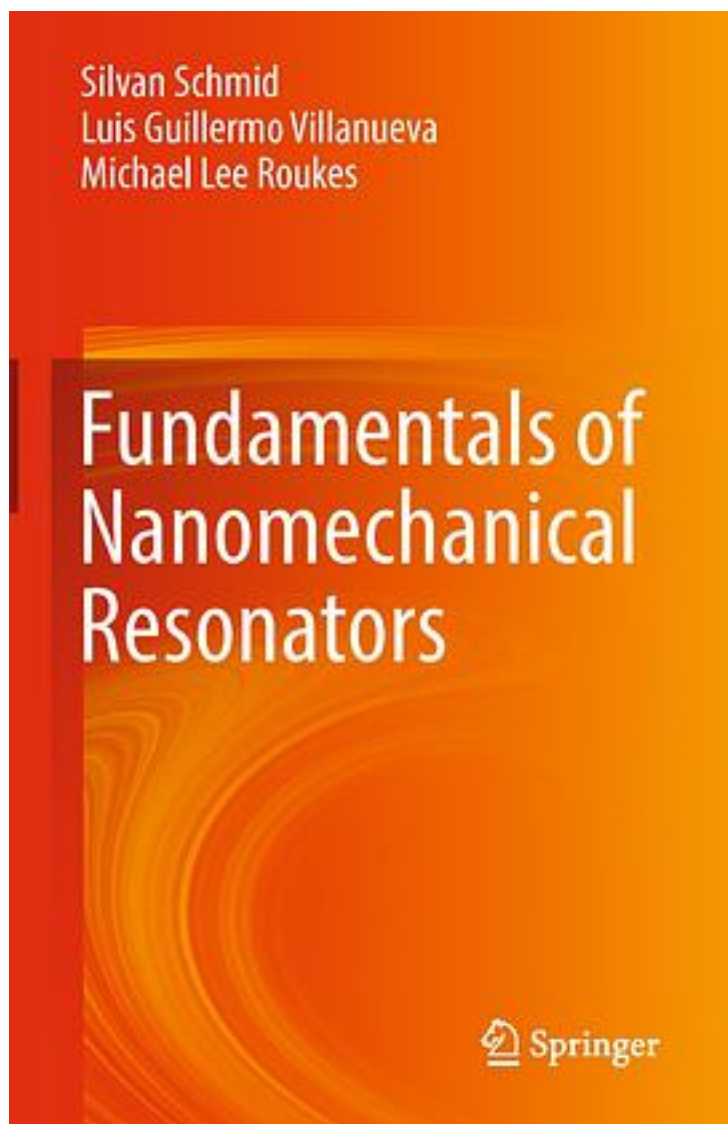


Fundamentals of Nanomechanical Resonators



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著者:Silvan Schmid

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This authoritative book introduces and summarizes the latest models and skills required to design and optimize nanomechanical resonators, taking a top-down approach that uses macroscopic formulas to model the devices. The authors cover the electrical and mechanical aspects of nano electromechanical system (NEMS) devices. The introduced mechanical models are also key to the understanding and optimization of nanomechanical resonators used e.g. in optomechanics.

Five comprehensive chapters address:

The eigenmodes derived for the most common continuum mechanical structures used as nanomechanical resonators;

The main sources of energy loss in nanomechanical resonators;

The responsiveness of micro and nanomechanical resonators to mass, forces, and temperature;

The most common underlying physical transduction mechanisms;

The measurement basics, including amplitude and frequency noise.

The applied approach found in this book is appropriate for engineering students and researchers working with micro and nanomechanical resonators.

作者介绍:

Silvan Schmid is Associate Professor of Micro and Nanotechnology at the Technical University of Denmark. His research focus is in micro- and nanomechanical resonators for sensor applications and fundamental research.

Guillermo Villanueva is Professor at Ecole Polytechnique Federale de Lausanne (EPFL). His fields of expertise are MEMS/NEMS, sensors, oscillators, nonlinear and coupled dynamics, and fundamental noise processes.

Michael Lee Roukes is Robert M. Abbey Professor of Physics, Applied Physics, and Biological Engineering at California Institute of Technology. He was founding Director of Caltech's Kavli Nanoscience Institute from 2003-2006, and Co-Director from 2008-2013.

目录: Front Matter

Pages i-viii

Resonance Frequency

Silvan Schmid, Luis Guillermo Villanueva, Michael Lee Roukes

Pages 1-56

Quality Factor

Silvan Schmid, Luis Guillermo Villanueva, Michael Lee Roukes

Pages 57-90

Responsivity

Silvan Schmid, Luis Guillermo Villanueva, Michael Lee Roukes

Pages 91-114

Transduction
Silvan Schmid, Luis Guillermo Villanueva, Michael Lee Roukes
Pages 115-147
Measurement and Noise
Silvan Schmid, Luis Guillermo Villanueva, Michael Lee Roukes
Pages 149-172
Back Matter
Pages 173-175
• • • • • [\(收起\)](#)

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标签

工程技术

评论

不是很深入，序里面说就是面向工程师。整本书的逻辑框架还可以，个人觉得缺少些这些理论和工程实际结合设计的例子。

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书评

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