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CONDUCTIVE ELECTROACTIVE POLYMERS

Intelligent Materials Systems



Gordon G. Wallace
Geoffrey M. Spinks
Leon A.P. Kane-Maguire
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Biomimetic Robotic Artificial Muscles Kwang Jin Kim, Hyouk Ryeol Choi, Xiaobo Tan, David Pugal, 2013-03-26 *Biomimetic Robotic Artificial Muscles* presents a comprehensive up to date overview of several types of electroactive materials with a view of using them as biomimetic artificial muscles The purpose of the book is to provide a focused in depth yet self contained treatment of recent advances made in several promising EAP materials In particular ionic polymer metal composites conjugated polymers and dielectric elastomers are considered Manufacturing physical characterization modeling and control of the materials are presented Namely the book adopts a systems perspective to integrate recent developments

in material processing actuator design control oriented modeling and device and robotic applications While the main focus is on the new developments in these subjects an effort has been made throughout the book to provide the reader with general basic information about the materials before going into more advanced topics As a result the book is very much self contained and expected to be accessible for a reader who does not have background in EAPs Based on the good fundamental knowledge and the versatility of the materials several promising biomimetic and robotic applications such robotic fish propelled by an IPMC tail an IPMC energy harvester an IPMC based valveless pump a conjugated polymer petal driven micropump and a synthetic elastomer actuator enabled robotic finger are demonstrated *Mechatronic Systems* Clarence W. de Silva, 2007-10-17 Mechatronics has emerged as its own discipline over the past decade yet no reference has lived up to the demands of being a working guide for designing and implementing the new generation of mechatronic systems Uniting an international team of leading experts Mechatronic Systems Devices Design Control Operation and Monitoring rises to the ch

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Madhuri Sharon, Angelica S. L. Rodriguez, Chetna Sharon, Pio Sifuentes Gallardo, 2019-10-01 This book will be about various aspects related to applications and use of knowledge of nanotechnology in promoting defense activities The area in which scientists are focusing includes i nano devices such as sensors GPS computers chemical biological weapons nano fabrics bulletproof materials nano stealth coating use of nanotechnology in various areas of aerospace It is intended to cover available methodologies and understanding of technologies for these applications Not only for destructive but also to improve medical and casualty safety care for soldiers and to produce lightweight strong and multi functional materials for use in body armour both for protection and to provide enhanced connectivity will be covered **Intelligent Textiles and Clothing** H

Mattila, 2006-07-28 The use of intelligent textiles in clothing is an exciting new field with wide ranging applications Intelligent textiles and clothing summarises some of the main types of intelligent textiles and their uses Part one of the book reviews phase change materials PCM their role in such areas as thermal regulation and ways they can be integrated into outdoor and other types of clothing The second part of the book discusses shape memory materials SMM and their applications in medical textiles clothing and composite materials Part three deals with chromic colour change and conductive materials and their use in such areas as sensors within clothing The final part of the book looks at current and potential applications including work wear and medical applications With its distinguished editor and international team of contributors Intelligent textiles and clothing is an essential guide for textile manufacturers in such areas as specialist clothing for example protective sports and outdoor clothing as well as medical textiles Summarises the main types of intelligent textiles and their uses Reviews phase change materials and their role in clothing Discusses shape memory materials and their applications

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