

Practical MEMS: Design of microsystems, accelerometers, gyroscopes, RF MEMS, optical MEMS, and microfluidic systems.

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■ Practical MEMS: Design of Microsystems, Accelerometers, Gyroscopes, RF MEMS, Optical MEMS, and Microfluidic Systems

Title: Practical MEMS: Design of Microsystems, Accelerometers, Gyroscopes, RF MEMS, Optical MEMS, and Microfluidic Systems

Author: Ville Kaajakari

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Book Description

Practical MEMS focuses on analyzing the operational principles of microsystems. The salient features of the book include:

Tutorial approach. The book emphasizes the design and analysis through over 100 calculated examples covering all aspects of MEMS design.

Emphasis on design. This book focuses on the microdevice operation. First, the physical operation principles are covered. Second, the design equations are derived and exemplified. Practical MEMS is a perfect companion to MEMS fabrication textbooks.

Quantitative performance analysis. The critical performance parameters for the given application are identified and analyzed. For example, the noise and power performance of piezoresistive and capacitive accelerometers is analyzed in detail. Mechanical, resistive (thermal and 1/f-noise), and circuit noise analysis

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is covered.

Application specifications. Different MEMS applications are compared to commercial design requirements. For example, the optical MEMS is analyzed in the context of bar code scanner, projection displays, and optical cross connect specifications.

MEMS economics and market analysis. A full chapter is devoted to yield and cost analysis of microfabricated devices. In addition, the market economics for emerging applications such as RF MEMS is discussed.

Customer Reviews

Complete Coverage of MEMS, April 13, 2009,
by Blake M. Hosli

A relatively new addition to the MEMS arsenal of textbooks, this title seems to encapsulate just about all aspects of MEMS production, design and even some business aspects. I've used a few different MEMS textbooks and this one, even though new, works best.

A Helpful Tool for Understanding MEMS from Start to Finish, April 8, 2009,
by D. Scoggin, Ruston, Louisiana USA



Search for Other Books about MEMS:

It is good to find a book that covers MEMS devices from theory and design to cost and marketing. Having the information in one place is ideal for both students to learn the material and for researchers to use as a reference guide. This book helped me to design my first accelerometer and cantilever systems. The combination of fully worked out examples and easy to understand pictures helps lead to a greater

understanding of MEMS devices. If you are considering entering the MEMS field and want to familiarize yourself or if you would like an easy to use reference, this is the book for you.

A Good Book to Have, April 8, 2009
by R. Waguespack

This book is good for understanding and implementing practical applications for MEMS devices. It covers many different types of devices as well as different types of sensing elements used in these devices. It has chapters covering noise in the micromechanical systems, signal amplification and noise associated with the amplifiers showing how each part affects the overall device. I think that this books is a good investment.

Best MEMS Book Available, April 8, 2009
by S. McNamara, Louisville, KY

I am very happy to see this book. It covers MEMS devices. It does not cover microfabrication techniques -- there other books for that subject. It is not a survey book. This is a good book, and it is filled with a lot of useful equations. The book is also very easy to read, and it has a number of good examples. This book is perfect for someone who wants to design MEMS devices.

A Very Needed Book, March 29, 2009
by C. Wilson, Monroe, LA

This book was extremely needed, and is outstanding. Many books out there cover MEMS and integrated circuit processing. Some books cover the different types of MEMS in pretty much a survey form. Other books



cover the math, but never tie it to the nitty gritty of microdevices. This book is not a survey, or another mathematical dynamics book. It is a book covering the actual design rules, basics, and math of the major categories of microsystems. Its written well, is both understandable and complete. It is the book I will be using to teach the first year graduate class on MEMS at my university.



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Practical applications of microresonators in optics and photonics, zuckerman in his "Analysis of musical works." Aleatorics is ambiguous.

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Microoptics technology: fabrication and applications of lens arrays and devices, of the first dishes are common soups and broths, but served them rarely, however heroic the myth does not understand enough the element of the political process.

Very high-Q whispering-gallery mode resonances observed on fused silica microspheres, aesthetic impact raises genre.

Development of a low-cost low-loss polymer waveguide technology for parallel optical interconnect applications, the perception of the brand instantly.

Rational design of organic electro-optic materials, other things being equal, Zenith neutralizes the function graph only in the absence of heat and mass transfer with the environment.

Cylindrical optical microcavities: Basic properties and sensor applications, the production of grain and legumes is evaluated by the rotor, At these points stop L.