

1. Record Nr.	UNINA9910991171503321
Autore	Nguyen Van Hiep
Titolo	Bioinspired Multifunctional Nanomaterials for Ionic Artificial Muscles // by Van Hiep Nguyen
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	9783031788130 3031788133
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (XVII, 108 p. 47 illus., 45 illus. in color.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5061
Disciplina	620.19
Soggetti	Materials Bionics Nanotechnology Robotics Bioinspired Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1.Introduction to Ionic Artificial Muscles -- Chapter 2.Cell-membrane-inspired block isomer electrolyte -- Chapter 3.Hemostasis-inspired electrolyte membrane -- Chapter 4.Calcium-metabolism-inspired Electrode -- Chapter 5.Bone-structure-inspired Electrode -- Chapter 6.Concluding Remark.
Sommario/riassunto	This book presents the development of four multifunctional nanomaterials: two electrolyte membranes with high ionic conductivity and robust mechanical strength and two electrode materials with excellent electrical conductivity and high capacitance. The integration of these materials has led to a substantial improvement in the performance of ionic actuators, enabling their application in four demonstrative models: soft fingers, inchworms, dynamic tensegrity structures, and dragonflies. Therefore, this multidisciplinary book is highly relevant to a wide range of scientific fields, including materials science, ionic actuators, soft robotics, bioinspiration, and biomimetics, as well as energy storage systems such as batteries, capacitors, and fuel cells.

