1. Record Nr. UNINA9910467628703321

Autore	Dufresne Alain <1962->
Titolo	Nanocellulose : from nature to high performance tailored materials / / Alain Dufresne
Pubbl/distr/stampa	Berlin, [Germany] ; ; Boston, [Massachusetts] : , : De Gruyter, , 2018 ©2018
ISBN	3-11-047859-5
Edizione	[Second edition.]
Descrizione fisica	1 online resource (650 pages) : illustrations
Disciplina	620.115
Soggetti	Cellulose - Chemistry Cellulose nanocrystals Cellulose - Mechanical properties Nanostructured materials Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Frontmatter -- Preface / Dufresne, Alain -- Contents -- 1. Cellulose and potential reinforcement -- 2. Preparation of microfibrillated cellulose -- 3. Preparation of cellulose nanocrystals -- 4. Bacterial cellulose -- 5. Chemical modification of nanocellulose -- 6. Rheological behavior of nanocellulose suspensions and self-assembly -- 7. Processing of nanocellulose-based materials -- 8. Thermal properties -- 9. Mechanical properties of nanocellulose-based nanocomposites -- 10. Swelling and barrier properties -- 11. Other polysaccharide nanocrystals -- 12. Conclusions, applications and likely future trends -- Index
Sommario/riassunto	This specialist monograph provides an overview of the recent research on the fundamental and applied properties of nanoparticles extracted from cellulose, the most abundant polymer on the planet and an ubiquitous essential renewable resource. Given the rapid advances in the field and the high level of interest within the scientific and industrial communities, this revised and updated second edition expands the broad overview of recent research and will be required

reading for all those working with nanocellulose in the life sciences and bio-based applications, biological, chemical and agricultural engineering, organic chemistry and materials science. It combines a general introduction to cellulose and basic techniques with more advanced chapters on specific properties, applications and current scientific developments of nanocellulose. The book profits from the author's extensive knowledge of cellulose nanocomposite materials.