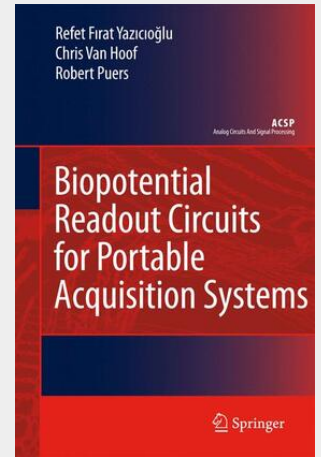


Biopotential Readout Circuits for Portable Acquisition Systems

Biopotential Readout Circuits for Portable Acquisition Systems describes one of the main building blocks of such miniaturized biomedical signal acquisition systems. The focus of this book is on the implementation of low-power and high-performance integrated circuit building blocks that can be used to extract biopotential signals from conventional biopotential electrodes. New instrumentation amplifier architectures are introduced and their design is described in detail. These amplifiers are used to implement complete acquisition demonstrator systems that are a stepping stone towards practical miniaturized and low-power systems.

In recent years, we have witnessed a revolutionary change in biomedical signal monitoring. The traditional way of using bulky instruments is being replaced by portable and even wearable acquisition systems with wireless data transmission that will enable many non-clinical applications that rely on biomedical signal monitoring. The main driver applications are early-warning systems, wellness, comfort and sports monitoring, brain-computer interfaces, gaming and entertainment. The common requirements from all these applications are miniature size, unobtrusiveness, high signal quality, and long-term power autonomy. This requires ultra-low-power and miniature SiP/SoC biomedical signal acquisition systems. Biopotential Readout Circuits for Portable Acquisition Systems describes one of the main building blocks of such miniaturized biomedical signal acquisition systems. The focus of this book is on the implementation of low-power and high-performance integrated circuit building blocks that can be used to extract biopotential signals from conventional biopotential electrodes. New instrumentation amplifier architectures are introduced and their design is described in detail. These amplifiers are used to implement complete acquisition demonstrator systems that are a stepping stone towards practical miniaturized and low-power systems.



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