

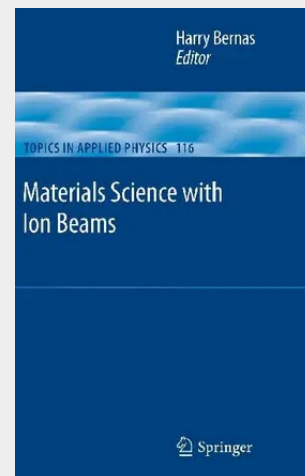
Materials Science with Ion Beams

Materials science is the prime example of an interdisciplinary science. It - compasses the fields of physics, chemistry, material science, electrical engineering, chemical engineering and other disciplines. Success has been outstanding. World-class accomplishments in materials have been recognized by

Nobel prizes in Physics and Chemistry and given rise to entirely new technologies. Materials science advances have underpinned the technology revolution that has driven societal changes for the last 75 years. Obviously the end is not in sight! Future technology-based problems - in the current scene. High on the list are control and conservation of energy and environment, water purity and availability, and propagating the information revolution. All fall in the technology domain. In every case proposed solutions begin with new forms of materials, materials processing or new artificial material structures. Scientists seek new forms of photovoltaics with greater efficiency and lower cost. Water purity may be solved through surface control, which promises new desalination processes at lower energy and lower cost. Revolutionary concepts to extend the information revolution reside in controlling the "spin" of electrons or enabling quantum states as in quantum computing. Ion-beam experts make substantial contributions to all of these burgeoning sciences.

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160,49 €

149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783540887881

Medium: Buch

ISBN: 978-3-540-88788-1

Verlag: Springer

Erscheinungstermin: 12.10.2009

Sprache(n): Englisch

Auflage: 2010

Serie: Topics in Applied Physics

Produktform: Gebunden

Gewicht: 824 g

Seiten: 376

Format (B x H): 160 x 241 mm

