

# Preface

This book encompasses a broad area of micro- and opto-electronic engineering materials: their physics, mechanics, reliability, and packaging, with an emphasis on physical design issues and problems. The editors tried to bring in the most eminent engineers and scientists as chapter authors and put together the most comprehensive book ever written on the subjects of materials, mechanics, physics, packaging, functional performance, mechanical reliability, environmental durability and other aspects of reliability of micro- and opto-electronic assemblies, components, devices, and systems. University professors and leading industrial engineers contributed to the book. The contents of the book reflect the state-of-the-art in the above listed fields of applied science and engineering.

The intended audience are all those who work in micro- and opto-electronics, and photonics; electronic and optical materials; applied and industrial physics; mechanical and reliability engineering; electron and optical devices and systems. The expected and targeted readers are practitioners and professionals, scientists and researchers, lecturers and continuing education course directors, graduate and undergraduate students, technical supervisors and entrepreneurs. The book can serve, to a great extent, as an encyclopedia in the field of physics and mechanics of micro- and opto-electronic materials and structures. In the editors' opinion, it can serve also as a textbook, as a reference book, and as a guidance for self- and continuing education, i.e., as a source of comprehensive and in-depth information in its areas. The book's chapters contain both the description of the state-of-the-art in a particular field, as well as new results obtained by the chapter authors and their colleagues.

We would like to point out that many methods and approaches addressed in this book extend far beyond microelectronics and photonics. Although these methods and approaches were developed, advanced and reported primarily in application to micro- and opto-electronic systems, they are applicable also in many related areas of engineering and physics.

The editors are proud of the broad scope of the book, and of the quality of the contributed chapters, and would like to take this opportunity to deeply acknowledge, with thanks, the conscientious effort of the numerous contributors.

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