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extensive experimental experience, NMR Spectroscopy of Polymers explains the practical use of NMR spectroscopy in polymer chemistry.

NMR Spectroscopy of Polymers - Tatsuki Kitayama - 2013-03-09
Based on the authors’ extensive experimental experience, NMR Spectroscopy of Polymers explains the practical use of NMR spectroscopy in polymer chemistry.

Natural and Synthetic High Polymers - R. Kosfeld - 2012-12-06
Nuclear magnetic resonance spectroscopy, which has evolved only within the last 20 years, has become one of the very important tools in chemistry and physics. The literature on its theory and application has grown immensely and a comprehensive and adequate treatment of all branches by one author, or even by several, becomes increasingly difficult. This series is

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Annual Review of NMR Spectroscopy - - 1968
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The NMR of Polymers - I. Ya Slonim - 2012-12-06
In the time since this book was written, the application of NMR in the study of polymers has continued to develop rapidly. The main trends of the work have remained as before, namely, the study of the structure of polymers, molecular motion in them, and chemical conversions of high-molecular-weight
before, namely, the study of result of the refinement of experimental techniques and development of the theory, new progress has been achieved, particularly in the NMR spectroscopy of polymer solutions. We therefore decided that it was worthwhile to provide an additional list of literature, covering papers published in 1965, 1966, and the beginning of 1967. By using the bibliographic directory appended to the list, the reader can readily find references to the latest literature for all sections of the book. I. Ya. Slonim A. N. Lyubimov v Preface to the Russian Edition The aim of this book is mainly to answer the questions which inevitably arise for a chemist who wishes to use NMR in his work on polymers.

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Annual Reports on NMR Spectroscopy - - 1993-06-29
Annual Reports on NMR
Applications of NMR Spectroscopy is a book series devoted to publishing the latest advances in the applications of nuclear magnetic resonance (NMR) spectroscopy in various fields of organic chemistry, biochemistry, health and agriculture. The fifth volume of the series features several reviews focusing on NMR spectroscopic techniques for identifying natural and synthetic compounds (polymer and peptide characterization, GABA in tinnitus affected mice), medical diagnosis and therapy (gliomas) and food analysis. The spectroscopic methods highlighted in this volume include high resolution proton magnetic resonance spectroscopy and solid state NMR.

NMR Spectroscopy of Polymers - R.N. Ibbett - 2012-12-06
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contribute. Each chapter aspects of NMR spectroscopy of synthetic polymers. It represents a deliberate attempt to pull together the numerous strands of the subject in a single comprehensive volume, designed to be readable at every scientific level. It is intended that the book will be of use to the vast majority of polymer scientists and NMR spectrosocists alike. Readers new to NMR will find extensive information within the book on the available techniques, allowing full exploration of the many polymer science applications. Readers already established within a branch of NMR will find the book an excellent guide to the practical study of polymers and the interpretation of experimental data. Readers who have specialised in polymer NMR will find the book a valuable dictionary of proven methodologies, as well as a guide to the very latest developments in the subject. Workers from all of the main branches of polymer NMR have been invited to therefore contains information relating to a particular investigative topic, indentified mainly on the basis of technique. The book is loosely divided between solution and solid-state domains, although the numerous interconnections confirm that these two domains are parts of the same continuum. Basic principles are explained within each chapter, combined with discussions of experimental theory and applications. Examples of polymer investigations are covered generously and in many chapters there are discussions of the most recent theoretical and experimental developments.

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Nuclear Magnetic Resonance - G A Webb - 2007-10-31
As a spectroscopic method, Nuclear Magnetic Resonance (NMR) has seen spectacular growth over the past two decades, both as a technique and in its applications. Today the applications of NMR span a wide range of scientific disciplines, from physics to biology to medicine. Each volume of Nuclear Magnetic Resonance comprises a combination of annual and biennial reports which
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**Stereoselective Polymerization with Single-Site Catalysts** - Lisa S. Baugh - 2007-11-29

New synthetic techniques allow chemists to modify polymer microstructures more precisely than ever, making it possible to design materials demanding performance requirements. Written and edited by experts in the field, Stereoselective Polymerization with Single-Site Catalysts reviews how the relative stereochemistry of polymer chains affects polymer properties and presents the latest strategies for developing tactic polymers using single-site catalysis. This unified volume explains the mechanistic basics of tactic polymerizations, beginning with an extensive survey of the most important classes of metallocene and post-metallocene catalysts used to make polypropylenes. It also focuses on tactic stereoblock and ethylene/propylene copolymers and catalyst active site models, followed by chapters discussing the structure of more stereochemically complex polymers and polymerizations that proceed via non-vinyl-addition mechanisms. Individual chapters thoroughly describe tactic polymerizations of α-olefins, styrene, dienes, acetylenes,
for developing tactic polymers and cyclic monomers, as well as cyclopolymerizations and ditactic structures, olefin/CO polymers, and metathesis polyalkenamers. An ideal reference and supplementary text, Stereoselective Polymerization with Single-Site Catalysts enables both new and experienced chemists to better understand tactic polymers and select appropriate catalyst systems for their preparation.


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NMR Spectroscopy in Organic Chemistry - B. I. Ionin - 2012-12-06
In recent years high-resolution nuclear magnetic resonance spectroscopy has found very wide application in organic chemistry in structural and physicochemical investigations and, also in the study of the characteristics of organic compounds which are related to the distribution of the electron cloud in the molecules. The vigorous development of this method, which may really be regarded as an independent branch of science, is the result of extensive progress in NMR technology, the refinement of its theory, and the accumulation of large amounts of experimental material, which has been correlated by empiricallaws and principles. The literature directly concerned with the NMR method and its application has now grown to such an extent that a complete review is practically impossible. Therefore the authors have limited themselves to an examination of only the most important, fundamental, and general investigations. The book consists of six chapters. In the first chapter we have attempted to present the fundamentals of the NMR method in such a way that the reader with little knowledge of the subject will be able to use the method in practical work for investigating simple compounds and solving simple problems. The three subsequent chapters give a deeper analysis of the method, while the last two chapters and the appendix illustrate the various applications of NMR spectroscopy in organic chemistry.

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**Fundamentals of Polymerization** - Broja Mohan Mandal - 2013

Over the last twenty years, the field of the chemistry of polymerization witnessed enormous growth through the development of new concepts, catalysts, processes etc. Examples are: non classical living polymerizations (group transfer polymerization, living carbocationic polymerization, living radical polymerization and living ring-opening metathesis polymerization (ROMP)); new catalysts (metallocenes and late transition metal catalysts for stereospecific polymerization, Schrock and Grubbs catalyst for ROMP among others) and new processes such as
metathesis polymerization polymerization and dispersion polymerization (in polar solvents). Apart from the developments in the chemistry of polymerization, methods have been developed for the evaluation of highly reliable rate constants of propagation in radical as well as cationic polymerization. All these have revolutionized the field of synthetic polymer chemistry. In the book, fundamentals of both the new and old polymerization chemistry have been dealt with. The new chemistry has been given nearly equal space along with the old.

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**Mass Spectrometry of Polymers** - Giorgio Montaudo - 2001-10-29
Mass Spectrometry (MS) has rapidly become an indispensable tool in polymer analysis, and modern MS
creates and develops its own ways the structural data provided by Nuclear Magnetic Resonance (NMR) and Infrared (IR) methods. Recent advances have sparked a growing interest in this field and established a need for a summary of progress made and results

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**Fibre Structure** - Siba Prasad Mishra - 2016-07-06
Fibre Structure states that each and every fibre from their manufacturing (man-made fibres) or during development (natural fibres) creates and develops its own and specialized structure. It might be the chemical structure, crystalline structure, amorphous structure and/or morphology. This structure can be modified during processing. The structure equally influences the processing conditions as well as the properties of the fibre. With this background, the present book deals with different fibres and their structures. Different aspects of structure are dealt separately in a concise and compact manner. This will serve as a reference for researchers, technologists as well as professionals as a reference book to know about the structure of different fibres and their measurement.
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**Macromolecular Design of Polymeric Materials** - Hatada - 1997-01-02

Providing a range of information on polymers and polymerization techniques, this text covers the gamut of polymer science from synthesis, structure and properties to function and applications. It analyzes speciality polymers, including acrylics, fluoropolymers, polysiplanes, polyphosphazenes, and inorganic and conducting polymers. The book examines the stereochemistry of polymerization and the stereoregularity of polymers.


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This work elucidates the power of modern nuclear magnetic resonance (NMR) techniques to solve a wide range of practical problems that arise in both academic and industrial settings. This edition provides current information regarding the implementation and interpretation of NMR experiments, and contains material on: three- and four-dimensional NMR; the NMR analysis of peptides, proteins, carbohydrates and oligonucleotides; and more.

**Handbook of Thermoplastics, Second Edition** - Olagoke Olabisi - 2016-02-03
This new edition of the bestselling Handbook of Thermoplastics incorporates
relation to use properties The advances in thermoplastics with regard to materials development, processing, properties, and applications. With contributions from 65 internationally recognized authorities in the field, the second edition features new and updated discussions of several topics, including: Polymer nanocomposites Laser processing of thermoplastic composites Bioplastics Natural fiber thermoplastic composites Materials selection Design and application Additives for thermoplastics Recycling of thermoplastics Regulatory and legislative issues related to health, safety, and the environment The book also discusses state-of-the-art techniques in science and technology as well as environmental assessment with regard to the impact of thermoplastics. Each chapter is written in a review format that covers: Historical development and commercialization Polymerization and process technologies Structural and phase characteristics in effects of additives on properties and applications Blends, alloys, copolymers, and composites derived from thermoplastics Applications Giving thorough coverage of the most recent trends in research and practice, the Handbook of Thermoplastics, Second Edition is an indispensable resource for experienced and practicing professionals as well as upper-level undergraduate and graduate students in a wide range of disciplines and industries.

Handbook of Thermoplastics, Second Edition - Olagoke Olabisi - 2016-02-03
This new edition of the bestselling Handbook of Thermoplastics incorporates recent developments and advances in thermoplastics with regard to materials development, processing, properties, and applications. With contributions from 65 internationally recognized authorities in the field, the second edition features new and updated discussions of
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High Resolution Nuclear Magnetic Resonance Spectroscopy - J. W. Emsley - 2013-10-22
High Resolution Nuclear Magnetic Resonance Spectroscopy, Volume 2 provides a comprehensive coverage of the theories and methods for analysis of high resolution spectra. The title also presents a discourse on other variables that affect the spectra. The text first details the correlations of 1H resonance spectral parameters with molecular structure, and then proceeds to tackling the 19F nuclear magnetic resonance studies. Next, the selection deals with the NMR spectra of nuclei other than hydrogen fluoride. The text also provides data sets, such as nuclear properties, T-values, and chemical shifts. The book will
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**Polymer Yearbook** - R. A. Pethrick - 1989
This volume contains reviews on state-of-the-art Japanese research presented in the annual Spring and Autumn meetings of the Japanese Polymer Science Society. The aim of this section is to make information on the progress of Japanese Polymer Science, and on topics of current interest to polymer scientists in Japan, more easily available worldwide.

**Annual Reports on NMR Spectroscopy** - Graham A. Webb - 2010-07-10
In recent years, no other technique has gained such
interactions and reactions in spectroscopy. It is used in all branches of science in which precise structural determination is required and in which the nature of interactions and reactions in solution is being studied. Annual Reports on NMR Spectroscopy has established itself as a premier means for the specialist and non-specialist alike to become familiar with new techniques and applications of NMR spectroscopy. Provides updates on the latest developments in NMR spectroscopy. Includes comprehensive review articles. Highlights the increasing importance of NMR spectroscopy as a technique for structural determination.

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Fundamentals of Polymer Science - Michael M. Coleman - 2018-10-31
Now in its second edition, this widely used text provides a unique presentation of today's polymer science. It is both comprehensive and readable. The authors are leading educators in this field with extensive background in industrial and academic polymer research. The text starts with a description of the types of microstructures found in polymer
and characterization methods

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Handbook of Radical Polymerization - Krzysztof Matyjaszewski - 2002-08-08

Mechanism, synthesis, characterization, and applications of free radical polymerization (Co)polymers prepared via free radical mechanism, together with polyolefins, comprise the largest portion of the commodity plastics industry and are also used for preparation of many specialty materials. Handbook of Radical Polymerization provides a concise source of information on mechanisms, synthetic techniques, and addresses future trends for polymers made by free radical intermediates. A one-stop, at-your-fingertips source of information for students, researchers, technologists, and industrial managers, the Handbook functions as a single reference of the conventional and controlled/living radical polymerization methods. Two expert editors collect and present historical background of the technique, basic information regarding various free radical polymerization systems, and state-of-the-art experimental techniques and industrial applications. Chapters written by internationally acclaimed experts in their respective fields include: * Theory of Radical Reactions * The Kinetics of Free Radical Polymerization * Industrial Applications and Processes * Nitroxide Mediated Living Radical Polymerization * Atom Transfer Radical Polymerization * Control of Free Radical Polymerization by Chain Transfer Methods *
and addresses future trends by Controlled Radical Polymerization. Guaranteed to have a long shelf life, the Handbook of Radical Polymerization promises to be an indispensable resource for chemists, chemical engineers, material scientists, and graduate students in the field, as well as a valuable addition to industrial, academic, and government libraries.

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**The Total Synthesis of Natural Products** - John ApSimon - 2009-09-22

Organic chemistry's innovative breadth is especially noteworthy in the area of natural products synthesis. Since the early 1970s, this landmark chemical reference has been documenting the newest and most important of these, in a readily understood format, that clearly traces each of their synthetic routes. Volume Eight, the latest in the series, contains a long-awaited look at the synthesis of tri- and tetracyclic diterpenes, along with the synthesis of naturally occurring quinones. Recent interest in the biologically important polysaccharides has led to a detailed consideration of that compound class. Finally, this new volume contains a look at the strategies and methods specific to natural products containing the spiroketal functional group. The Total Synthesis of Natural Products, Volume Eight, continues the meticulous work of the series, providing chemists with an entirely up-to-date and convenient guide to the critical new syntheses essential to organic chemistry's continuing evolution.
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Nuclear Magnetic Resonance - R. K. Harris - 1972
For those wanting to become rapidly acquainted with specific areas of NMR, this title provides unrivalled scope of coverage.

Highly Active Salen-supported, Cobalt-based Catalysts for the Synthesis of Regio- and Stereoregular Polycarbonates - Claire Tova Cohen - 2006

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Progress in Pacific Polymer Science 2 - Y. Imanishi - 2012-12-06
Keynote and lectures from invited speakers given at the Second Pacific Polymer Conference in Otsu, Japan, are collected in this book. Eminent Polymer Scientists from both academic and industrial fields around the

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NMR Spectroscopy of Polymers in Solution and in the Solid State - Senior Research Fellow H N Cheng - 2003
NMR Spectroscopy of Polymers in Solution and in the Solid State provides reviews and original papers on the use of nuclear magnetic resonance (NMR) spectroscopy for polymers. Both synthetic and natural polymers are covered. This book also discusses both solution and solid state NMR.

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**Synthesis, Structure and Properties of Poly(lactic acid)** - Maria Laura Di Lorenzo - 2017-10-20

The series Advances in Polymer Science presents critical reviews of the present and future trends in polymer and biopolymer science. It covers all areas of research in polymer and biopolymer science including chemistry, physical chemistry, physics, material science. The thematic volumes are addressed to scientists, whether at universities or in industry, who wish to keep abreast of the important advances in the covered topics. Advances in Polymer Science enjoys a longstanding tradition and good reputation in its community. Each volume is dedicated to a current topic,
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**Progress in Pacific Polymer Science** - Burton C. Anderson - 2012-12-06

This book is a collection of the addresses of the keynote
progress in polymer research as well as manuscripts of a few outstanding papers which were delivered at the First Pacific Polymer Conference organized by the Pacific Polymer Federation in Maui, Hawaii, 12-15 December, 1989. The First Pacific Polymer Conference covered a wide variety of topics in macromolecular science, demonstrating the emphasis given to polymer research in the Pacific Rim countries. The keynote speakers and invited lecturers are excellent scientists and leaders of effort who covered their fields expertly and in many cases gave their own perspective on the future of polymer science and engineering. A panel discussion on the role of polymers in the arts interested the attendees and emphasized the pervasiveness of polymers in all facets of life. The meeting was attended by over 500 scientists from all over the world. The participants left the meeting with renewed feeling for the importance of polymers in the material sciences and impressed by the and development. This book, therefore, provides a wide-angle snapshot of the polymer research as we enter the 1990's. It is a useful book for all scientists interested in polymers and the progress of our science in the countries of the Pacific Rim. We hope that many attendees were stimulated by the meeting and that new ideas and new collaborations will result which will further enrich research, and lead to new useful polymers for all countries.

**Progress in Pacific Polymer Science** - Burton C. Anderson
- 2012-12-06
This book is a collection of the addresses of the keynote speakers and invited lecturers as well as manuscripts of a few outstanding papers which were delivered at the First Pacific Polymer Conference organized by the Pacific Polymer Federation in Maui, Hawaii, 12-15 December, 1989. The First Pacific Polymer Conference covered a wide variety of topics in macromolecular science,
demonstrating the emphasis given to polymer research in the Pacific Rim countries. The keynote speakers and invited lecturers are excellent scientists and leaders of effort who covered their fields expertly and in many cases gave their own perspective on the future of polymer science and engineering. A panel discussion on the role of polymers in the arts interested the attendees and emphasized the pervasiveness of polymers in all facets of life. The meeting was attended by over 500 scientists from all over the world. The participants left the meeting with renewed feeling for the importance of polymers in the material sciences and impressed by the progress in polymer research and development. This book, therefore, provides a wide-angle snapshot of the polymer research as we enter the 1990’s. It is a useful book for all scientists interested in polymers and the progress of our science in the countries of the Pacific Rim. We hope that many attendees were stimulated by the meeting and collaborations will result which will further enrich research, and lead to new useful polymers for all countries.

**Introduction to Polymer Science and Chemistry** - Manas Chanda - 2006-03-28
With such a wide diversity of properties and applications, is it any wonder that industry and academia have such a fascination with polymers? A solid introduction to such an enormous and important field is critical to the modern polymer scientist-to-be, but most of the available books do not stress practical problem solving or include recent advances.
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NMR Spectra of Polymers and Polymer Additives - Anita J. Brandolini - 2000-05-12
"Compiles nearly 400 fully assigned NMR spectra of approximately 300 polymers and polymer additives, representing all major classes of materials: polyolefins, styrenics, acrylates, methacrylates, vinyl polymers, elastomers, polyethers, polyesters, polyimides, silicones, cellulosics, polyurethanes, plasticizers, and antioxidants."

Pharmacology - - 1996-07
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Structural Studies of Polymers by Solution NMR - H.N. Cheng - 2001
Solution-state NMR spectroscopy is generally regarded as the premier technique to characterise polymer structure. This report provides a timely review of the developments in the NMR of polymers in solution in the past few years. An additional indexed section containing several hundred abstracts from the Polymer Library gives useful references for further reading.

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**Practical Polymer Analysis**  
- T.R. Crompton - 2012-12-06  
The aim of this book is to familiarize the reader with the practical aspects of polymer analysis. A wealth of practical detail, including some detailed methods is included. The book covers not only the analysis of the main types of polymers and copolymers now in use commercially, but also the analysis of minor non-polymeric components of the polymer formulation, whether they be deliberately added, such as processing additives, or whether they occur adventitiously, such as moisture and residual monomers and solvent. A broad scheme for the examination of polymers is discussed in Chapter 2. Practically all of the major newer analytical techniques and many of the older have been used to examine polymers and their additive systems. As so many different polymers are now used commercially it is also advisable when attempting to identify a polymer to classify it by first separating it into pure polymeric and gross non-polymeric fractions (Chapter Z) and then carrying out at least a qualitative elemental analysis and possible a quantitative analysis (Chapters 3 and 4) and then in some cases, depending on the elements found, to carry out functional group analysis (Chapters 6 and 9).
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**13C NMR Spectroscopy** - E. Breitmaier - 1984

**High-Performance and Specialty Fibers** - Japan The Society of Fiber Science and Techno - 2016-08-16
This book reviews the key technologies and characteristics of the modern man-made specialty fibers mainly developed in Japan. Since the production of many low-cost man-made fibers shifted to China and other Asian countries, Japanese companies have focused on production of high-quality, high-performance super fibers as well as highly functionalized fibers so-called ‘Shin-gosen’. ZylonTM and DyneemaTM manufactured by Toyobo, TechnoraTM produced by Teijin, and VectranTM developed by Kuraray are those examples of super fibers. Carbon fibers ToraycaTM from Toray have occupied the most advanced high-performance application area. Various types of polyester fibers having design-shaped cross-sections and special fiber morphologies and those
High-Performance and Specialty Fibers - Japan

The chemical properties have also been developed to acquire a high-value textile market of the world. This book describes how these high-tech fibers have been developed and what aspects are the most important in each fiber based on its structure-property relationship. Famous specialists both in industry and academia are responsible for the contents, explaining the design concepts and the special technologies for the production of these special fibers. For university teachers and students, this volume is an excellent textbook that elucidates the basic concepts of modern fibers. At the same time, researchers, both in academia and industry, will find a comprehensive overview of recent man-made fibers. This publication, presenting the most easily understandable general survey of specialty man-made fibers to date, is dedicated to the 70th-anniversary of the Society of Fiber Science and Technology, Japan.

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Ullmann's Polymers and Plastics, 4 Volume Set - Wiley-VCH - 2016-04-25
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**Handbook of Fluoropolymer Science and Technology** - Dennis W. Smith - 2014-05-05
Fluoropolymers continue to enable new materials and technologies as a result of their remarkable properties. This book reviews fluoropolymer platforms of established commercial interest, as well as recently discovered methods for the preparation and processing of new fluorinated materials. It covers the research and development of fluoropolymer synthesis, characterization, and processing. Emphasis is
technologies in optics, space exploration, fuel cells, microelectronics, gas separation membranes, biomedical instrumentation, and much more. In addition, the book covers the current environmental concerns associated with fluoropolymers, as well as relevant regulations and potential growth opportunities. Concepts, studies, and new discoveries are taken from leading international laboratories, including academia, government, and industrial institutions.

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