

Book Review

Optoelectronics of Group-IV-Based Materials

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These proceedings are refereed papers presented at a Symposium “Optoelectronics of Group-IV-Based Materials”, held April 21-24, 2003 in San Francisco, CA, USA. The content of this book is devoted to fundamentals and optoelectronic applications of group-IV-elements and related materials, mainly Si and Si-derived materials.

The first chapter “Fundamentals” is dedicated to the understanding of Rare Earth related optically active centers as well as to isoelectronic centers in Si, SiGe/Si and Sodium Borosilicate Glasses.

The following chapter “Silicon Nanocrystals” is focussed on electronic and optical properties. The research on Si-based light emitting systems has increased due to the high luminescence efficiency of Si-nanocrystals embedded in amorphous silica.

“Sensitization by Nanocrystals” a chapter with five papers dealing with electronic energy transfer and the behaviour of Si Nanocrystals as sensitizers for Er- and Nd-photoluminescence in Silicondioxide.

The chapters “Other Low Dimensional Structures” and “Devices” are related to Si, Si-Ge and Ge on Si structures and with applications to photodetectors.

The last chapter is devoted to “Non-Silicon Materials” dealing with optical properties of (Pb,Sr)Se, thermoelectric performance of poly-Si-Ge, Au(Ru)-SiO₂ nanoparticles and growth mechanism of Sn quantum dots in a Si-matrix.

The book may be interested for those who are working in the field of nano-materials and semiconductor technology.

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