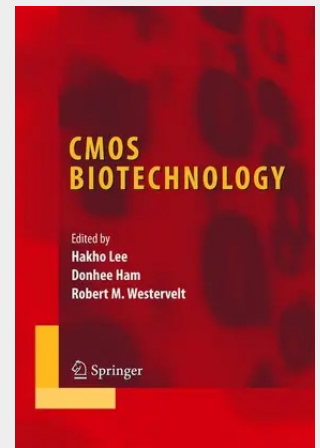


CMOS Biotechnology

Today's semiconductor integrated circuits can contain over 100 million transistors, operate at GHz speeds, process Gbyte data, and can be manufactured inexpensively. These advantages have allowed ICs to become one of the most significant enabling technologies of this time, lying at the heart of today's advanced computers, communication systems, and multimedia hardware.

Lately, there has been a growing interest in exploiting the benefits of the ICs for areas outside of the traditional application spaces. One notable area is found in biology. Bioanalytical instruments have been miniaturized on ICs to study various biophenomena or to actuate biosystems. These biolab-on-IC systems utilize the IC to facilitate faster, repeatable, and standardized biological experiments at low cost with a small volume of biological sample. The research activities in this field are expected to enjoy substantial growth in the foreseeable future. BioCMOS Technologies reviews these exciting recent efforts in joining CMOS technology with biology.

CMOS Biotechnology reviews the recent research and developments joining CMOS technology with biology. Written by leading researchers these chapters delve into four areas including: Microfluidics for electrical engineers CMOS Actuators CMOS Electrical Sensors CMOS Optical Sensors Bioanalytical instruments have been miniaturized on ICs to study various biophenomena or to actuate biosystems. These bio-lab-on-IC systems utilize the IC to facilitate faster, repeatable, and standardized biological experiments at low cost with a small volume of biological sample. CMOS Biotechnology will interest electrical engineers, bioengineers, biophysicists as well as researchers in MEMS, bioMEMS, microelectronics, microfluidics, and circuits and systems.



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