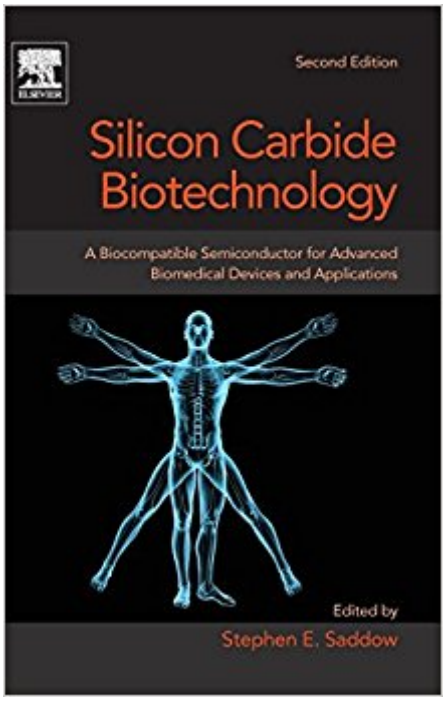
Silicon Carbide Biotechnology, Second Edition: A Biocompatible Semiconductor For Advanced Biomedical Devices And Applications



Synopsis

Silicon Carbide Biotechnology: A Biocompatible Semiconductor for Advanced Biomedical Devices and Applications, Second Edition, provides the latest information on this wide-band-gap semiconductor material that the body does not reject as a foreign (i.e., not organic) material and its potential to further advance biomedical applications. SiC devices offer high power densities and low energy losses, enabling lighter, more compact, and higher efficiency products for biocompatible and long-term in vivo applications, including heart stent coatings, bone implant scaffolds, neurological implants and sensors, glucose sensors, brain-machine-interface devices, smart bone implants, and organ implants. This book provides the materials and biomedical engineering communities with a seminal reference book on SiC for developing technology, and is a resource for practitioners eager to identify and implement advanced engineering solutions to their everyday medical problems for which they currently lack long-term, cost-effective solutions.Discusses the properties, processing, characterization, and application of silicon carbide biomedical materials and related technologyAssesses literature, patents, and FDA approvals for clinical trials, enabling rapid assimilation of data from current disparate sources and promoting the transition from technology R&D, to clinical trials Includes more on applications and devices, such as SiC nanowires, biofunctionalized devices, micro-electrode arrays, heart stent/cardiovascular coatings, and continuous glucose sensors, in this new edition

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Customer Reviews

Dr. SaddowÃ¢â ¬â„¢s research interests are to develop wide-bandgap semiconductor materials for high-field and high-power device applications. His most recent work has focused on the use of SiC for Bio, Nano and MEMS applications. He is a visiting professor in Sicily where he conducts analysis and growth studies of 3C-SiC on Si substrates at the Istituto per la Microelettronica e Microsistemi - Consiglio nazionale delle ricerche (IMM-CNR), Catania, Sicily (IT). His ultimate research objective is to develop smart sensors for harsh environments and biomedical applications based on wide band gap semiconductor materials. He is a senior member of the IEEE and has over 100 publications on SiC materials and devices, with nearly half in archived journals.

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