1. Record Nr. UNINA9910746958303321

Autore	Chanda Arnab
Titolo	Materials for Biomedical Simulation : Design, Development and Characterization / / edited by Arnab Chanda, Sarabjeet Singh Sidhu, Gurpreet Singh
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	9789819950645 9819950643
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (199 pages)
Collana	Materials Horizons: From Nature to Nanomaterials, , 2524-5392
Altri autori (Persone)	SidhuSarabjeet Singh Gurpreet Singh
Disciplina	620.19
Soggetti	Biomaterials Biomedical engineering Regenerative medicine Biomedical Engineering and Bioengineering Regenerative Medicine and Tissue Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Auxetic Materials for Biomedical and Tissue Engineering -- Advances in Orthotic Prosthetic Design: Challenges and Applications -- Research Progress of Self-healing Elastomers Materials: Processing and Characterization.
Sommario/riassunto	The book provides an overview of prospective material simulants for hard tissues, such as knee joints, hip joint, and bones, and soft tissues, such as skin, muscles, and functional organs. These materials can repair, replace the functionality, or mimic the mechanical, structural, and biological properties of the parent tissue. This book discusses hard and soft human tissue simulating biomaterials under a single umbrella, covering a broad area of design and development of biomaterials, implants, and multi-functional materials along with their characterization. The progress in emerging biomaterials has increased manifold in the recent decades with the unprecedented focus on healthcare technologies. This book is dedicated to ground-breaking research in biomaterials and highlights the current trends and future

roadmap of different materials for simulation of hard and soft tissues. Authored by prominent researchers around the globe, the chapters of this book emphasize recent advances in biomedical material simulation. This book brings together novel contributions to different aspects of hard and soft human tissue-based biomaterials, including recent advances and emerging developments in designing and developing simulants for tissue replacement alternatives. This book is anticipated to serve as a key reference textbook for research in tissue engineering & biomedical engineering, biomaterials, biomechanics, and implant & medical device development with contributed chapters solicited in the areas of soft materials, such as elastomers, hydrogels, etc., for various applications; auxetic metamaterials; additive manufacturing of bio-implants; artificial tissues and organs; development of biomimetic materials; medical implants and biomedical device design; bioinspired and bio-tribological materials; advances in materials science for biomaterial applications; biomechanical characterization of hard and soft human tissues; bioprinting and nano-biomaterials.