PREFACE

This book presents some recent ideas for the development of nano biomaterials and sustainable materials for energy and infrastructure. The book is divided into three sections. In section A, research on nanomaterials and bio-micro-electro-mechanical systems (BioMEMS) is presented. These include: BioMEMS for localized/targeted drug delivery and treatment; the biosynthesis of nanoparticles and the development of nanoclusters for the localized treatment of cancer. This is followed by section B, in which concepts for the next generation of organic solar cells and organic light emitting devices (OLEDs) are presented along with the requirements for the development of flexible and/or stretchable organic solar cells. Section C then presents novel concepts for the development of sustainable materials. These include: natural fiber-reinforced earth-based composite; the bio-inspired design of dome structures; bacterial remediation of polyethylene and the production of biofuels from non-food products such as bamboo; new approaches to the coating and robustness of energy systems that are relevant gas turbines and pipelines for oil and gas distribution. These include chapters on ceramics and steel as well as novel coating technologies.

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