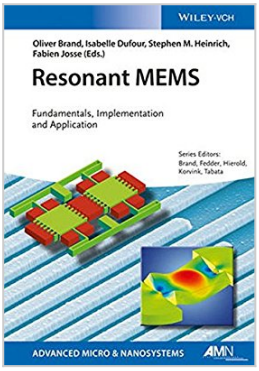

Resonant MEMS: Fundamentals, Implementation, and Application (Advanced Micro and Nanosystems)

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Part of the AMN book series, this book covers the principles, modeling and implementation as well as applications of resonant MEMS from a unified viewpoint. It starts out with the fundamental equations and phenomena that govern the behavior of resonant MEMS and then gives a detailed overview of their implementation in capacitive, piezoelectric, thermal and organic devices, complemented by chapters addressing the packaging of the devices and their stability. The last part of the book is devoted to the cutting-edge applications of resonant MEMS such as inertial, chemical and biosensors, fluid properties sensors, timing devices and energy harvesting systems.

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Editorial Review

From the Back Cover
Resonant microelectromechanical systems (MEMS) are characterized by sub-millimeter-sized components that are able to oscillate. Depending on the actuation method, these resonant MEMS are implemented, e.g., as electrostatic, electrothermal, magnetostatic or piezoelectric devices. The distinct characteristics of these devices such as a wide frequency range, favorable signal-tonoise ratios, reliability, low power consumption and small size make them useful for a variety of applications ranging from sensors to timing devices.

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Fabien Josse is Professor in the Department of Electrical and Computer Engineering and the Department of Biomedical Engineering at Marquette University, Wisconsin, USA. He received the MSc and PhD degrees in Electrical Engineering from the University of Maine, and belongs to the Marquette University faculty since 1982. His research interests include solid state sensors, acoustic wave sensors and MEMS devices for liquid-phase biochemical sensor applications, investigation of novel sensor platforms, and smart sensor systems.

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