

Book Review

**Advances in Chemical Physics, Volume 129 Edited by Stuart
A. Rice (University of Chicago). John Wiley & Sons, Inc.:
Hoboken, NJ. 2004. x + 644 pp. \$175.00. ISBN 0-471-44527-4.**

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Dead Ends and Detours: Direct Ways to Successful Total Synthesis. By Miguel A. Sierra (Universidad Complutense, Madrid) and María C. de la Torre (CSIC, Madrid). Wiley-VCH Verlag GmbH & Co. KGaA: Weinheim, Germany. 2004. xiv + 276 pp. \$79.95. ISBN 3-527-30644-7.

The aim of this book, according to the authors, is “to present and learn from failures, to achieve a synthetic target by a well-designed route”, and the title says it all. The authors Sierra and de la Torre describe some of the common pitfalls encountered by the synthetic chemist and ways to circumvent them. The book is easy to read and well-organized, and provides examples and step-by-step problem solving. There are eight chapters: (1) Introduction: From the Paper to the Laboratory, (2) Tuning up, Tactical and Strategic Changes, (3) Working with Models, (4) The Unexpected Reactivity or Inertia of Common Functional Groups, (5) The Influence of Remote Substituents, (6) The Elusive Side Chain, (7) The Unpredictable Stereochemistry, and (8) Reluctant Ring Closures. The book also contains a very nice foreword by Nicolaou and a short subject index.

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New Aspects in Phosphorus Chemistry V. Topics in Current Chemistry, 250. Edited by Jean-Pierre Majoral (CNRS Toulouse, France). Springer: Berlin, Heidelberg, New York. 2005. xiv + 276 pp. \$259.00. ISBN 3-540-22498-X.

This is the fifth volume dedicated to aspects in phosphorus chemistry to be published in *Topics in Current Chemistry* since 2002, and the contents of the previous volumes in this series are conveniently provided. It also provides an author index for Volumes 201–250 in the series.

As with the previous volumes in this series, the selected authors are leaders in the field who are responsible for defining new directions in phosphorus chemistry. Together, the five volumes demonstrate the breadth of activity in phosphorus chemistry as well as the high level of interest and importance of this field. This volume presents six classical reviews of specific, active research areas that lack a consistent theme, although three of the six highlight the significance of phosphorus systems in materials science, with emphasis on oligomers and polymers. Gates provides a strong introduction to the development of phosphorus–carbon polymers in the context of the diagonal relationship between carbon and phosphorus and the

consequential analogy between P=C and C=C units of olefins. This research demonstrates that P=C polymerization can be induced thermally or by initiators, but more importantly provides good characterization data for the polymers. A description of closely related organophosphorus π -conjugated materials is presented by Hissler, Dyer, and Reau, who also demonstrate the dramatic influence of phosphorus in the photophysical properties of organic polymers. In another article, Gleria and De Jaeger address the extensively reviewed topic of polyphosphazenes, providing a useful 10-year update that includes an amalgamation of the contents of previous reviews and is comprehensive, having more than 700 references.

Of the other three articles in this volume, two represent 10-year literature surveys up to 2003: one on hexacoordinate phosphorus by Constant and Lacour and the other dedicated to phosphorus-centered radicals by Marque and Tordo. In the remaining article, Alajarin, Lopez-Leonardo, and Llamas-Lorente offer the first review of phosphinous amide (amino-phosphine) chemistry.

This is another good collection of review articles dedicated to phosphorus chemistry that is valuable for all phosphorus chemists and scientists interested in the chemistry of the nonmetal elements. The editor appropriately states the need for future volumes to accommodate the extent of original research in phosphorus chemistry.

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Advances in Chemical Physics, Volume 129. Edited by Stuart A. Rice (University of Chicago). John Wiley & Sons, Inc.: Hoboken, NJ. 2004. x + 644 pp. \$175.00. ISBN 0-471-44527-4.

This well-known series is devoted to publishing reviews on a wide variety of topics in chemical physics. Volume 129 presents the following chapters: (1) “Physicochemical Properties of Nanostructured Perfluoropolyether Films”, (2) “Fragility Metrics in Glass-Forming Liquids”, (3) “Non-Markovian Theories of Transfer Reactions in Luminescence and Chemiluminescence and Photo- and Electrochemistry”, and (4) “Nonlinear Dynamic Susceptibilities and Field-Induced Birefringence in Magnetic Particle Assemblies”. An author and a subject index complete the book.

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