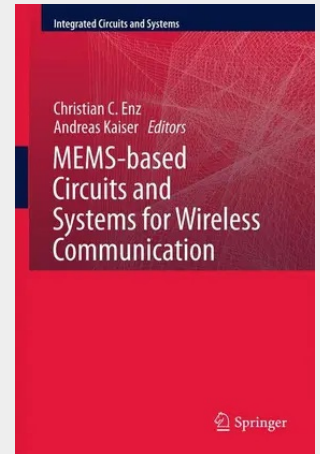


MEMS-based Circuits and Systems for Wireless Communication

MEMS-based Circuits and Systems for Wireless Communications provides comprehensive coverage of RF-MEMS technology from device to system level. This edited volume places emphasis on how system performance for radio frequency applications can be leveraged by Micro-Electro-Mechanical Systems (MEMS). Coverage also extends to innovative MEMS-aware radio architectures that push the potential of MEMS technology further ahead.

This work presents a broad overview of the technology from MEMS devices (mainly BAW and Si MEMS resonators) to basic circuits, such as oscillators and filters, and finally complete systems such as ultra-low-power MEMS-based radios. Contributions from leading experts around the world are organized in three parts. Part I introduces RF-MEMS technology, devices and modeling and includes a prospective outlook on ongoing developments towards Nano-Electro-Mechanical Systems (NEMS) and phononic crystals. Device properties and models are presented in a circuit oriented perspective. Part II focusses on design of electronic circuits incorporating MEMS. Circuit design techniques specific to MEMS resonators are applied to oscillators and active filters. In Part III contributors discuss how MEMS can advantageously be used in radios to increase their miniaturization and reduce their power consumption. RF systems built around MEMS components such as MEMS-based frequency synthesis including all-digital PLLs, ultra-low power MEMS-based communication systems and a MEMS-based automotive wireless sensor node are described.

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