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Nota di contenuto	Polysaccharide-Based Nanocrystals; Contents; List of Contributors; Foreword; Preface; Chapter 1 Polysaccharide Nanocrystals: Current Status and Prospects in Material Science; 1.1 Introduction to Polysaccharide Nanocrystals; 1.2 Current Application of Polysaccharide Nanocrystals in Material Science; 1.3 Prospects for Polysaccharide Nanocrystal-Based Materials; List of Abbreviations; References; Chapter 2 Structure and Properties of Polysaccharide Nanocrystals; 2.1 Introduction; 2.2 Cellulose Nanocrystals; 2.2.1 Preparation of Cellulose Nanocrystals 2.2.1.1 Acid Hydrolysis Extraction of Cellulose Nanocrystals2.2.1.2 Effects of Acid Type; 2.2.1.3 Effects of Pretreatment; 2.2.2 Structure and Properties of Cellulose Nanocrystals; 2.2.1 Structure and Rigidity of Cellulose Nanocrystals; 2.3.1 Preparation of Cellulose Nanocrystals; 2.3 Chitin Nanocrystals; 2.3.1 Preparation of Chitin Nanocrystals; 2.3.1.1 Extraction of Chitin Nanocrystals by Acid Hydrolysis; 2.3.1.2 Extraction of Chitin Nanocrystals by TEMPO Oxidation; 2.3.2 Structure and Properties of Chitin Nanocrystals;

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	2.3.2.1 Structure and Rigidity of Chitin Nanocrystals 2.3.2.2 Properties of Chitin Nanocrystal Suspensions2.4 Starch
	Nanocrystals; 2.4.1 Preparation of Starch Nanocrystals; 2.4.1.1 Extraction of Starch Nanocrystals by Acid Hydrolysis; 2.4.1.2 Effect of
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	Conclusion and Prospects; List of Abbreviations; References; Chapter 3 Surface Modification of Polysaccharide Nanocrystals; 3.1 Introduction
	Hydroxyl Groups; 3.2.2 Surface Groups Originating from Various Extraction Methods; 3.3 Approaches and Strategies for Surface
	Modification; 3.3.1 Purpose and Challenge of Surface Modification; 3.3.2 Comparison of Different Approaches and Strategies of Surface Modification; 3.4 Adsorption of Surfactant; 3.4.1 Anionic Surfactant; 3.4.2 Cationic Surfactant; 3.4.3 Nonionic Surfactant; 3.5 Hydrophobic Groups Resulting from Chemical Derivatization; 3.5.1 Acetyl and Ester
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Sommario/riassunto	Polysaccharide nanocrystals can be derived from the renewable resources cellulose, chitin or starch, which makes them ideal candidates for ""Green Materials Science"". This versatile material class can be used in nanocomposites such as rubber or polyester, and in functional materials such as drug carriers, bio-inspired mechanically adaptive materials or membranes. Moreover, polysaccharide-based nanomaterials are environmentally friendly due to their intrinsic biodegradability.With its interdisciplinary approach the book gives a thorough introduction to extraction, structure, properties, surfac