(2), 197–208.
- 139.** Ackermann, L.; Born, R.; Spatz, J. H.; Althammer, A.; Gschrei, C. J. Air-Stable Phosphine Oxides as Preligands for Catalytic Activation Reactions of C–Cl, C–F, and C–H bonds. **2006**, 78(2), 209–14.
- 140.** Aggarwal, V. K.; Fang, G. Y.; Ginesta, X.; Howells, D. M.; Zaja, M. Toward an Understanding of the Factors Responsible for the 1,2-Migration of Alkyl Groups in Borate Complexes. **2006**, 78(2), 215–29.
- 141.** Bochet, C. G. Photochemical Release of Various Functional Groups. **2006**, 78(2), 241–7.
- 142.** Breit, B.; Seiche, W. Self-assembly of Bidentate Ligands for Combinatorial Homogeneous Catalysis Based on an A–T Base Pair Model. **2006**, 78(2), 249–56.
- 143.** Cabrera, S.; Mancheno, O. G.; Arrayas, R. G.; Alonso, I.; Mauleon, P.; Carretero, J. C. Sulfonylphosphinoferrocenes: Novel Planar Chiral Ligands in Enantioselective Catalysis. **2006**, 78(2), 257–65.
- 144.** Leung, L. T.; Chiu, P. Hydrostannation of Activated Alkynes Mediated by Stryker's Reagent. **2006**, 78(2), 281–5.
- 145.** Cozzi, P. G.; Rivalta, E. First Enantioselective One-Pot, Three-Component Imino Reformatsky Reaction. **2006**, 78(2), 287–91.
- 146.** Ding, K. Development of Homogeneous and Heterogeneous Asymmetric Catalysts for Practical Enantioselective Reactions. **2006**, 78(2), 293–301.
- 147.** Gennari, C.; Monti, C.; Piarulli, U. Rhodium-Catalyzed Asymmetric Reactions with a Dynamic Library of Chiral Tropos Phosphorus Ligands. **2006**, 78(2), 303–10.
- 148.** Murtagh, K.; Sweetman, B. A.; Guiry, P. J. New Chiral Tridentate Ligands for Asymmetric Catalysis. **2006**, 78(2), 311–20.
- 149.** Hegedus, L. S.; Ranslow, P.; Achmatowicz, M.; de los Rios, C.; Hyland, C.; Garcia-Frutos, E. M.; Salman, S. Syntheses and Reactions of Optically Active  $\alpha$ -Aminoallenylstannanes and  $\alpha$ -Aminopropargylboranes. **2006**, 78(2), 333–9.
- 150.** Hii, K. K. Development of Palladium Catalysts for Asymmetric Hydroamination Reactions. **2006**, 78(2), 341–9.
- 151.** Lautens, M.; Alberico, D.; Bressy, C.; Fang, Y.-Q.; Mariampillai, B.; Wilhelm, T. Palladium-Catalyzed Ring-Forming Reactions: Methods and Applications. **2006**, 78(2), 351–61.
- 152.** Lebel, H.; Leogane, O.; Huard, K.; Lectard, S. Catalytic Activation of Nitrogen Derivatives with Transition-Metal Complexes. **2006**, 78(2), 363–75.
- 153.** Lipshutz, B. H.; Butler, T.; Frieman, B. A.; Kogan, V.; Lee, C.-T.; Lower, A.; Nihan, D. M.; Taft, B. R.; Tomaso, A. E., Jr. New Technologies in Catalysis Using Base Metals. **2006**, 78(2), 377–84.
- 154.** Messerle, B. A.; Vuong, K. Q. Synthesis of Spiroketals by Iridium-Catalyzed Double Hydroalkoxylation. **2006**, 78(2), 385–90.
- 155.** Bonaccorsi, C.; Althaus, M.; Becker, C.; Togni, A.; Mezzetti, A. Chiral Ru/PNNP Complexes in Catalytic and Stoichiometric Electrophilic O- and F-Atom Transfer to 1,3-Dicarbonyl Compounds. **2006**, 78(2), 391–6.
- 156.** Michelet, V.; Charrault, L.; Gladiali, S.; Genet, J.-P. Alkoxy- and Hydroxycyclization of Enynes Catalyzed by Pd(II) and Pt(II) Catalysts. **2006**, 78(2), 397–407.
- 157.** Wingstrand, E.; Lundgren, S.; Penhoat, M.; Moberg, C. Dual Lewis Acid-Lewis Base Activation in Enantioselective Additions to Aldehydes. **2006**, 78(2), 409–14.
- 158.** Murakami, M.; Miyamoto, Y.; Haasegawa, M.; Usui, I.; Matsuda, T. Torque Control by Metal-Orbital Interactions. **2006**, 78(2), 415–23.
- 159.** Nakamura, M. Indium-Catalyzed Addition of Carbon Units to Acetylenes: Development of a New C–C Bond Formation Toward Exploitation of Chemical Resources. **2006**, 78(2), 425–34.
- 160.** Nakao, Y.; Sahoo, A. K.; Imanaka, H.; Yada, A.; Hiyama, T. Alkenyl- and Aryl[2-(Hydroxymethyl)phenyl]Dimethylsilanes: Tetraorganosilanes for the Practical Cross-Coupling Reaction. **2006**, 78(2), 435–40.
- 161.** Yorimitsu, H.; Oshima, K. New Synthetic Reactions Catalyzed by Cobalt Complexes. **2006**, 78(2), 441–9.
- 162.** Sortais, J.-B.; Barloy, L.; Sirlin, C.; de Vries, A. H. M.; de Vries, J. G.; Pfeffer, M. Cycloruthenated Compounds as Efficient Catalyst for Asymmetric Hydride Transfer Reaction. **2006**, 78(2), 457–62.
- 163.** Schmidt, B. Connecting Catalytic Cycles by Organometallic Transformations in situ: Novel Perspectives in the Olefin Metathesis Field. **2006**, 78(2), 469–76.
- 164.** Sodeoka, M.; Hamashima, Y. Acid–Base Catalysis using Chiral Palladium Complexes. **2006**, 78(2), 477–94.
- 165.** Stary, I.; Stara, I. G.; Alexandrova, Z.; Sehnal, P.; Teply, F.; Saman, D.; Rulisek, L. Helicity Control in the Synthesis of Helicenes and Related Compounds. **2006**, 78(2), 495–9.
- 166.** Biswas, K.; Chapron, A.; Cooper, T.; Fraser, P. K.; Novak, A.; Prieto, O.; Woodward, S. Dabbling with Air-Stable Organoaluminum Species. **2006**, 78(2), 511–8.
- 167.** de Meijere, A.; Stulgies, B.; Albrecht, K.; Rauch, K.; Wegner, H. A.; Hopf, H.; Scott, L. T.; Eshdat, L.; Aprahamian, I.; Rabinovitz, M. New Interesting Molecular Topologies by Way of Modern Cross-Coupling Reactions. **2006**, 78(4), 813–30.
- 168.** Kawase, T.; Oda, M. Complexation of Carbon Nanorings with Fullerenes. **2006**, 78(4), 831–9.
- 169.** Gan, L. Fullerene Peroxides in Cage-Opening Reactions. **2006**, 78(4), 841–5.
- 170.** MacLachlan, M. J. Conjugated Shape-Persistent Macrocycles via Schiff-Base Condensation: New Motifs for Supramolecular Chemistry. **2006**, 78(4), 873–88.

**Russian Chemical Reviews**

- 171.** Karakhanov, E. A.; Maksimov, A. L.; Runova, E. A. Design of Supramolecular Metal Complex Catalytic Systems for Organic and Petrochemical Synthesis. **2005**, 74(1), 97–111.

**172.** Vereshchagina, Y. A.; Ishmaeva, E. A.; Zverev, V. V. Theoretical Conformational Analysis of Organophosphorus Compounds. **2005**, 74(4), 297–315.

**173.** Yatsenko, A. V. The Structures of Organic Molecules in Crystals: Simulations Using the Electrostatic Potential. **2005**, 74(6), 521–9.

**174.** Ivanov, A. S.; Tugusheva, N. Z.; Granik, V. G. Benzo-[b]Naphthyridines. **2005**, 74(10), 915–36.

**175.** Romanova, N. N.; Gravis, A. G.; Zyk, N. V. Microwave Irradiation in Organic Synthesis. **2005**, 74(11), 969–1013.

## Science

**176.** Enache, D. I.; Edwards, J. K.; Landon, P.; Solsona-Espriu, B.; Carley, A. F.; Herzing, A. A.; Watanabe, M.; Kiely, C. J.; Knight, D. W.; Hutchings, G. J. Solvent-Free Oxidation of Primary Alcohols to Aldehydes Using Au–Pd/TiO<sub>2</sub> Catalysts. **2006**, 311(5759), 362–5.

**177.** Wills, M. Better Asymmetric Reactions. **2006**, 311(5761), 619–20.

**178.** Bell, S.; Wuestenberg, B.; Kaiser, S.; Menges, F.; Netscher, T.; Pfaltz, A. Asymmetric Hydrogenation of Unfunctionalized, Purely Alkyl-Substituted Olefins. **2006**, 311(5761), 642–4.

**179.** Wayland, B.; Fu, X. Building Molecules with Carbon Monoxide Reductive Coupling. **2006**, 311(5762), 790–1.

## Synlett

**180.** Jacobi, P. A.; Adel Odeh, I. M.; Buddhu, S. C.; Cai, G.; Rajeswari, S.; Fry, D.; Zheng, W.; DeSimone, R. W.; Guo, J.; Coutts, L. D.; Hauck, S. I.; Leung, S. H.; Ghosh, I.; Pippin, D. Synthetic Studies in Phytochrome Chemistry. **2005**, 19(19), 2861–85.

**181.** Zhao, Y.; Wang, J. Nucleophilic Addition to C=O and C=N Bonds by Nucleophiles Containing a Diazo Group. **2005**, 19(19), 2886–92.

**182.** Jung, D. Y.; Kim, Y. H. Recent Studies on Samarium Diiodide Mediated Organic Synthesis. **2005**, 20(19), 3019–32.

**183.** Studer, A.; Schleth, F. Desymmetrization and Diastereotopic Group Selection in 1,4-Cyclohexadienes. **2005**, 20(19), 3033–41.

**184.** Hodgson, D. M.; Bray, C. D.; Humphreys, P. G. Expanding the Utility of Lithiated Epoxides and Aziridines in Synthesis. **2006**, 1(1), 1–22.

**185.** Spino, C. The Ever-Challenging Quassinooids. **2006**, 1(1), 23–32.

**186.** Bernardi, D. Sodium Nitrite (NaNO<sub>2</sub>). **2006**, 1(1), 153–4.

**187.** Siddiqui, S. A. N-Alkylimidazolium Tetrafluoroborate. **2006**, 1(1), 155–6.

**188.** Hou, X. L.; Wu, J.; Fan, R. H.; Ding, C. H.; Luo, Z. B.; Dai, L. X. Towards Reaction Selectivities of Imines and Aziridines. **2006**, 1(2), 181–93.

**189.** Trabocchi, A.; Menchi, G.; Guarna, F.; Machetti, F.; Scarpi, D.; Guarna, A. Design, Synthesis, and Applications of 3-Aza-6,8-Dioxabicyclo[3.2.1]octane-Based Scaffolds for Peptidomimetic Chemistry. **2006**, 1(3), 331–53.

**190.** Yoshida, J.-i. Carbocationic Cyclopropanation Using Tin. **2006**, 1(4), 515–26.

## Synthesis—Stuttgart

**191.** Slocum, D. W.; Shelton, P.; Moran, K. M. Processing Aryllithium and Hetaryllithium Intermediates: Formation of Halogen and Chalcogen Derivatives. **2005**, 20(20), 3477–98.

**192.** Bonauer, C.; Walenzyk, T.; Koenig, B.  $\alpha,\beta$ -Dehydroamino Acids. **2006**, 1(1), 1–20.

**193.** Larghi, E. L.; Kaufman, T. S. The Oxa-Pictet–Spengler Cyclization: Synthesis of Isochromans and Related Pyran-Type Heterocycles. **2006**, 2(2), 187–220.

**194.** Bode, S. E.; Wolberg, M.; Mueller, M. Stereoselective Synthesis of 1,3-Diols. **2006**, 4(4), 557–88.

**195.** Rubin, M.; Rubina, M.; Gevorgyan, V. Recent Advances in Cyclopropene Chemistry. **2006**, 8(8), 1221–45.

## Targets in Heterocyclic Systems

**196.** Langa, F.; Oswald, F. Pyrazolino[60]fullerenes: Synthesis and Properties. **2004**, 8(8), 120–45.

**197.** Karoyan, P.; Sagan, S.; Lequin, O.; Quancard, J.; Lavielle, S.; Chassaing, G. Substituted Prolines: Syntheses and Applications in Structure–Activity Relationship Studies of Biologically Active Peptides. **2004**, 8(8), 216–73.

**198.** Guarna, A.; Machetti, F.; Occhiato, E. G. Synthesis of Benzo[c]quinolizin-3-ones: Discovery and Development of Novel Inhibitors of Human Steroid 5 $\alpha$ -Reductase. **2004**, 8(8), 428–55.

## Tetrahedron

**199.** Toy, P. H.; Shi, M. Polymer-Supported Reagents and Catalysts: Increasingly Important Tools for Organic Synthesis. **2005**, 61(51), 12025.

**200.** Handy, C. J.; Manoso, A. S.; McElroy, W. T.; Seganish, W. M.; DeShong, P. Recent Advances in Siloxane-Based Aryl-Aryl Coupling Reactions: Focus on Heteroaromatic Systems. **2005**, 61(52), 12201–25.

**201.** Macaev, F. Z.; Malkov, A. V. Use of Monoterpenes, 3-Carene and 2-Carene, as Synthons in the Stereoselective Synthesis of 2,2-Dimethyl-1,3-Disubstituted Cyclopropanes. **2005**, 62(1), 9–29.

**202.** D'Hooghe, M.; De Kimpe, N. Synthetic Approaches Towards 2-Iminothiazolidines: An Overview. **2006**, 62(4), 513–35.

**203.** Pradhan, R.; Patra, M.; Behera, A. K.; Mishra, B. K.; Behera, R. K. A Synthon Approach to Spiro Compounds. **2006**, 62(5), 779–828.

**204.** Vanecko, J. A.; Wan, H.; West, F. G. Recent Advances in the Stevens Rearrangement of Ammonium Ylides. Application to the Synthesis of Alkaloid Natural Products. **2006**, 62(6), 1043–62.

**205.** Cha, J. K.; Epstein, O. L. Synthetic Approaches to Ingenol. **2006**, 62(7), 1329–43.

**206.** Pellissier, H. Asymmetric Domino Reactions. Part A: Reactions Based on the Use of Chiral Auxiliaries. **2006**, 62(8), 1619–65.

**207.** Pellissier, H. Asymmetric Domino Reactions. Part B: Reactions Based on the Use of Chiral Catalysts and Biocatalysts. **2006**, 62(10), 2143–73.

**208.** Dick, A. R.; Sanford, M. S. Transition Metal Catalyzed Oxidative Functionalization of Carbon–Hydrogen Bonds. **2006**, 62(11), 2439–63.

**209.** Lysek, R.; Vogel, P. Synthesis of Amino- and Diaminoconduritols and Their Applications. **2006**, 62(12), 2733–68.

### Tetrahedron: Asymmetry

**210.** Plietker, B. New Oxidative Pathways for the Synthesis of  $\alpha$ -Hydroxy Ketones—the  $\alpha$ -Hydroxylation and Ketohydroxylation. **2005**, 16(21), 3453–9.

**211.** Graves, C. R.; Campbell, E. J.; Nguyen, S. T. Aluminum-Based Catalysts for the Asymmetric Meerwein–Schmidt–Ponndorf–Verley–Oppenauer (MSPVO) Reaction Manifold. **2005**, 16(21), 3460–8.

**212.** Kuehn, F. E.; Zhao, J.; Herrmann, W. A. Chiral Monomeric Organorhenium(VII) and Organomolybdenum(VI) Compounds as Catalysts for Chiral Olefin Epoxidation Reactions. **2005**, 16(21), 3469–79.

**213.** Baudequin, C.; Bregeon, D.; Levillain, J.; Guillen, F.; Plaquevent, J.-C.; Gaumont, A.-C. Chiral Ionic Liquids, a Renewal for the Chemistry of Chiral Solvents? Design, Synthesis and Applications for Chiral Recognition and Asymmetric Synthesis. **2005**, 16(24), 3921–45.

### Topics in Catalysis

**214.** Fish, R. H.; Rabion, A.; Neimann, K.; Neumann, R.; Vincent, J.-M.; Contel, M.; Izuel, C.; Villuendas, P. R.; Alonso, P. J. Precatalyst Separation Paradigms: Alkane Functionalization in Water Utilizing *in situ* Formed  $[Fe_2O(\eta 1\text{-H}_2O)(\eta 1\text{-OAc})\text{-}(TPA)_2]^{3+}$ , Embedded in Surface-Derivatized Silica, as an MMO Model, and Fluorous Biphasic Catalysis for Alkane, Alkene, and Alcohol Oxidation Chemistry. **2005**, 32(3–4), 185–96.

**215.** Wang, D.; Yan, H.-J.; Xu, Q.-M.; Han, M.-J.; Wan, L.-J. Surface Structure of Heterogeneous Catalysts: Cinchona and Tartaric Acid on Solid Surface. **2005**, 35(1–2), 131–9.

### Topics in Current Chemistry

**216.** Block, M. A. B.; Kaiser, C.; Khan, A.; Hecht, S. Discrete Organic Nanotubes Based on a Combination of Covalent and Non-Covalent Approaches. **2005**, 245(Functional Molecular Nanostructures), 89–150.

**217.** Hirsch, A.; Vostrowsky, O. Functionalization of Carbon Nanotubes. **2005**, 245, 193–237.

**218.** Thilgen, C.; Sergeyev, S.; Diederich, F. Spacer-Controlled Multiple Functionalization of Fullerenes. **2005**, 248(Templates in Chemistry I), 1–61.

**219.** Doetz, K. H.; Wenzel, B.; Jahr, H. C. Chromium-Templated Benzannulation and Haptotropic Metal Migration. **2005**, 248, 63–103.

**220.** Schalley, C. A.; Weilandt, T.; Brueggemann, J.; Voegtle, F. Hydrogen-Bond-Mediated Template Synthesis of Rotaxanes, Catenanes, and Knotanes. **2005**, 248, 141–200.

**221.** MacGillivray, L. R.; Papaefstathiou, G. S.; Friscic, T.; Varshney, D. B.; Hamilton, T. D. Template-Controlled Synthesis in the Solid-State. **2005**, 248, 201–21.

**222.** Dietrich-Buchecker, C.; Colasson, B. X.; Sauvage, J.-P. Molecular Knots. **2005**, 249(Templates in Chemistry II), 261–83.

**223.** Crego-Calama, M.; Reinhoudt, D. N.; ten Cate, M. G. J. Temptation in Noncovalent Synthesis of Hydrogen-Bonded Rosettes. **2005**, 249, 285–316.

**224.** Constant, S.; Lacour, J. New Trends in Hexacoordinated Phosphorus Chemistry. **2005**, 250(New Aspects in Phosphorus Chemistry V), 1–41.

### Contributed Volumes

**Enantioselective Synthesis of  $\beta$ -Amino Acids.** Juaristi, E., Soloshonok, V. A., Eds., John Wiley & Sons: Hoboken, NJ, 2005.

**225.** Podlech, J. Preparation of Enantiopure  $\beta$ -Amino Acids by Homologation of  $\alpha$ -Amino Acids.

**226.** Ortuno, R. M. Enantioselective Synthesis of Conformationally Constrained  $\beta$ -Amino Acids.

**227.** Tanaka, F.; Barbas, C. F., III. Organocatalytic Approaches to Enantioenriched  $\beta$ -Amino Acids.

**228.** Barluenga, J.; Olano, B.; Florez, J.; Valdes, C. Asymmetric Synthesis of Cyclic  $\beta$ -Amino Acids via Cycloaddition Reactions.

**229.** Lajczyk, M. M.; Drabowicz, J.; Lyzwa, P. Asymmetric Synthesis of Phosphonic Analogs of  $\beta$ -Amino Acids.

**230.** Palacios, F.; Alonso, C.; De Los Santos, J. Asymmetric Synthesis of  $\beta$ -Substituted  $\beta$ -Amino Phosphonates and Phosphinates and  $\beta$ -Amino Sulfur Analogs.

**231.** Fustero, S.; Sanz-Cervera, J. F.; Soloshonok, V. A. Stereoselective Synthesis of Fluorine-Containing  $\beta$ -Amino Acids.

**232.** Miller, S. J.; Guerin, D. J. Enantioselective Synthesis of  $\beta$ -Amino Acids via Conjugate Addition to  $\alpha,\beta$ -Unsaturated Carbonyl Compounds.

**233.** Liu, M.; Sibi, M. P. Preparation of Enantiopure  $\beta$ -Amino Acids via Enantioselective Conjugate Addition.

**234.** Berbasov, D. O.; Ellis, T. K.; Soloshonok, V. A. Biocatalytic Entry to Enantiomerically Pure  $\beta$ -Amino Acids.

**235.** Naito, T.; Miyata, O. Stereoselective Synthesis of  $\beta$ -Amino Acids via Radical Reactions.

**236.** Chen, J.; Kuznetsova, L. V.; Ungreanu, I. M.; Ojima, I. Recent Advances in Synthesis of  $\alpha$ -Hydroxy- $\beta$ -Amino Acids and Their Use in SAR Studies of Taxane Anticancer Agents.

**237.** Palomo, C.; Aizpuru, J. M.; Ganboa, I.; Oiarbide, M. Synthesis of  $\beta$ -Amino Acids and Their Derivatives from  $\beta$ -Lactams: Update.

**238.** Gelman, M. A.; Gellman, S. H. Using Constrained  $\beta$ -Amino Acid Residues to Control  $\beta$ -Peptide Shape and Function.

**239.** Campo, M. A.; Escalante, J.; Sebesta, R.  $\beta$ 2-Amino

Acids with Proteinogenic Side Chains and Corresponding Peptides: Synthesis, Secondary Structure, and Biological Activity.

**Handbook of Fluorous Chemistry.** Gladysz, J. A., Curran, D. P., Horvath, I. T., Eds., Wiley-VCH: Weinheim, Germany, 2004.

**240.** Ryu, I. Radical Carbonylations using Fluorous Tin Reagents: Convenient Workup and Facile Recycle of the Reagents.

**241.** Hope, E. G.; Stuart, A. M. Hydroformylation and Hydrogenation Catalyzed by Perfluoroalkylated Phosphine/Metal Complexes.

**242.** Monflier, E.; Mortreux, A.; Castanet, Y. Hydroformylation Catalyzed by Rhodium/Fluorinated Triarylphosphite Complexes in Fluorous Biphasic Media.

**243.** Theil, F.; Sonnenschein, H.; Hungerhoff, B.; Swaleh, S. M. Combining Lipase-Catalyzed Kinetic Resolutions of Racemic Alcohols with Fluorous Phase Labeling.

**244.** Metrangolo, P.; Pilati, T.; Resnati, G. Self-Assembly of Hybrid Fluorous Materials.

**245.** Hope, E. G.; Stuart, A. M. Synthesis of Perfluoroalkylated Phosphines.

**Transition Metals for Organic Synthesis (Second Edition). Volume 2.** Beller, M., Bolm, C., Eds., Wiley-VCH: Weinheim, Germany, 2004.

**246.** Fu, G. C. Transition Metal-Catalyzed Hydroboration of Olefins.

**247.** Shibasaki, M.; Sasai, H.; Yoshikawa, N. Lanthanide Complexes in Asymmetric Two-Center Catalysis.

**248.** Doetz, K. H.; Minatti, A. Fischer-Type Carbene Complexes.

**249.** Petasis, N. A. Titanium–Carbene Mediated Reactions.

**250.** Rueck-Braun, K. Iron Acyl Complexes.

**251.** Knoelker, H.-J. Iron-Diene Complexes.

**252.** Schmalz, H.-G.; Dehmel, F. Chromium–Arene Complexes.

## Monographs

**253.** Anderson, R. J.; Bendell, D. J.; Groundwater, P. W. *Organic Spectroscopic Analysis*. Royal Society of Chemistry: Cambridge, U.K., 2004.

**254.** Bhattacharyya, S., Ed. Special Issue: Synthesis and Purification Using Bound Reagents, Scavengers and SPE. [In: *Mol. Diversity*; **2005**, 9(4)]. Springer: Dordrecht, The Netherlands, 2005.

**255.** Chambers, R., Ed. *Fluorine in Organic Chemistry*. Blackwell: Oxford, U.K., 2004.

**256.** Christou, G., Ed. Special Issue in Honour of Malcolm H. Chisholm. [In: *Polyhedron*, **2006**; 25(2)]. Elsevier: Amsterdam, The Netherlands, 2006.

**257.** Fox, M. A.; Whitesell, J. K. *Organic Chemistry*, Third Edition. Jones and Bartlett: Sudbury, MA, 2004.

**258.** Heinze, T., Ed. *Polysaccharides I: Structure, Characterization and Use*. [In: *Adv. Polym. Sci.*; **2005**, 186]. Springer: Berlin, Germany, 2005.

**259.** Kutateladze, A. G., Ed. *Computational Methods in Photochemistry*. [In: *Mol. Supramol. Photochem.*; **2005**, 13]. CRC Press: Boca Raton, FL, 2005.

**260.** Lawrence, S. A. *Amines: Synthesis, Properties and Applications*. Cambridge University Press: Cambridge, U.K., 2004.

**261.** Lemaire, M., Mangeney, P., Eds. *Chiral Diazaligands for Asymmetric Synthesis*. [In: *Top. Organomet. Chem.*; **2005**, 15]. Springer: Berlin, Germany, 2005.

**262.** Majewski, M., Snieckus, V., Eds. *Methods of Molecular Transformations*. [In: *Sci. Synth.*; **2006**, 8a]. Georg Thieme Verlag: Stuttgart, Germany, 2006.

**263.** Martin, R., Ed. *Handbook of Hydroxyacetophenones: Preparation and Physical Properties*. Enlarged Second Edition. Kluwer Academic: Dordrecht, Netherlands, 2004.

**264.** Monakov, Y. B.; Borisov, I. M.; Zimin, Y. S.; Mudarsova, R. K.; Shirokova, E. N.; Tolstikova, T. G.; Medvedeva, S. A.; Zaikov, G. E. Peroxide Oxidation of Arabinogalactan: Kinetics and Products. In *Trends in Molecular and High Molecular Science*. Zaikov, G. E., Monakov, Y. B., Jimenez, A., Eds., Nova Science: Hauppauge, NY, 2005. Vol. 67–85.

**265.** Parsons, A. F. *Keynotes in Organic Chemistry*. Blackwell: Oxford, U.K., 2003.

**266.** Percy, J. M., Ed. *Science of Synthesis, Houben-Weyl Methods of Molecular Transformations: Volume 34: Fluorine*. Georg Thieme: Stuttgart, Germany, 2006.

**267.** Quin, L. D.; Williams, A. J. *Practical Interpretation of P-31 NMR Spectra and Computer Assisted Structure Verification*. Advanced Chemistry Development, Toronto, Canada, 2005.

**268.** Shulgin, A. T., Perry, W. E., Eds. *The Simple Plant Isoquinolines. Transform*: London, U.K., 2003.

**269.** Tierney, J. P.; Lidstrom, P. *Microwave Assisted Organic Chemistry*. CRC Press: Boca Raton, FL, 2004.

**270.** Vicario, J. L., Badia, D., Carrillo, L., Eds. *New Methods for the Asymmetric Synthesis of Nitrogen Heterocycles*. Research Signpost: Trivandrum, India, 2005.

**271.** Yamada, J.-i., Sugimoto, T., Eds. *TTF Chemistry: Fundamentals and Applications and Tetraphiafulvalene*. Kodansha: Tokyo, Japan, 2004.

**272.** Reents, R.; Jeyaraj, D.; Waldmann, H. Biocatalyzed Reactions on Polymeric Supports: Enzyme-Labile Linker Groups. In *Polymeric Materials in Organic Synthesis and Catalysis*. Buchmeiser, M. R., Ed., Wiley-VCH: Weinheim, Germany, 2003, p 445–66.

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