Advanced Organic Synthesis: Methods and Techniques presents a survey and systematic introduction to the modern techniques of organic synthesis. The book attempts to acquaint the reader with a variety of laboratory techniques as well as introduce chemical reagents that require deftness and care in handling. Chapters are devoted that discuss the techniques of organic synthesis; apparatus and terminology used in the description of synthetic procedures; the scope and mechanism of chemical reactions; and technical procedures on how to perform chemical experiments. The text will be of vital importance to advanced undergraduate student or beginning graduate student of chemistry.

Designed for the practising organic chemist, this book details over a hundred experimental procedures using sulfur compounds in organic synthesis. Many of these methods are new to the literature, having been published since 1991, and illustrate the striking versatility of the use of sulfur reagents. Examples are simple to perform and extremely useful, and as such this book will be an invaluable aid to all involved in synthetic organic chemistry, whether in academic or industrial laboratories.

The fourth edition of this well-known textbook discusses the key methods used in organic synthesis, showing the value and scope of these methods and how they are used in the synthesis of complex molecules. All the text from the third edition has been revised, to produce a modern account of traditional methods and an up-to-date description of recent advancements in synthetic chemistry since the previous edition. A new chapter on the functionalisation of alkenes has been included and greater emphasis on highly stereoselective reactions and radical chemistry has been placed. Reference style has been improved to include footnotes on each page, allowing easy and rapid access to the primary literature. The book will be of significant interest to chemistry and biochemistry students at advanced undergraduate and graduate level, as well as researchers in academia and industry who wish to familiarise themselves with modern synthetic methods.

Organic compounds containing amino groups are at the center of modern organic chemistry, and are widely used in the pharmaceutical industry, crop protection, natural product chemistry, and in advanced materials. Modern methods for the introduction of the amino group are therefore of major importance to synthetic chemists and product developers. Over the last decade, many methods have been developed to generate new C-N bonds. At the same time, the pharmaceutical and chemical industry was rapidly moving away from the development of racemic compounds to the direct synthesis of enantiomerically pure materials. The articles of this book, written by internationally recognized experts, thus focus on asymmetric synthesis. The most recent catalytic amination methods have particularly revolutionized the chemistry of amino compounds - and you find them all in this first comprehensive overview.

Based on over 22 years of experience, this book presents a substantial accumulation of knowledge. Clearly and understandably written, it gives detailed descriptions of many experiments, providing step-by-step procedures along with personal notes and observations, directions, suggestions, and safety precautions. The yields obtained in these experiments are good to excellent, and most of the hydrogenations discussed are carried out under very mild conditions.

A hands-on guide to assist in the planning and execution of synthetic reactions in the laboratory. Despite the maturity of organic chemistry, it can still be very challenging to identify optimal methods for synthetic transformations that perform as well as in real-world manufacturing processes as they do in the laboratory. This detailed and accessible guide attempts to address this vexing issue and deliver proven methodologies practicing synthetic chemists will find valuable for identifying reaction conditions that work reliably over the broadest possible range of substrates.

Practical Synthetic Organic Chemistry: Provides a practical guide to strategically planning and executing chemical syntheses for the bench chemist in industry Discusses information that is not common knowledge beyond the boundaries of process chemistry groups, such as the synthetic routes of selected contemporary pharmaceutical drugs and practical solvents, as well as green chemistry concepts. Highlights key reactions, including substitutions, additions, eliminations, rearrangements, oxidations, and reductions. Addresses basic principles, mechanisms, advantages and disadvantages of the methodology, and techniques for achieving laboratory success. Incorporating such an extraordinary wealth of information on organic chemistry and its related fields into one complete, volumedistinguesishes Practical Synthetic Organic Chemistry as an incomparable desktop reference for professionals—and an invaluable study aid for students.

With more than 45,000 sold since 1989, The New Organic Grower has become a modern classic. In this newly revised and expanded edition, master grower Eliot Coleman continues to present the simplest and most sustainable ways of growing top-quality organic vegetables. Coleman updates practical information on marketing the harvest, on small-scale equipment, and on farming and gardening for the long-term health of the soil. The new book is thoroughly updated, and includes all-new chapters such as: Farm-Generated Fertility—how to meet your soil-fertility needs from the resources of your own land, even if manure is not available. The Moveable Feast—how to construct home garden and commercial-scale greenhouses that can be easily moved to benefit plants and avoid insect and disease build-up. The Winter Garden—how to plant, harvest, and sell hardy salad crops all winter long from unheated or minimally heated greenhouses. Pests—how to find “plant-positive” rather than “pest-negative” solutions by growing healthy, naturally resistant plants. The Information Resource—how and where to learn what you need to know to grow delicious organic vegetables, no matter where you live. Written for the serious gardener or small market farmer, The New Organic Grower proves that, in terms of both efficiency and profitability, smaller can be better.

The book opens with a general overview of the constitution and reactivity of organomagnesium compounds, followed by information on handling them and on their detection and estimation. Throughout, practical aspects as well as principles are emphasized. The chapters on the synthesis of organomagnesium compounds cover the preparation of special forms of metallic magnesium and the reaction of magnesium with substrates such as dienes, as well as the traditional preparation of Grignard reagents. Preparations by metallation and metal-halogen exchanges are also included, as are newer methods such as hydromagnesiation of alkenes and alkynes. Systematic coverage is provided on synthetically useful reactions of organomagnesium compounds. Of fundamental importance in organic synthesis are carbon-carbon bond forming reactions; additions to carbon-carbon, carbon-nitrogen, carbon-oxygen, and carbon-sulfur multiple bonds; and nucleophilic substitution at carbon. The formation of carbon-heteroatom bonds in organic compounds is described, where the heteroatom is hydrogen, nitrogen, oxygen, sulfur, or halogen. Finally, the use of organomagnesium compounds in preparing other organometalloid and organometallic compounds is outlined. Representative
experimental procedures are included throughout the book, and tables with references to well-described examples are provided. Presents a general overview of the constitution and reactivity of organomagnesium compounds. Provides coverage on the detection and estimation of organomagnesium compounds. Emphasizes practical aspects as well as principles. Covers the preparation of special forms of metallic magnesium and the reaction of magnesium with substrates such as dienes. Includes preparations by metallation and metal-halogen exchanges. Reviews new preparation methods such as hydromagnesiation of alkenes and alkynes. Outlines information on synthetically useful reactions of organomagnesium compounds. Describes the formation of carbon-heteroatom bonds in organic compounds. Addresses the use of organomagnesium compounds in preparing other organometaloid and organometallic compounds. Includes representative procedures and tables with references to well-described examples.

This much-needed resource brings together a wealth of procedures for the synthesis and practical use of diazocarbonyl compounds. It features methods for the preparation of important catalysts and for applications of diazocarbonyl compounds within each of the main transformation categories-including in-depth coverage of cyclopropanation, C-H and X-H insertion, Wolff rearrangement, ylide formation, aromatic cycloaddition and substitution, and many other useful reactions. Written by leading experts in the field, this book contains cutting-edge material on highly enantioselective transformations, and presents new ways of thinking about diazocarbonyl compounds and their applications, from donor-acceptor cyclopropanes in organic synthesis to macrocyclic cyclopropanation. Complete with illustrative examples of procedures in each chapter, clear diagrams, and a detailed bibliography, this practical reference gives the readers the tools they need to put diazocarbonyl compounds to work for their own projects—an invaluable source of guidance for synthetic organic chemists, chemical scientists, and advanced students.

An updated overview of the rapidly developing field of green engineering techniques for organic synthesis and medicinal chemistry. Green chemistry remains a high priority in modern organic synthesis and pharmaceutical R&D, with important environmental and economic implications. This book presents comprehensive coverage of green chemistry techniques for organic and medicinal chemistry applications, summarizing the available new technologies, analyzing each technique's features and green chemistry characteristics, and providing examples to demonstrate applications for green organic synthesis and medicinal chemistry. The extensively revised edition of Green Techniques for Organic Synthesis and Medicinal Chemistry includes 7 entirely new chapters on topics including green chemistry and innovation, green chemistry metrics, green chemistry and biological drugs, and the business case for green chemistry in the generic pharmaceutical industry. It is divided into 4 parts. The first part introduces readers to the concepts of green chemistry and green engineering, global environmental regulations, green analytical chemistry, green solvents, and green chemistry metrics. The other three sections cover green catalysis, green synthetic techniques, and green techniques and strategies in the pharmaceutical industry. Includes more than 30% new and updated material—plus seven brand new chapters Edited by highly regarded experts in the field (Berkeley Cue is one of the fathers of Green Chemistry in Pharma) with backgrounds in academia and industry Brings together a team of international authors from academia, industry, government agencies, and consultancies (including John Warner, one of the founders of the field of Green Chemistry) Green Techniques for Organic Synthesis and Medicinal Chemistry, Second Edition is an essential resource on green chemistry technologies for academic researchers, R&D professionals, and students working in organic chemistry and medicinal chemistry. The volume focuses on topics relevant to the developing field of "NMR crystallography", that is the use of solids NMR as a complement to diffraction crystallography, and will be of interest to every solid-state NMR researcher working in the chemical sciences.

Advanced tools for developing new functional materials and applications in chemical research, pharmaceuticals, and materials science. Cycloadditions are among the most useful tools for organic chemists, enabling them to build carbocyclic and heterocyclic structures. These structures can then be used to develop a broad range of functional materials, including pharmaceuticals, agrochemicals, dyes, and optics. With contributions from an international team of leading experts and pioneers in cycloaddition chemistry, this book brings together and reviews recent advances, trends, and emerging research in the field. Methods and Applications of Cycloaddition Reactions in Organic Syntheses focuses on two component cycloadditions, with chapters covering such topics as: N1 unit transfer reaction to C=C double bonds [3+2] Cycloaddition of ?, ?-unsaturated metal-carbene complexes Formal [3+3] cycloaddition approach to natural product synthesis. Development of new methods for the construction of heterocycles based on cycloaddition reaction of 1,3-dipoles. Cycloreversion approach for preparation of large-conjugated compounds. Transition metal-catalyzed or mediated [5+1] cycloadditions. Readers will learn methods for seamlessly executing important reactions such as Diels-Alder and stereoselective dipolar reactions in order to fabricate heterocyclic compounds, natural products, and functional molecules. The book not only features cutting-edge topics, but also important background information, such as the contributors' process for developing new methodologies, to help novices become fully adept in the field. References at the end of each chapter lead to original research papers and reviews for facilitating further investigation of individual topics. Covering the state of the science and technology, Methods and Applications of Cycloaddition Reactions in Organic Syntheses enables synthetic organic chemists to advance their research and develop new functional materials and applications in chemical research, pharmaceuticals, and materials science. Like its predecessor, Organic Synthesis Highlights II surveys recent accomplishments and current trends in synthetic organic chemistry. Part I describes new methods and reagents including asymmetric carbon-carbon bond formation with metallocenes and with enzymes, via temporary silicon connections, and by means of carbohydrate complexes. Part II describes landmarks in the synthesis of natural products and surveys synthetic strategies to different classes of natural products. The forty essays in this volume bear witness to the creativity and talent which have led to the recent advances in the field. Both advanced students and researchers active in the field will welcome this as a source of
ideas and inspiration.

Now in its fifth edition, the book has been updated to include more detailed descriptions of new or more commonly used techniques since the last edition as well as remove those that are no longer used, procedures which have been developed recently, ionization constants (pK_a values) and also more detail about the trivial names of compounds. In addition to having two general chapters on purification procedures, this book provides details of the physical properties and purification procedures, taken from literature, of a very extensive number of organic, inorganic and biochemical compounds which are commercially available. This is the only complete source that covers the purification of laboratory chemicals that are commercially available in this manner and format. * Complete update of this valuable, well-known reference * Provides purification procedures of commercially available chemicals and biochemicals * Includes an extremely useful compilation of ionisation constants

The first in a new series, this book provides chemists an effective, much-needed way to stay abreast of recent developments in organic synthesis. The 103 articles review the leading synthetic procedures developed from 2003 - 2005, discussing their significance and their applications. More than 100 reactions are covered, including Heterocycle Construction by Grubbs Metathesis, Enantioselective C-C Bond Construction, and Organic Reactions in Ionic Liquids.

The general plan of the book follows that of the second edition, but the opportunity has been taken to bring the book up to date and to take account of advances in knowledge and of new reactions which have come into use since publication of the earlier editions. Organic Synthesis: Today and Tomorrow covers the proceedings of the Third International Union of Pure and Applied Chemistry (IUPAC) Symposium on Organic Synthesis. The book covers topics that tackle relevant issues about organic chemistry. Comprised of 27 chapters, the book covers lectures that tackle topics pertaining organic chemistry. These topics include useful synthetic methods for general application; development of chemistry concepts for use in construction of molecular sub-assemblies; and interplay of synthetic methodology and the total synthesis of organic compounds. The book will be of great interest to scientists, such as biochemists who are concerned with the advances in organic chemistry.

Mechanochemical Organic Synthesis is a comprehensive reference that not only synthesizes the current literature but also offers practical protocols that industrial and academic scientists can immediately put to use in their daily work. Increasing interest in green chemistry has led to the development of numerous environmentally-friendly methodologies for the synthesis of organic molecules of interest. Amongst the green methodologies drawing attention, mechanochemistry is emerging as a promising method to circumvent the use of toxic solvents and reagents as well as to increase energy efficiency. The development of synthetic strategies that require less, or the minimal, amount of energy to carry out a specific reaction with optimum productivity is of vital importance for large-scale industrial production. Experimental procedures at room temperature are the mildest reaction conditions (essentially required for many temperature-sensitive organic substrates as a key step in multi-step sequence reactions) and are the core of mechanochemical organic synthesis. This green synthetic method is now emerging in a very progressive manner and until now, there is no book that reviews the recent developments in this area. Features cutting-edge research in the field of mechanochemical organic synthesis for more sustainable reactions Integrates advances in green chemistry research into industrial applications and process development Focuses on designing techniques in organic synthesis directed toward mild reaction conditions Includes global coverage of mechanochemical synthetic protocols for the generation of organic compounds

Electrochemical reactions make significant contributions to organic synthesis either in the laboratory or on an industrial scale. These methods have the potential for developing more “green” chemical synthesis. Over recent years, modern investigations have clarified the mechanisms of important organic electrochemical reactions. Progress has also been made in controlling the reactivity of intermediates through either radical or ionic pathways. Now is the time to gather all the electrochemical work into a textbook. As an essential addition to the armory of synthetic organic chemists, electrochemical reactions give results not easily achieved by many other chemical routes. This book presents a logical development of reactions and mechanisms in organic electrochemistry at a level suited to research scientists and final year graduate students. It forms an excellent starting point from which synthetic organic chemists, in both academia and industry, can appreciate uses for electrochemical methods in their own work. The book is also a reference guide to the literature.

First/second year text in chemistry.

Provides references and answers to every question presented in the primary Organic Chemistry textbook Successfully achieving chemical reactions in organic chemistry requires a solid background in physical chemistry. Knowledge of chemical equilibria, thermodynamics, reaction rates, reaction mechanisms, and molecular orbital theory is essential for students, chemists, and chemical engineers. The Organic Chemistry presents the tools and models required to understand organic synthesis and enables the efficient planning of chemical reactions. This volume, Organic Chemistry: Theory, Reactivity, and Mechanisms in Modern Synthesis Workbook, complements the primary textbook—supplying the complete, calculated solutions to more than 800 questions on topics such as thermochemistry, pericyclic reactions, organic photochemistry, catalytic reactions, and more. This companion workbook is indispensable for those seeking clear, in-depth instruction on this challenging subject. Written by prominent experts in the field of organic chemistry, this book: Works side-by-side with the primary Organic Chemistry textbook Includes chapter introductions and re-stated questions to enhance efficiency Features clear illustrations, tables, and figures Strengthens reader’s comprehension of key areas of knowledge Organic Chemistry: Theory, Reactivity, and Mechanisms in Modern Synthesis Workbook is a
must-have resource for anyone using the primary textbook.

A comprehensive reference to nickel chemistry for every scientist working with organometallic catalysts. Written by one of the world’s leading researchers, this book offers a collection of various reaction types, such as cross-coupling reactions, reactions for the activation of unreactive bonds, carbon dioxide fixation, and many more. Nickel has been recognized as one of the most interesting transition metals for homogeneous catalysis. This book offers an overview of the recently developed new ligands, new reaction conditions, and new apparatus to control the reactivity of nickel catalysts, allowing scientists to apply nickel catalysts to a variety of bond-forming reactions. A must-read for anyone working with organometallic compounds and their application in organic synthesis, this important guide is reviewed in the most recent developments in modern nickel catalysis and its application in synthesis.

The selective formation of bondings between molecules is one of the major challenges in organic chemistry, and the so-called aldol reaction is one of the most important for this purpose. These reactions are a highly useful tool for developing such novel substances as natural products and pharmaceuticals. Like its highly successful and much appreciated predecessor, “Modern Aldol Reactions”, this ready reference provides a systematic overview of methodologies for installing a required configuration during an aldol addition step, but shifts the focus so as to cover the latest developments. As such, it presents a set of brand new tools, including vinyllogous Mukaiyama-aldol reactions and substrate-controlled aldol reactions, as well as asymmetric induction in aldol additions. Furthermore, new developments in existing stereoselective aldol additions are described, such as the deployment of supersilyl groups or organocatalyzed aldol additions. All of these methodologies are presented in the context of their deployment in the total synthesis of natural products.

Today, arylation methods are belonging to the most important reaction types in organic synthesis. Lutz Ackermann, a young and ambitious professor has gathered a number of top international authors to present the first comprehensive book on the topic. Starting from a historical review, the book covers hot topics like Palladium-catalyzed arylation of N-H and alpha-C-H-acidic Bonds, Copper-catalyzed arylation of N-H and O-H Bonds, direct arylation reactions, carbanion aromatic synthesis, arylation reactions of alkenes, alkynes and much more. This compact source of high quality information is indispensable to synthetic chemists and those working in the pharmaceutical and chemical industry.

Textbook on modern methods of organic synthesis.

Modern Electrosynthetic Methods in Organic Chemistry introduces readers to new ways of making materials and compounds using low waste processes, employing energy from electricity rather than chemical reagents. It explores electro-organic synthesis, which offers clean synthesis tools as well as unusual reaction intermediates and reaction types. Despite applications previously remaining niche, due to the advent of microfluidic reactors this book is a must-read for industry professionals and academics alike. It targets specific areas of recent progress and development in the field that show high novelty and potential, at the same time inviting a wider range of applications in green and clean technology. Key Features: Offers clean synthesis tools Targets areas of recent progress and development Addresses the most recent advances in the field

“Updated for its 30th anniversary edition; [This book] remains as relevant as ever.”—New York Times Book Review Since its original publication in 1989, The New Organic Grower has been one of the most important farming books available, with pioneer Eliot Coleman leading the charge in the organic movement in the United States. Now fully illustrated and updated, this 30th Anniversary Edition is a must-have for any agricultural library. Eliot Coleman’s books and innovative methods have helped innumerable organic farmers build successful farms in deep accordance with nature. The wisdom in this seminal book holds true even as the modern agricultural canon has grown—largely due to Coleman’s influence as a wise elder with decades of experience. New information has been included in this edition to showcase the new tools and techniques that Eliot has been developing over the last thirty-five years. Inspired by the European intensive growers, The New Organic Grower, 30th Anniversary Edition, offers a very approachable and productive form of farming that has proven to work well for the earth and its stewards for centuries. Gardeners working on 2.5 acres or less will find this book especially useful, as it offers proof that small-scale market growers and serious home gardeners can live good lives close to the land and make a profit at the same time. The New Organic Grower is ideal for young farmers just getting started, or gardeners seeking to expand into a more productive enterprise. New material in this edition includes: Beautiful color photographs throughout, taken by master gardener and author Barbara Damrosch (Eliot’s wife and co-farmer) Updated information throughout on how Eliot’s practices have changed through his experiments over the years A new section from Damrosch about incorporating flowers on the small farm More information on new tools Eliot has invented that don’t appear in any of his other books

Organic Synthesis: Strategy and Control is the long-awaited sequel to Stuart Warren’s bestseller Organic Synthesis: The Disconnection Approach, which looked at the planning behind the synthesis of compounds. This unique book now provides a comprehensive, practical account of the key concepts involved in synthesising compounds and focuses on putting the planning into practice. The two themes of the book are strategy and control: solving problems either by finding an alternative strategy or by controlling any established strategy to make it work. The book is divided into five sections that deal with selectivity, carbon-carbon single bonds, carbon-carbon double bonds, stereochemistry and functional group strategy. A comprehensive, practical account of the key concepts involved in synthesising compounds. Takes a mechanistic approach, which explains reactions and gives guidelines on how reactions might behave in different situations. Focuses on reactions that really work rather than those with limited application. Contains extensive, up-to-date references in each chapter. Students and professional chemists familiar with Organic Synthesis: The Disconnection Approach will enjoy the leap into a book designed for chemists at the coalface of organic synthesis.

From the initial observation of proton magnetic resonance in water and in paraffin, the discipline of nuclear magnetic resonance has seen unparalleled growth as an analytical method. Modern NMR spectroscopy is a highly developed, yet still evolving, subject which finds application in chemistry, biology, medicine, materials science and geology. In this book, emphasis is on the more recently developed methods of solution-state NMR applicable to chemical research, which are chosen for their wide applicability and robustness. These have, in many cases, already become established techniques in NMR laboratories, in both academic and industrial establishments. A considerable amount of information and guidance is given on the implementation and execution of the techniques described in this book. This book bridges the gap between sophomore and advanced / graduate level organic chemistry courses, providing students with a necessary background to begin research in either an industry or academic environment. • Covers key concepts that include retrosynthesis, conformational analysis, and functional group transformations as well as presents the latest developments in organometallic chemistry and C–C bond formation • Uses a concise and easy-to-read style, with many illustrated examples • Updates material, examples, and references from the first edition • Adds coverage of organocatalysts and organometallic reagents The most useful reactions of organonitro compounds in organic synthesis Compounds containing nitro groups are useful intermediates for the synthesis of natural products and other complex organic molecules. The Nitro Group in Organic Synthesis focuses on reactions that proceed under mild conditions, important functional groups that can be synthesized by conversion of nitro groups, and the stereoselectivity of reactions of nitro compounds. These issues are of great importance to practicing researchers in today’s pharmaceutical, agrochemical, and fine chemical industries. The Nitro Group in Organic Synthesis also emphasizes environmentally-friendly methods for nitrification, the importance of aliphatic nitro compounds, and modern preparation of nitro compounds. Other topics discussed include: * Henry reaction * Asymmetric Michael addition * Alkylation, acylation, halogenation, and related reactions of RNO2 * Substitution and elimination of NO2 and RNO2 The Nitro Group in Organic Synthesis is a useful resource for researchers and students in organic and medicinal chemistry.

"Compatible with standard taper miniscale, 14/10 standard taper microscale, Williamson microscale. Supports guided inquiry"--Cover.

Modern Methods in Carbohydrate Synthesis presents in one volume a sequence of chapters leading from classical methods through to today's newest state-of-the-art technology for oligosaccharide synthesis. Chapters describing the synthesis of increasingly important glycosidic linkage analogs, as well as the oligosaccharides containing derivatives and analogs of natural sugars are included. While chemical-synthetic methods constitute the major part of the book, completing the volume is a section on the rapidly expanding and important field of enzymatic synthesis, also covering combined chemical and enzymatic synthesis. Chapters are written by leading experts in the field. Wherever possible, methods of synthesis are provided in sufficient detail to allow the reader to implement the techniques described. More than 1700 references are provided in the 21 chapters comprising the book. This volume should provide a wealth of information to a large number of synthetic organic chemists, medicinal chemists, protein chemists, biochemists, glycobiologists and cell biologists, including students in these fields.

This handbook and ready reference highlights a couple of basic aspects of recently developed new methods in modern crop protection research, authored by renowned experts from major agrochemical companies. Organized into four major parts that trace the key phases of the compound development process, the first section addresses compound design, while the second covers newly developed methods for the identification of the mode of action of agrochemical compounds. The third part describes methods used in improving the bioavailability of compounds, and the final section looks at modern methods for risk assessment. As a result, the agrochemical developer will find here a valuable toolbox of advanced methods, complete with first-hand practical advice and copious examples from current industrial practice.

The book summarizes and gives a critical analysis of the literature on the use of reactive covalent fluorides (organic and inorganic) for the synthesis of fluoroorganic compounds. New methods of using SF4 for the fluorination of complex polyfunctional organic compounds are described. The prospects are shown for the selective fluorinations of complex compounds with non-traditional fluorinating agents (halogen fluorides, XeF2, fluorosulphuranes, N-F- and O-F-containing compounds). The book gives recommendations for the practical use of these fluorides, and typical synthetic procedures. It introduces the beginner to modern methods of fluorination and helps qualified scientists and technologists to choose the optimal methods of synthesis. Using the fluorinating agents described in this book, it is possible to synthesize various fluorine-containing substances.