

Nanomanufacturing and Nanomaterials Design

Principles and Applications

Nanomanufacturing includes bottom-up or top-down techniques, each of which gives an advanced, reliable, scaled-up, and economical methods in the production of nanomaterials. The text discusses fundamental concepts, advanced topics, and applications of nanomanufacturing in a comprehensive manner. Features - Discussion of the design and fabrication of nano- and micro-devices in a comprehensive manner. - Covers nanofabrication techniques for photovoltaics applications. - Lists constitutive modelling and simulation of multifunctional nanomaterials. - Introduces nanomanufacturing of nanorobots and their industrial applications. - Presents nanomanufacturing of a high-performance piezoelectric nanogenerator for energy harvesting. Important topics include nanomanufacturing of high-performance piezoelectric nanogenerators for energy harvesting, nanosensor, nanorobots, nanomedicine, nano diagnostic tools, 3D nano printing, additive nanomanufacturing of functional materials for human-integrated smart wearables, and nanofabrication techniques. Nanomanufacturing and Nanomaterials Design covers the latest applications of nanomanufacturing for a better understanding of the concepts. The text provides scientific and technological insights on novel routes of design and fabrication of few-layered nanostructures and their heterostructures based on a variety of advanced materials. It will be a valuable resource for senior undergraduate, graduate students and researchers in the fields of mechanical, manufacturing, industrial, production engineering and materials science.

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