

Semiconductor Physics and Applications

M. Balkanski, Université Pierre et Marie Curie, Paris, and R. F. Wallis, University of California at Irvine, USA

This textbook covers the basic physics of semiconductors and their applications to practical devices, with emphasis on the basic physical principles upon which these devices operate.

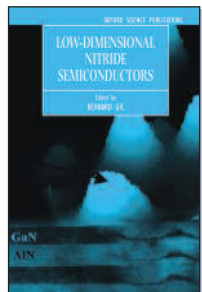
Solutions manual available for lecturers. Please visit www.oup.com/uk for more information.

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Low-Dimensional Nitride Semiconductors



Edited by **Bernard Gil**, Université de Montpellier II

‘This volume will serve very well those who need to gain insights into specific aspects of nitride materials physics. The dynamic range of the contributions should ensure that most interested readers will find a viewpoint that coincides with their own requirements.’

Contemporary Physics

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Helmuth Spieler, Lawrence Berkeley National Laboratory, California

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Sergey Ganichev and Willi Prettl, both at the University of Regensburg

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Alan J. Heeger, University of California, Santa Barbara, Niyazi Serdar Sariciftci, Linz Institute for Organic Solar Cells (LIOS) Johannes Kepler University, Linz, Austria, and Ebinazar B. Namdas, University of Queensland, Australia

‘An elegant introduction to the electronic properties of conducting (and semiconducting) polymers.’

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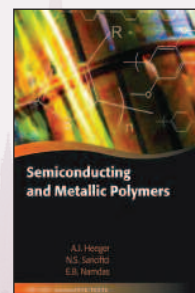
Conducting and semiconducting (conjugated) polymers have a unique set of properties, combining the electronic properties of metals and semiconductors with the processing advantages and mechanical properties of polymers. Now, thirty-five years after their discovery, metallic conducting polymers have been demonstrated in the laboratory to have electrical conductivities approaching that of copper, and mechanical strengths exceeding that of steel, a remarkable achievement.

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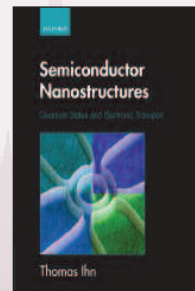
Quantum states and electronic transport

Thomas Ihn, ETH Zurich, Switzerland

The book starts out with basics of solid state and semiconductor physics, such as crystal structure, band structure, and effective mass approximation, including spin-orbit interaction effects important for research in semiconductor spintronics. It contains material aspects such as band engineering, doping, gating, and a selection of nanostructure fabrication techniques. The book discusses the Drude-Boltzmann-Sommerfeld transport theory as well as conductance quantization and the Landauer-Büttiker theory. These concepts are extended to mesoscopic interference phenomena and decoherence, magnetotransport, and interaction effects in quantum-confined systems, guiding the reader from fundamental effects to specialized state-of-the-art experiments.

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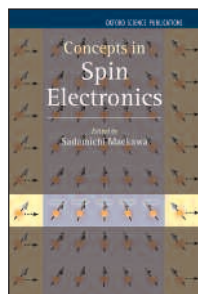


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Edited by Sadamichi Maekawa, Tohoku University, Japan



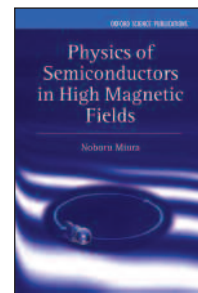
The aim of this book is to present new directions in the development of spin electronics in both the basic physics and the technology which will become the foundation of future electronics.

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CERN Courier

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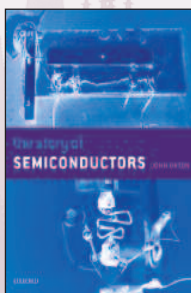
Physics World

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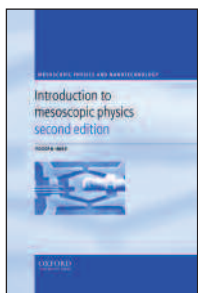
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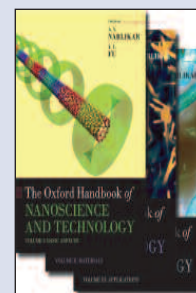
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