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Nota di contenuto	Preface -- Chapter. 1. Emerging nanomaterials for forestry and associated sectors: An overview -- Chapter. 2. Potential of Nanomaterials in Bio-Based Wood Adhesives: An Overview -- Chapter. 3. Nanomaterials to improve fire properties in wood and wood-based composite panels -- Chapter. 4. Wood Plastic Composites (WPC): Applications of Nanomaterials -- Chapter. 5. Nanomaterials to improve properties in wood-based composite panels -- Chapter. 6. Nanomaterials to improve the strength of wooden joints -- Chapter. 7. Application of nanomaterials for wood protection -- Chapter. 8. Nanocellulose in paper and board coating -- Chapter. 9. Green Materials for Radiation Shielding: An overview -- Chapter. 10. Formaldehyde emissions from wood-based composites: Effects of

nanomaterials.

Sommario/riassunto

Bio-based materials, including those containing wood, will become increasingly important as we move to a bio-based economy. Among their many attributes, it is vitally important that these materials are renewable, sustainable with proper management and environmentally benign. Wood remains one of our most important bio-based materials. While it is an amazing material, wood still has negative attributes and drawbacks that can affect performance, including dimensional instability when wetted, vulnerability to fire and high temperatures, and susceptibility to biodeterioration. A variety of treatments have been developed to overcome these weaknesses. Among the most exciting of these treatments are nanomaterials. These materials have some exceptionally attractive properties for improving timber performance and have been the subject of intensive research over the past decade. There is a tremendous need for a single comprehensive source of information on this rapidly emerging subject with tremendous potential to enhance the performance of a variety of bio-based materials. This book contains 10 chapters, each compiled by different author(s) who are considered the top researcher(s) in their respective fields. The chapters begin with some basic background on nanomaterials and their synthesis, then explore different areas for potential applications and conclude with a review of the emerging questions about nanomaterial safety. The book is designed to provide the latest information and know-how on application and utilization of different nanomaterials to improve the properties of wood and wood-based composite panels. The contents cover some main topics in the industry including improving physical and mechanical properties, increasing resistance to biodegradation (including fungi and insects), developing wood-plastic composites (WPC), applying nanomaterials in paper and board industry, and emergence of transparent wood and radiation shielding. It also covers the use of nanomaterials to improve the performance of paints and finishes used for forest products. The book provides a single location for those interested in the field to begin.