1. Record Nr. UNINA9911034859603321

Autore	Gedde U. W (Ulf W.)
Titolo	Fundamental Polymer Science / / by Ulf W. Gedde, Mikael S. Hedenqvist, Mats Johansson, Lars Berglund, Jakob Wohlert
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	9783032065629 9783032065612
Edizione	[3rd ed. 2025.]
Descrizione fisica	1 online resource (735 pages)
Collana	Graduate Texts in Physics, , 1868-4521
Altri autori (Persone)	HedenqvistMikael S JohanssonMats BerglundLars WohlertJakob
Disciplina	620.192
Soggetti	Polymers Soft condensed matter Biomaterials Glass Materials - Analysis Surfaces (Technology) Thin films Soft and Granular Matter Plant Materials Materials Characterization Technique Surfaces, Interfaces and Thin Film
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction to polymer science -- Conformations in polymers -- Rubber elasticity -- Polymer solutions -- The glassy amorphous state -- The molten state -- Morphology of Semicrystalline Polymers: Concepts, Analytical Methods and Structure-Property Relationships -- Crystallisation kinetics -- Chain orientation -- Polymer synthesis -- Solutions to problems given in exercises.
Sommario/riassunto	This successor to the popular textbook, “Polymer Physics” (Springer,

1999), is the result of a quarter-century of teaching experience as well as critical comments from specialists in the various sub-fields, resulting in better explanations and more complete coverage of key topics. With a new chapter on polymer synthesis, the perspective was broadened in the second edition to encompass all of polymer science. The third edition contains substantial information about polysaccharides and proteins included in essentially all chapters. Cheap computing power has greatly expanded the role of simulation and modelling in the past decades, which is reflected in many of the chapters. Additional problems and carefully prepared graphics aid have been added. Note the availability at Springer of the companion books by the same authors: Essential Classical Thermodynamics (2020) and Applied Polymer Science (2021). Two principles are key to the textbook' s appeal: 1) Students learn that, independent of the origin of the polymer, synthetic or native, the same general laws apply, and 2) students should benefit from the book without an extensive knowledge of mathematics. Taking the reader from the basics to an advanced level of understanding, the text meets the needs of a wide range of students in chemistry, physics, materials science, biotechnology, and civil engineering, and is suitable for both masters- and doctoral-level students. Praise for the previous edition: ...an excellent book, well written, authoritative, clear and concise, and copiously illustrated with appropriate line drawings, graphs and tables. Polymer International ... an extremely useful book. It is a pleasure to recommend it to physical chemists and materials scientists, as well as physicists interested in the properties of polymeric materials. Polymer News This valuable book is ideal for those who wish to get a brief background in polymer science as well as for those who seek a further grounding in the subject. Colloid Polymer Science The solutions to the exercises are given in the final chapter, making it a well thought-out teaching text. Polymer Science .