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A Discriminating Discussion of RF-MEMS

Past, Present and Future of a Repeatedly Hyping Technology, at the Dawn of 6G and Future Networks

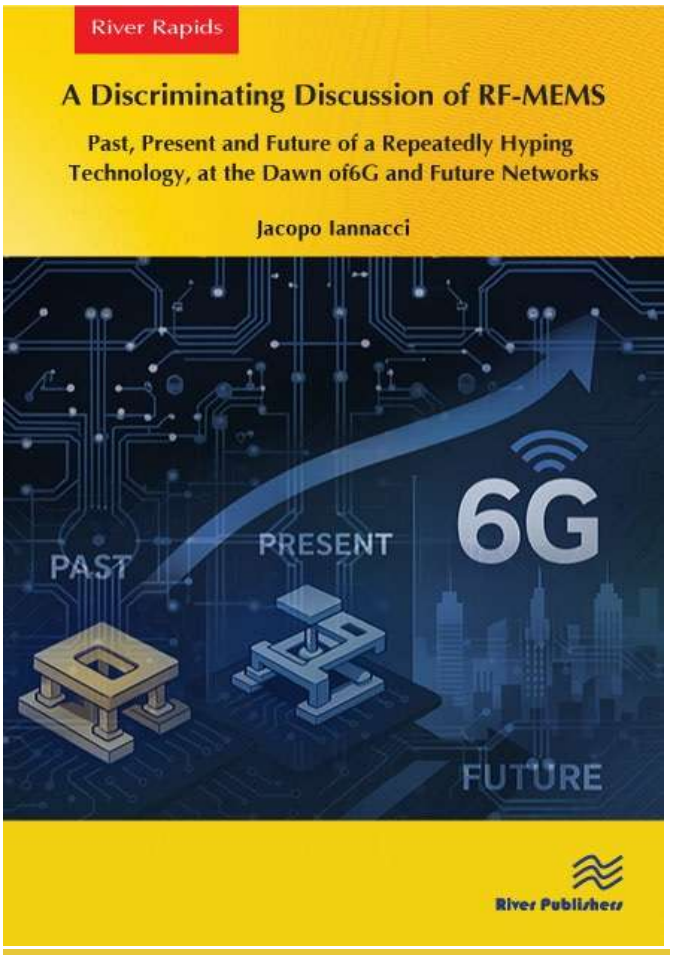
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This book offers a unique bottom-up perspective of a technology for the manufacturing of low-complexity hardware components, which elevates this to a key enabling technology of 6G and future networks. This MEMS-based technology enables the fabrication of highly miniaturized, high-performance, widely tunable/reconfigurable and frequency agile passives, among which are low-loss/high-isolation micro-switches, multi-state RF power attenuators, delay lines and impedance tuners, high-order switching matrices, tunable filters, and more.

The ultimate target of the book is increasing awareness of RF-MEMS technology and its possibilities, breaking the usual boundaries of the restricted scientific community dedicated to microsystems, and engaging scientists, developers and enthusiasts involved in other fields of technology. This includes 6G and future networks, as well as the unprecedented bottom-up design and conceptualization approaches that will be crucial to turn such paradigms into reality.

The book addresses a broad audience, both technical and non-technical, spread across multiple modern disciplines, encompassing microelectronics, micro-technologies, telecommunications, RF and microwave engineering.
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5G, 6G, beyond-5G (B5G), DPDT, frequency agility, future networks, heterogeneous integration, MEMS, microelectromechanical-systems, micro-fabrication, micro-switches, microsystems, microwaves, millimeter waves, mMIMO, multi-state RF passive components, packaging and encapsulation, phase shifters, radio frequency (RF), RF power attenuators, reconfigurability, RF-MEMS, smart antennas, SPDT, SPST, terahertz (THz), tunability, wideband operation.

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