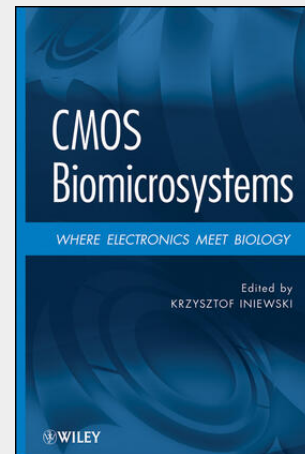


## CMOS Biomicrosystems

Where Electronics Meet Biology

The book will address the state-of-the-art in integrated Bio-Microsystems that integrate microelectronics with fluidics, photonics, and mechanics. New exciting opportunities in emerging applications that will take system performance beyond offered by traditional CMOS based circuits are discussed in detail. The book is a must for anyone serious about microelectronics integration possibilities for future technologies. The book is written by top notch international experts in industry and academia. The intended audience is practicing engineers with electronics background that want to learn about integrated microsystems. The book will be also used as a recommended reading and supplementary material in graduate course curriculum.

Cutting-edge technological developments at the intersection of electronics and biology  
The application of electronics to biology and medicine has resulted in important healthcare technologies ranging from the cardiac pacemaker to the blood glucose meter. The next generation of healthcare technology will be enabled by bioelectronics, a frontier discipline emerging at the interfaces of electronics, biology, physics, chemistry, and materials science. This unique book reveals the state of the art in this exciting field, presenting a wide range of applications and examples of advanced CMOS (complementary metal oxide semiconductor) microsystems that interface with biology. Written by top international experts in industry and academia, this is the first volume to cover bio-microsystems that integrate microelectronics with fluidics, photonics, and mechanics. Divided into three major parts that focus on human body monitoring, biosensors and circuits, and emerging technologies, this book offers a wealth of information on emerging topics in bioelectronics-most of which has only been previously available in specialized journals and at research conferences. Coverage includes: \* The potential behind new interfaces (with biology, microfluidics, microelectromechanical systems, photonics) that will carry circuit performance beyond standard CMOS chip microelectronics \* Fully integrated systems for neural signal recording \* Design considerations of low-power digital-integrated systems for the implantable medical application \* Affinity-based biosensors \* CMOS capacitive biointerfaces for lab-on-chip applications \* Advanced technologies for real-time monitoring and control in biomicrofluidics \* Integrated devices and many other emerging device structures needed in future micro/nanotechnologies \* Groundbreaking research in humans controlling biological organisms Complete with extensive cross-references, CMOS Biomicrosystems is a valuable resource for electrical, mechanical, materials science, and micro/nano engineers as well as researchers who focus on the integration of microelectronics. It is also useful as supplementary material in graduate courses in electrical engineering, microelectronics, CMOS circuit design, and biomedical devices.



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