

*Book Received**

Synthetic Organic Sonochemistry. Jean-Louis Luche (Université de Savoie-ESIGEL, Le Bourget du Lac, France). Kluwer Academic/Plenum Publishers (<http://www.wkap.nl/book.htm/0-306-45916-7>). September 1998, 444 pp. Hardbound, NLG 235.00 / USD 115.00 / GBP 74.75. ISBN 0-306-45916-7

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The use of ultrasound in chemistry – sonochemistry – has grown spectacularly in recent years, resulting in a significant body of empirical research. This timely volume brings together the work and perspectives of theoreticians and acousticians, whose interest is centered on physical aspects, and of synthetic chemists, who need guidelines to successfully apply fundamental principles.

The text begins with a theoretical introduction that summarizes the key physical principles of sonochemistry, keeping mathematics to a minimum. Subsequent chapters describe the major characteristics of sonochemistry for solutions and for biphasic, catalytic, and electrochemical systems with the aim of elucidating the state of the art and of identifying major points for future study.

Highlights of *Synthetic Organic Sonochemistry* include:

- A selection of experimental procedures that illustrate important facets of ultrasound-mediated organic synthesis

- A description of the relevant laboratory equipment with helpful suggestions on proper use, and

- A valuable concluding section that delineates the successes of sonochemistry, less developed areas requiring further research, and possible links with other 'new chemistries'.

What this text does significantly better than any other competing text is to render sonochemistry as a technically simple, easily performed method that greatly enhances organic synthesis, even in industrial applications. For this reason, the book will be a welcome addition to the reference shelves of academic and industrial researchers and advanced-level students in organic and physical chemistry, synthesis and mechanistic studies, acoustics, and high-energy processes.

Synthetic Organic Sonochemistry

Stephen R. Schmidt



Synthetic Organic Sonochemistry:

Synthetic Organic Sonochemistry Jean-Louis Luche, 2013-06-29 TEAN LOUIS LUCHE A French poet of this century Pierre Mae Orlan wrote Adventure does not exist it is only in the mind of he who is pursuing it and as soon as it is at one s finger tips it vanishes to come back to life far away in a different shape at the frontiers of imagination This sentence could be used to define the adventure that many sonochemists experienced Most of them did not even suspect that the laboratory trick they were using was the first contact with a considerable amount of science If a personal note is allowed here it can be interesting to mention the part played by chance in my involvement in sonochemistry Almost 20 years ago we had to perform an apparently simple Grignard reaction with n butylmagnesium bromide and geranial but the results were repeatedly unsatisfactory The one pot Barbier technique was attempted also without success From my studies at the University I imagined that the failure of the latter reaction could be caused by a common phenomenon known by solid state chemists as passivation which in some cases can be overcome by ultrasonication By chance an ultrasonic bath was sitting on the next bench borrowed to clean some equipment We clamped our reluctant reaction mixture into the bath the reaction proceeded vigorously and the adventure started Without knowing anything about cavitation high energies etc we had an illustration of Goethe s word Am Anfang war die Tat at the Beginning was the Act *Organic Sonochemistry* Jean-Marc L  v  que, Giancarlo Cravotto, Fran  ois Delattre, Pedro Cintas, 2018-10-11 This book provides informative useful and stimulating reading on the topic of organic sonochemistry the core of ultrasound based applications Given the increasing interest in new and improved technologies allied to their green and sustainable character not always a valid premise there is a great attraction for organic chemists to apply these protocols in synthesis and process chemistry Unfortunately as with other enabling technologies many researchers new to the field have received a simple and dishonest message just switch on Therefore a significant portion of sonochemical syntheses lack reproducibility surprisingly cavitation control and or ultrasonic parameters are omitted and the actual role of sonication remains uncertain While this book does not provide a detailed description of fundamentals the introductory remarks highlight the importance of cavitation effects and their experimental control It presents a number of concepts of sonochemical reactivity and empirical rules with pertinent examples often from classical and recent literature It then focuses on scenarios of current interest where organic chemistry and synthesis in particular may benefit from sonication in terms of both chemical and mechanical activation The sustainable corner of this field is largely exemplified through concepts like atom economy renewable sources wasteless syntheses and benign solvents as reaction media This book is useful for both researchers and graduate students especially those familiar with the field of sonochemistry and applications of ultrasound in general However it is also of interest to a broader audience as it discusses the fundamentals techniques and experimental skills necessary for scientists wishing to initiate the use of ultrasound in their domain of expertise *Advances in Organic Synthesis* Atta-ur- Rahman, 2005-01-15 The volume focuses on recent advances in organofluorine chemistry

directed towards selective fluorine introduction into various target molecules employing both traditional and contemporary electrophilic and nucleophilic fluorinating agents It brings t *Distinctive Techniques For Organic Synthesis* Tse-lok Ho,1998-06-23 This important book is intended to familiarize the practitioner of synthetic chemistry with somewhat extraordinary techniques which should prove very helpful to his or her work It covers some reactions or techniques for organic synthesis which are not found in most introductory texts They include reactions under high pressure mediated by ultrasonic flash vacuum pyrolysis photochemical processes phase transfer reactions electrochemical reactions and reactions on solid supports The emphasis of the book is on applications Examples are often drawn from significant contributions such as natural product syntheses Organic Synthesis Engineering L. K. Doraiswamy,2001-02-15 This book will formally launch organic synthesis engineering as a distinctive field in the armory of the reaction engineer Its main theme revolves around two developments catalysis and the role of process intensification in enhancing overall productivity Each of these two subjects are becoming increasingly useful in organic synthesis engineering especially in the production of medium and small volume chemicals and enhancing reaction rates by extending laboratory techniques such as ultrasound phase transfer catalysts membrane reactor and microwaves to industrial scale production This volume describes the applications of catalysis in organic synthesis and outlines different techniques of reaction rate and or selectivity enhancement against a background of reaction engineering principles for both homogeneous and heterogeneous systems *Catalyst-free Organic Synthesis* Goutam Brahmachari,2017-11-06 It is well established that organic synthetic processes have been at the core of the chemical industry for hundreds of years in the production of organic compounds with a wide range of applications However we are becoming increasingly aware of the hazardous substances used and generated by these chemical processes The field of organic synthesis has undergone profound changes to switch to equally efficient but more sustainable processes that avoid the extensive use of toxic and hazardous reagents and solvents harsh reaction conditions and expensive and sophisticated catalysts Explaining methods for carrying out chemical syntheses without the use of catalysts this book shows how avoiding catalysts during synthesis can mean less use of toxic chemicals environmentally damaging chemicals or endangered elements and lower costs It is an important reference for chemists involved in organic synthesis as well as for green chemists

Green Techniques for Organic Synthesis and Medicinal Chemistry Wei Zhang,Berkeley W. Cue,2012-07-23 Green chemistry is a new way of looking at organic synthesis and the design of drug molecules offering important environmental and economic advantages over traditional synthetic processes Pharmaceutical companies are increasingly turning to the principles of green chemistry in an effort to reduce waste reduce costs and develop environmentally benign processes Green Techniques for Organic Synthesis and Medicinal Chemistry presents an overview of the established and emerging techniques in green organic chemistry highlighting their applications in medicinal chemistry The book is divided into four parts Introduction Introduces the reader to the toxicology of organic chemicals their environmental impact and the concept of

green chemistry Green Catalysis Covers a variety of green catalytic techniques including organocatalysis supported catalysis biocatalysis fluororous catalysis and catalytic direct C H bond activation reactions Green Synthetic Techniques Presents a series of new techniques assessing the green chemistry aspects and limitations i e cost equipment expertise Techniques include reactions in alternative solvents atom economic multicomponent reactions microwave and ultrasonic reactions solid supported synthesis fluororous and ionic liquid based recycling techniques and flow reactors Green Techniques in Pharmaceutical Industry Covers applications of green chemistry concepts and special techniques for medicinal chemistry including synthesis analysis separation formulation and drug delivery Process and business case studies are included to illustrate the applications in the pharmaceutical industry Green Techniques for Organic Synthesis and Medicinal Chemistry is an essential resource on green chemistry technologies for academic researchers R D professionals and students working in organic chemistry and medicinal chemistry

Advanced Solid Catalysts for Renewable Energy Production

González-Cortés, Sergio, Imbert, Freddy Emilio, 2018-01-19 In recent years the replacement of non renewable crude oil by renewable sources has been addressed particularly in developed countries Its main driving force has been the increasing demand and limited reserves of fossil fuels the greenhouse gas effect and the need of securing energy supplies Advanced Solid Catalysts for Renewable Energy Production provides emerging research on renewable energy production catalysts and environmental effects of increased productivity While highlighting the challenges for future generations to develop in the sustainable energy age readers will learn the importance of new approaches not only for synthesizing more active and selective nano catalysts but also for designing innovative catalytic processes that can eventually meet the growing energy efficiency demand and overcome the environmental issues This book is an important resource for academicians university researchers technology developers and graduate level students

Catalysis of Organic Reactions

Stephen R. Schmidt, 2006-12-07 Bringing together academic industrial and governmental researchers and developers Catalysis of Organic Reactions comprises 57 peer reviewed papers on the latest scientific developments in applied catalysis for organic reactions The volume describes the use of both heterogeneous and homogeneous catalyst systems and includes original research

Handbook of Green Chemistry and Technology

James H. Clark, Duncan J. Macquarrie, 2008-04-15 Sustainable development is now accepted as a necessary goal for achieving societal economic and environmental objectives Within this chemistry has a vital role to play The chemical industry is successful but traditionally success has come at a heavy cost to the environment The challenge for chemists and others is to develop new products processes and services that achieve societal economic and environmental benefits This requires an approach that reduces the materials and energy intensity of chemical processes and products minimises the dispersion of harmful chemicals in the environment maximises the use of renewable resources and extends the durability and recyclability of products in a way that increases industrial competitiveness as well as improve its tarnished image

Reviewing **Synthetic Organic Sonochemistry**: Unlocking the Spellbinding Force of Linguistics

In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is actually astonishing. Within the pages of "**Synthetic Organic Sonochemistry**," an enthralling opus penned by a very acclaimed wordsmith, readers embark on an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve into the book's central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

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Synthetic Organic Sonochemistry Introduction

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