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Nota di contenuto	Introduction -- Chemistry of Conductive Solutions -- Biochemistry of Targets and Probes -- Target/Probe interactions -- Surface Immobilization of Probes -- Nano Technology to prevent Electron Transfer -- Bio/CMOS interface for Label-free Capacitance Sensing -- nanotechnology to enhance electron transfer -- Bio/CMOS interface in Constant Bias.-Bio/CMOS interface in Voltage Scan -- Appendix 1 - Basic Chemistry -- Appendix 2 - Basic Configurations of Operational Amplifiers -- Appendix 3 - The Fourier Theorem -- Appendix 4 - The Fourier and Laplace Transforms.
Sommario/riassunto	This textbook demonstrates new paradigms for the interface between CMOS circuits and the biological world. A deep theoretical description of such an interface is defined and discussed, while various real applications are demonstrated by also discussing several analog CMOS circuits. Electrochemical techniques are proposed in detail to learn how to design integrated biosensors. Biological materials are described to provide devices selectivity. Nanoscale materials are discussed to provide device sensitivity. CMOS circuits are analyzed to provide real applications. Extensive examples with solutions are provided, as well as exercises at the end of each chapter. This book introduces students to the state-of-the-art in Bio/CMOS interfaces, describing leading-edge research in CMOS design and VLSI development for applications requiring intimate integration of biological molecules onto the chip. It provides multidisciplinary content ranging from biochemistry to CMOS

design in order to address Bio/CMOS interface co-design in biosensing applications. Provides textbook coverage of multidisciplinary content needed for designing biochips; Explains paradigms and tools required for Bio/CMOS co-design; Covers a wide range of applications, including patient diagnosis and personalized therapy, as well as biosensing with implantable systems; Includes examples with solutions, as well as exercises for each chapter.