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Metastable States Polymer Crystallization at Curved Liquid/Liquid Interface Interphases and Mesophases in Polymer Crystallization I Principles of Polymer Morphology Polymer Morphology Crystallization Modalities in Polymer Melt Processing Developments in Crystalline Polymers—1 Crystallization of Polymers Numerical Simulation of Polymer Crystallization Numerical Simulation of Polymer Crystallization Polymer Crystallization Early Stages of Polymer Crystallization Studied by Dielectric Spectroscopy A Survey of Polymer Crystallization by X-ray Diffraction A Study of Polymer Crystallization and Melting and the Effect on Morphology and Molecular Motion Macromolecules: Synthesis, Order and Advanced Properties Recent Advances in the Field of Crystallization and Fusion of Polymers A P1 - PO Finite Element Method for a Model of Polymer Crystallization

A Survey of Polymer Crystallization by X-ray Diffraction Apr 30 2020

Polymer Crystallization Sep 27 2022 The classical view on polymer crystallization basically focused on the expla- tion of a few macroscopically observable parameters like the thickness of the resulting lamellar

structure and the corresponding growth rates. However, the emerging paradigm for the description of chain crystals is too simple and cannot account for the complex non-equilibrium processes responsible for structure f- mation on various levels, ranging from the nanometer up to the millimeter scale. This complexity detected by several novel experimental results led to a renewed interest in this ”old” topic of polymer crystallization. These new ?ndings c- cern the early stages of the crystallization process, crystal formation in con?ned geometries like ultra-thin ?lms and the competition between (micro)phase s- aration and crystallization in copolymers and blends. In particular, high spatial resolution techniques such as atomic force microscopy provided deeper insight into the molecular organization of crystallizable polymers. Computer simu- tions based on microscopic processes were used to improve our understanding of how polymer crystals are nucleated and how they grow. New ideas emerged about possible multistage pathways which are followed during the formation of polymer lamellae. The importance and the consequences of the non-equilibrium character of polymer crystals got

signi?cantly more attention. Links and ana-gies to growth phenomena and pattern formation in general are being developed. However, these ideas are still subject of intensive and controversial discussions.

Interphases and Mesophases in Polymer Crystallization I Mar 10 2021

Interphases and Mesophases in Polymer Crystallization III **Nov 17 2021 With contributions by numerous experts**

Handbook of Polymer Crystallization **May 04 2023 Polymeric crystals are more complex in nature than other materials' crystal structures due to significant structural disorder present. The only comprehensive reference on polymer crystallization, Handbook of Polymer Crystallization provides readers with a broad, in-depth guide on the subject, covering the numerous problems encountered during crystallization as well as solutions to resolve those problems to achieve the desired result. Edited by leading authorities in the field, topics explored include neat polymers, heterogeneous systems, polymer blends, polymer composites orientation induced crystallization, crystallization in nanocomposites, and crystallization in complex thermal processing conditions.**

Interphases and Mesophases in Polymer Crystallization II Jun 24 2022 1 F. Auriemma, C. De Rosa, P. Corradini: Solid Mesophases in Semicrystalline Polymers: Structural Analysis by Diffraction Techniques.- 2 L. Li, W.H. de Jeu: Flow-Induced Mesophases in Crystallizable Polymers.- 3 A. Abe, H. Furuya, Z. Zhou, T. Hiejima, Y. Kobayashi: Stepwise Phase Transitions of Chain Molecules: Crystallization/Melting via a Nematic LC Phase.- 4 P. Sozzani, S. Bracco, A. Comotti, R. Simonutti: Motional Phase Disorder of Polymer Chains as Crystallized to Hexagonal Lattices.-

Phase Transitions in Polymers: The Role of Metastable States **May 12 2021 A classical metastable state possesses a local free energy minimum at infinite sizes, but not a global one. This concept is phase size independent. We have studied a number of experimental results and proposed a new concept that there exists a wide range of metastable states in polymers on different length scales where their metastability is critically determined by the phase size and dimensionality. Metastable states are also observed in phase transformations that are kinetically impeded on the pathway to**

thermodynamic equilibrium. This was illustrated in structural and morphological investigations of crystallization and mesophase transitions, liquid-liquid phase separation, vitrification and gel formation, as well as combinations of these transformation processes. The phase behaviours in polymers are thus dominated by interlinks of metastable states on different length scales. This concept successfully explains many experimental observations and provides a new way to connect different aspects of polymer physics. * Written by a leading scholar and industry expert * Presents new and cutting edge material encouraging innovation and future research * Connects hot topics and leading research in one concise volume

Crystals and Crystallinity in Polymers Jul 14 2021 Provides the tools needed to master and apply the fundamentals of polymer crystallography Using core concepts in physics, chemistry, polymer science and engineering, this book sheds new light on the complex field of polymer crystallography, enabling readers to evaluate polymer crystallization data and determine the best methods to use for their investigations. The authors set forth a

variety of tested and proven methods for analyzing ordered and disordered structures in polymer crystals, including X-ray diffraction, electron diffraction, and microscopy. In addition to the basics, the book explores several advanced and emerging topics in the field such as symmetry breaking, frustration, and the principle of density-driven phase formation. Crystals and Crystallinity in Polymers introduces two new concepts in crystallinity and crystals in synthetic polymers. First, crystallinity in polymeric materials is compatible with the absence of true three-dimensional long-range order. Second, the disorder may be described as a structural feature, using the methods of X-ray scattering and electron diffraction analysis. The book begins by introducing the basic principles and methods for building structural models for the conformation of polymer crystal chains. Next, it covers: Packing of macromolecules in polymer crystals Methods for extracting structural parameters from diffraction data Defects and disorder in polymer crystals Analytical methods for diffuse scattering from disordered polymer structures Crystal habit Influence of crystal defects and structural disorder on the physical and mechanical

properties of polymeric materials Crystals and Crystallinity in Polymers examines all the possible types of structural disorder generally present in polymer crystals and describes the influence of each kind of disorder on X-ray and electron diffraction patterns. Its comprehensive, expert coverage makes it possible for readers to learn and apply the fundamentals of polymer crystallography to solve a broad range of problems.

Developments in Crystalline Polymers—1 Nov 05 2020 Crystalline or, more properly, semi-crystalline polymers continue to present major challenges and opportunities to scientists and technologists alike. On the one hand, scientific understanding of their structure and properties still lags behind that of other economically important, but less complicated materials. On the other hand, there remains very considerable potential for improving properties in systems designed for specific pur poses. Ways are only just being found of transferring inherent molecular properties (such as high modulus) to the macromolecular solid. Beyond these are many possibilities of manipulating the organization of chemical and physical textures towards desired ends.

The chapters in this volume are reports, by wen-known and active researchers, on some of the important recent developments ofthese themes. Grubb begins with the fundamental and central problem of determining polymeric microstructure. Polymers sutTer by comparison with other materials in that it has not generany been possible to exploit the high resolution of the electron microscope to determine their microstructure in adequate detail. However, recently, ways have been found of studying representative lamellar textures in melt-crystallized polymers. When fully exploited these must add greatly to our detailed knowledge and provide a firmer fundamental base for future developments. Radiation damage bears the primary responsibility for restricting electron microscopy. In his chapter, Kener recounts how appreciation of this fact led him into a fascinating study of ever deeper aspects of radiation damage in polyethylene over two decades, often controversiany but invariably clarifying the basic understanding of an area now of increasing commercial importance.

Numerical Simulation of Polymer Crystallization Aug 03 2020

Principles of Polymer Morphology Feb 06

2021

Numerical Simulation of Polymer Crystallization Sep 03 2020

***Crystallization of Polymers* Jul 26 2022**

***Polymer Morphology* Jan 08 2021 With a focus on structure-property relationships, this book describes how polymer morphology affects properties and how scientists can modify them. The book covers structure development, theory, simulation, and processing; and discusses a broad range of techniques and methods. • Provides an up-to-date, comprehensive introduction to the principles and practices of polymer morphology • Illustrates major structure types, such as semicrystalline morphology, surface-induced polymer crystallization, phase separation, self-assembly, deformation, and surface topography • Covers a variety of polymers, such as homopolymers, block copolymers, polymer thin films, polymer blends, and polymer nanocomposites • Discusses a broad range of advanced and novel techniques and methods, like x-ray diffraction, thermal analysis, and electron microscopy and their applications in the morphology of polymer materials**

***Flow-Induced Crystallization of Polymers* Jun 12 2021 In polymer processing, the**

molecular orientation induced by flow has a significant effect on the crystallization kinetics and final morphology of the polymer produced. The impact on processing operations and object properties is extremely important and recently scientific and technological researchers have begun to quanitify these effects. The international conference 'Flow-Induced Crystallization of Polymers', held in October 2001 in Salerno, Italy, was timely and well attended. An interdisciplinary approach was taken and presentations were made on topics ranging from real-time measurement, through modelling, to final morphology and properties of polymers. Invited and other selected contributions from the conference are collected here, in this volume of Macromolecular Symposia

Crystallization of Polymers: Volume 1, Equilibrium Concepts Feb 01 2023 First published in 2002, from an original 1964 edition, in the Crystallization of Polymers, 2nd edition Leo Mandelkern provides a self-contained treatment of polymer crystallization. All classes of macromolecules are included and the approach is through the basic disciplines of chemistry and physics. The book discusses

the thermodynamics and physical properties that accompany the morphological and structural changes that occur when a collection of molecules of very high molecular weight are transformed from one state to another. Volume 1 is a presentation of the equilibrium concepts that serve as a basis for the subsequent volumes. In this volume the author shows that knowledge of the equilibrium requirements is vital to understanding all aspects of the polymer crystallization process, and the final state that eventually evolves. This book will be an invaluable reference work for all chemists, physicists and materials scientists who work in the area of polymer crystallization.

Polymer Crystallization I Mar 22 2022 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, and each review critically surveys one aspect of that topic, to place it within the context of the volume. The volumes typically summarize the significant developments of the last 5 to 10 years and discuss them critically, presenting selected examples, explaining and illustrating the important principles, and bringing together many important references of primary literature. On that basis, future research directions in the area can be discussed. Advances in Polymer Science volumes thus are important references for every polymer scientist, as well as for other scientists interested in polymer science - as an introduction to a neighboring field, or as a compilation of detailed information for the specialist. Review articles for the individual volumes are invited by the volume editors. Single contributions can be specially commissioned. Readership: Polymer scientists, or scientists in related fields interested in polymer and biopolymer science, at universities or in industry, graduate students

Polymer Crystallization Jul 02 2020

Interphases and Mesophases in Polymer Crystallization I Sep 15 2021 With contribution by numerous experts.

***Polymer Crystallization at Curved Liquid/Liquid Interface* Apr 10 2021 Liquid/liquid interface, either flat or curved, is a unique template for studying self-assembly of a variety of nanomaterials such as nanoparticles and nanorods. The resultant monolayer films can be ordered or disordered depending on the regularity of the nanomaterials. Integration of nanoparticles into two-dimensional structure leads to intriguing collective properties of the nanoparticles. Crystallization can also be guided by liquid/liquid interface. Due to the particular shape of the interface, crystallization can happen in a different manner comparing to the normal solution crystallization. In this dissertation, liquid/liquid interface is employed to guide the crystallization of polymers, mainly focusing on using curved liquid/liquid interface. Due to the unique shape of the interface and feasibility to control the curvature, polymer crystallization can take place in different manner and lead to the formation of curved or vesicular crystals. Curved liquid/liquid interface is typically**

created through o/w emulsions. With the presence of surfactant, the emulsions are controlled to be stable at least for the polymer crystallization periods. The difference to normal solution crystallization is: the nuclei will diffuse to the curved interface due to the Pickering effect and guide the crystallization along the curved liquid/liquid interface. If the supercooling can be controlled to be very small, crystal growth in the bulk droplets can be avoided. The advantages of this strategy are: 1) the formation process of vesicular type crystals can be monitored by controlling the polymer supply; 2) curved crystals, bowl-like structures and enclosed capsules can be easily obtained comparing to the self-assembly method for vesicle formation; 3) the obtained vesicles will be made of polymer crystals, which will possess the extraordinary mechanical properties. Based on the nucleation type, this dissertation is divided into two parts. The first part is focused on the self-assembly behavior of single-walled carbon nanotubes (SWCNTs) at curved liquid/liquid interface and the crystallization behavior of polymers at curved liquid/liquid interface while SWCNTs in presence. A few crystalline

polymers, such as polyethylene (PE), poly(l-lactic acid) (PLLA), and poly(3-hexylthiophene-2,5-diyl) (P3HT), and water/oil systems were used to study the behavior. The formation of nano speckle structure is a crystallization-driven process due to heterogeneous nucleation and crystal growth of polymers at curved liquid/liquid interface. The second part deals with the homogeneous nucleation and crystal growth at curved liquid/liquid interface. Both PE and PLLA were used to conduct the study. For PE, 1,2-dichlorobenzene (DCB), water, and sodium dodecylsulfate (SDS) were used for the emulsion system. The emulsification system for PLLA is p-xylene, water, and hexadecyltrimethylammonium bromide (CTAB). Surfactant concentration can be employed to control the droplet size, thus controlling the final crystal vesicle's size. By controlling the initial polymer concentration, crystal shells with different morphology, such as curved crystal, bowl-like crystals, and crystal vesicles (named lamellaesome) can be obtained. The formation of these unique structures was templated by the curved interface. The formation process and detailed crystal structure are analyzed

based on electron diffraction data from different sized lamellaesomes. Mechanical properties of the crystal vesicles and their encapsulation abilities will be discussed. At the end of this dissertation, a summary of my work and future outlook will be given.

Recent Advances in the Field of Crystallization and Fusion of Polymers Jan 26 2020

Crystallization of Polymers Oct 05 2020

Crystallization Modalities in Polymer Melt Processing Dec 07 2020 Structure formation in crystallizing polymers, as occurring during processing, has not been treated so far in a coherent form. This fact explains, why this monograph is written as the ?rst book devoted to this subject. A quarter of a century ago the underdevelopment of this subject was obvious. Trial and error dominated. In fact, other apposite subjects as polymer melt rheology or heat transfer, had reached high levels. A great number of books has been devoted to them. Mold ?lling of amorphous polymers and the solidi?cation of these polymers by vitri?cation can nowadays be simulated numerically with a high degree of accuracy. In the solidi?ed sample even residual stresses and corresponding birefringence effects can

accurately be 1 calculated . However, semicrystalline polymers, which form the majority of industrial po- mers, have been excluded from these considerations for good reasons. In fact, great uncertainties existed about the formation of quality determining crystalline str- tures. In particular, polyole?ns suffered from this shortcoming. In 1983 this fact instigated the polymer research group at the Johannes Kepler University in Linz to start with pertinent activities. The urgency of this kind of studies becomes evident, if advantages and hitches of these polymers are considered. 1. Versatility of processing: Injection molding into a great variety of shapes and sizes, from thin walled beakers to garden chairs, not to forget pipe and pro?le extrusion, cable coating, ?ber spinning, ?lm blowing. 2. Product qualities: Ductility, low density, good electric insulation, corrosion resistance, surface quality.

Crystallization of Polymers Apr 03 2023 Since the discovery that polymer single crystals are composed of chain folded macromolecules in 1957, the crystallization of polymers has attracted considerable interest and still provides fascinating and

fruitful areas of research. Only a few books have been fully devoted to the crystallization of polymers in the past. This book contains the proceedings of the NATO ARW devoted to the `Crystallization of Polymers' which took place in September 1992 at the University of Mons-Hainaut (Belgium). In view of the variety of papers devoted to the crystallization of polymers, this book will be used in the next few years as a reference book for scientists concerned in the field of polymer physical chemistry. Crystallization of Polymers is mainly devoted to the experimental and theoretical study of the crystallization of synthetic polymers. As a kinetic study of the growth of polymer crystals should always be preceded by a morphological or a structural investigation, the structure, the morphology of polymer crystals and more particularly the lamellar and supralamellar organizations, as well as the nature of the crystal amorphous interface are reviewed and discussed.

Polymer Crystallization Aug 27 2022

Introduction to Polymer Crystallization Jan 20 2022

Polymer Crystallization II Feb 18 2022 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, and each review critically surveys one aspect of that topic, to place it within the context of the volume. The volumes typically summarize the significant developments of the last 5 to 10 years and discuss them critically, presenting selected examples, explaining and illustrating the important principles, and bringing together many important references of primary literature. On that basis, future research directions in the area can be discussed. Advances in Polymer Science volumes thus are important references for every polymer scientist, as well as for other scientists interested in polymer science - as an introduction to a neighboring field, or as a compilation of

detailed information for the specialist. Review articles for the individual volumes are invited by the volume editors. Single contributions can be specially commissioned. Readership: Polymer scientists, or scientists in related fields interested in polymer and biopolymer science, at universities or in industry, graduate students

Polymer Crystallization **Oct 17 2021 The classical view on polymer crystallization basically focused on the expla- tion of a few macroscopically observable parameters like the thickness of the resulting lamellar structure and the corresponding growth rates. However, the emerging paradigm for the description of chain crystals is too simple and cannot account for the complex non-equilibrium processes responsible for structure f- mation on various levels, ranging from the nanometer up to the millimeter scale. This complexity detected by several novel experimental results led to a renewed interest in this ”old” topic of polymer crystallization. These new ?ndings c- cern the early stages of the crystallization process, crystal formation in con?ned geometries like ultra-thin ?lms and the competition between (micro)phase s-**

aration and crystallization in copolymers and blends. In particular, high spatial resolution techniques such as atomic force microscopy provided deeper insight into the molecular organization of crystallizable polymers. Computer simu- tions based on microscopic processes were used to improve our understanding of how polymer crystals are nucleated and how they grow. New ideas emerged about possible multistage pathways which are followed during the formation of polymer lamellae. The importance and the consequences of the non-equilibrium character of polymer crystals got signi?cantly more attention. Links and ana- gies to growth phenomena and pattern formation in general are being developed. However, these ideas are still subject of intensive and controversial discussions.

A Study of Polymer Crystallization and Melting and the Effect on Morphology and Molecular Motion **Mar 29 2020**

Crystallization in Multiphase Polymer Systems Nov 29 2022 Crystallization in Multiphase Polymer Systems is the first book that explains in depth the crystallization behavior of multiphase polymer systems. Polymeric structures are more complex in nature than other material structures due to

their significant structural disorder. Most of the polymers used today are semicrystalline, and the subject of crystallization is still one of the major issues relating to the performance of semicrystalline polymers in the modern polymer industry. The study of the crystallization processes, crystalline morphologies and other phase transitions is of great significance for the understanding the structure-property relationships of these systems. Crystallization in block copolymers, miscible blends, immiscible blends, and polymer composites and nanocomposites is thoroughly discussed and represents the core coverage of this book. The book critically analyzes the kinetics of nucleation and growth process of the crystalline phases in multi-component polymer systems in different length scales, from macro to nanoscale. Various experimental techniques used for the characterization of polymer crystallization process are discussed. Written by experts in the field of polymer crystallization, this book is a unique source and enables professionals and students to understand crystallization behavior in multiphase polymer systems such as block copolymers,

polymer blends, composites and nanocomposites. Covers crystallization of multiphase polymer systems, including copolymers, blends and nanocomposites Features comprehensive, detailed information about the basic research, practical applications and new developments for these polymeric materials Analyzes the kinetics of nucleation and growth process of the crystalline phases in multi-component polymer systems in different length scales, from macro to nanoscale

Macromolecules: Synthesis, Order and Advanced Properties **Feb 27 2020 1. B. Keszler, J.P. Kennedy, Akron, OH, USA Synthesis of High Molecular Weight Poly (Beta-Pinene) 2. Y. Chujo, T. Saegusa, Kyoto, Japan OrganicPolymer Hybrids with Silica Gel by Means of the Sol-Gel Method 3. A. Halperin, Mainz, FRG, M. Tirrell, T.P. Lodge, Minnea- polis, MN, USA Tethered Chains in Polymer Microstructures 4. T.Q. Nguyen, H.-H. Kausch, Lausanne, CH Mechanochemical Degradation in Transient Elongational Flow 5. P. Corradini, G. Guerra, Naples, Italy Polymorphism in Polymers 6. K.A. Armitstead, G. Goldbeck-Wood, A. Keller, Bristol, UK Review of Polymer Crystallization Theories 7. M.**

Fischer, Fribourg, CH Properties and Failure of Polymers with Tailored Distances between Crosslinks 8. M. Stamm, Mainz, FRG Polymer Interfaces on a Molecular Scale: Comparison of Techniques and Some Examples

Interphases and Mesophases in Polymer Crystallization II Apr 22 2022 With contribution by numerous experts.

Crystallization of Polymers Dec 19 2021 The Crystallization of Polymers 2nd Edition provides a self-contained, comprehensive, and up-to-date treatment of polymer crystallization. Volume I is a presentation of the equilibrium concepts that serve as a basis for the subsequent volumes. It will be an invaluable reference work for all scientists who work in the area.

Early Stages of Polymer Crystallization Studied by Dielectric Spectroscopy May 31 2020

Crystallization of Polymers: Volume 2, Kinetics and Mechanisms Mar 02 2023 In Crystallization of Polymers, 2nd Edition, Leo Mandelkern provides a self-contained, comprehensive, and up-to-date treatment of polymer crystallization. Volume 2 of this edition provides an authoritative account of the kinetics and mechanisms of polymer crystallization, building from the

equilibrium concepts presented in volume 1. As crystalline polymers rarely, if ever, achieve their equilibrium state, this books serves as a bridge between equilibrium concepts and the state that is finally achieved. With a comprehensive treatment of the surrounding theories and experimental results from simple to complex polymer systems, this book will be an invaluable reference work for all chemists, physicists and materials scientists working in the area of polymer crystallization.

Polymer Crystallization May 24 2022 Control the development of polymer crystals with this groundbreaking introduction Polymer crystallization is a crucial component of polymer development that impacts processing, applications, presentation, and more. Intervention in the polymer crystallization process, in the form of nanofilters, compatibilizers, and more, has the potential to improve optical and chemical properties, improve degrees of crystallinity, and increase hardness of polymer composites. The myriad applications of crystalline polymers make this one of the most exciting and fast-growing fields in polymer research. Polymer Crystallization provides a comprehensive introduction to this field and its most

important recent developments. It characterizes and analysis an expansive range of crystalline polymers and discusses possible mechanisms for influencing their crystallization processes to impact a variety of outcomes and applications. These applications include industries from food packaging to automotive parts to medical and aerospace materials. Polymer Crystallization readers will also find: Detailed treatment of polymer morphology, rheology, modeling, and more Thorough introduction to the fundamentals of polymer crystallization Discussion of environmental safety issues and avenues for future research Polymer Crystallization is a useful reference for materials scientists, polymer scientists, biomedical scientists, and advanced undergraduate and graduate students in these and related fields.

Progress in Understanding of Polymer Crystallization Oct 29 2022 In the context of polymer crystallization there are several still open and often controversially debated questions. The present volume addresses issues such as novel general views and concepts. It presents new ideas in a connected and accessible way. The intention is thus not only to provide a summary of the

present state-of-the-art to all active works but to provide an entry point to newcomer and graduate students entering the field.
A P1 - PO Finite Element Method for a Model of Polymer Crystallization Dec 27 2019
***Polymer Crystallization* Dec 31 2022 Table of contents**
Mathematical Modelling for Polymer Processing Aug 15 2021 Polymers are substances made of macromolecules formed by thousands of atoms organized in one (homopolymers) or more (copolymers) groups that repeat themselves to form linear or branched chains, or lattice structures. The concept of polymer traces back to the years 1920's and is one of the most significant ideas of last century. It has given great impulse to indus try but also to fundamental research, including life sciences. Macromolecules are made of sm all molecules known as monomers. The process that brings monomers into polymers is known as polymerization. A fundamental contri bution to the industrial production of polymers, particularly polypropylene and polyethylene, is due to the Nobel prize winners Giulio Natta and Karl Ziegler. The ideas of Ziegler and Natta date back to 1954, and the process has been improved continuously over the

years, particularly concerning the design and shaping of the catalysts. Chapter 1 (due to A. Fasano) is devoted to a review of some results concerning the modelling of the Ziegler- Natta polymerization. The specific ex am pie is the production of polypropilene. The process is extremely complex and all studies with relevant mathematical contents are fairly recent, and several problems are still open.

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