Korotcenkov

Porous Silicon

From Formation to Application, Three Volume Set

Porous silicon is rapidly attracting increasing interest from various fields, including biology, medicine, biosensing, chemistry, optoelectronics, microelectronics, sensor and energy technologies, photonics, telecommunications, and environmental monitoring. This nanostructured and biodegradable material has a range of properties, making it ideal for indicated applications. This three-volume set covers all aspects of porous silicon formation, characterizations, and applications. Porous Silicon: From Formation to Application provides an up-to-date single source of information on porous silicon, from its creation to its impressive variety of applications. Its three volumes are thoughtfully constructed, with contributions from global experts. Each book contains extensive and in-depth sections that focus on the unique properties of porous silicon, its construction, and its use in a wide range of fields and devices, from chemical, mechanical, and biomedical sensors to electronics and energy source devices such as lithium batteries, solar cells, supercapacitors, and fuel cells. The first volume gives an overview of the properties and processing of porous silicon, including detailed analyses of silicon porosification using various methods. The second volume discusses applications of porous silicon in bioengineering and in various sensors. It also reviews the fabrication, parameters, and applications of these devices. The third volume highlights applications of porous silicon in optoelectronics, photoelectronics, microelectronics, and energy technologies. Porous Silicon: From Formation to Application is an indispensable technical reference and guide for those involved in the research, development, and application of porous silicon in various areas of science and technology. It presents the latest in the research and exploitation of porous silicon as well as perspectives on developments that can be expected in the near future.

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