



Piezoelectric Actuators: Control Applications of Smart Materials

By Seung-Bok Choi, Young-Min Han

Download now

Read Online ➔

Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han

Currently, many smart materials exhibit one or multifunctional capabilities that are being effectively exploited in various engineering applications, but these are only a hint of what is possible. Newer classes of smart materials are beginning to display the capacity for self-repair, self-diagnosis, self-multiplication, and self-degradation. Ultimately, what will make them practical and commercially viable are control devices that provide sufficient speed and sensitivity. While there are other candidates, piezoelectric actuators and sensors are proving to be the best choice.

Piezoelectric Actuators: Control Applications of Smart Materials details the authors' cutting-edge research and development in this burgeoning area. It presents their insights into optimal control strategies, reflecting their latest collection of refereed international papers written for a number of prestigious journals.

Piezoelectric materials are incorporated in devices used to control vibration in flexible structures. Applications include beams, plates, and shells; sensors and actuators for cabin noise control; and position controllers for structural systems such as the flexible manipulator, engine mount, ski, snowboard, robot gripper, ultrasonic motors, and various type of sensors including accelerometer, strain gage, and sound pressure gages.

The contents and design of this book make it useful as a professional reference for scientists and practical engineers who would like to create new machines or devices featuring smart material actuators and sensors integrated with piezoelectric materials. With that goal in mind, this book:

- Describes the piezoelectric effect from a microscopic point of view
- Addresses vibration control for flexible structures and other methods that use active mount
- Covers control of flexible robotic manipulators
- Discusses application to fine-motion and hydraulic control systems
- Explores piezoelectric shunt technology

This book is exceptionally valuable as a reference for professional engineers working at the forefront of numerous industries. With its balanced presentation of theory and application, it will also be of special interest to graduate students studying control methodology.

 [Download Piezoelectric Actuators: Control Applications of S ...pdf](#)

 [Read Online Piezoelectric Actuators: Control Applications of ...pdf](#)

Piezoelectric Actuators: Control Applications of Smart Materials

By Seung-Bok Choi, Young-Min Han

Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han

Currently, many smart materials exhibit one or multifunctional capabilities that are being effectively exploited in various engineering applications, but these are only a hint of what is possible. Newer classes of smart materials are beginning to display the capacity for self-repair, self-diagnosis, self-multiplication, and self-degradation. Ultimately, what will make them practical and commercially viable are control devices that provide sufficient speed and sensitivity. While there are other candidates, piezoelectric actuators and sensors are proving to be the best choice.

Piezoelectric Actuators: Control Applications of Smart Materials details the authors' cutting-edge research and development in this burgeoning area. It presents their insights into optimal control strategies, reflecting their latest collection of refereed international papers written for a number of prestigious journals.

Piezoelectric materials are incorporated in devices used to control vibration in flexible structures. Applications include beams, plates, and shells; sensors and actuators for cabin noise control; and position controllers for structural systems such as the flexible manipulator, engine mount, ski, snowboard, robot gripper, ultrasonic motors, and various type of sensors including accelerometer, strain gage, and sound pressure gages.

The contents and design of this book make it useful as a professional reference for scientists and practical engineers who would like to create new machines or devices featuring smart material actuators and sensors integrated with piezoelectric materials. With that goal in mind, this book:

- Describes the piezoelectric effect from a microscopic point of view
- Addresses vibration control for flexible structures and other methods that use active mount
- Covers control of flexible robotic manipulators
- Discusses application to fine-motion and hydraulic control systems
- Explores piezoelectric shunt technology

This book is exceptionally valuable as a reference for professional engineers working at the forefront of numerous industries. With its balanced presentation of theory and application, it will also be of special interest to graduate students studying control methodology.

Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han
Bibliography

- Sales Rank: #4636163 in Books
- Published on: 2010-04-16
- Original language: English
- Number of items: 1

- Dimensions: 9.25" h x 6.50" w x .75" l, 1.20 pounds
- Binding: Hardcover
- 280 pages

 [Download Piezoelectric Actuators: Control Applications of S ...pdf](#)

 [Read Online Piezoelectric Actuators: Control Applications of ...pdf](#)

Editorial Review

About the Author

Seung-Bok Choi received his Ph.D. in mechanical engineering from Michigan State University, East Lansing, in 1990. Since 1991, he has been a professor at Inha University, Incheon, South Korea. His current research interests include the design and control of functional structures and systems utilizing smart materials such as electrorheological and magnetorheological fluids, piezoelectric materials, and shape memory alloys. He is the author of over 250 archival international journal and book contributions, and 170 international conference publications. He is currently serving as the associate editor of the Journal of Intelligent Material Systems and Structures and Smart Materials and Structures, and is a member of the editorial board of the International Journal of Vehicle Autonomous Systems and the International Journal of Intelligent Systems Technologies and Applications.

Young-Min Han received his Ph.D. in mechanical engineering from Inha University, Incheon, South Korea, in 2005. Since 2006, he has been a research professor at Inha University. His current research interest includes the design and control of functional mechanisms utilizing smart materials such as active mounts, dispensing systems, shock absorbers, robotic manipulators, and human-machine interfaces. Dr. Han is the author of over 30 international journal papers and 20 international conference proceedings.

Users Review

From reader reviews:

Anna Gann:

Hey guys, do you desire to find a new book to learn? Maybe the book with the headline Piezoelectric Actuators: Control Applications of Smart Materials suitable to you? Often the book was written by well-known writer in this era. Often the book entitled Piezoelectric Actuators: Control Applications of Smart Materials is the one of several books which everyone reads now. That book was inspired a lot of people in the world. When you read this review you will enter the new way of measuring that you ever knew prior to. The author explained their thought in the simple way, so all of people can easily know the core of this e-book. This book will give you a lot of information about this world now. In order to see the representation of the world on this book.

James Anderson:

Spent a free time for you to be fun activity to do! A lot of people spent their leisure time with their family, or all their friends. Usually they perform activity like watching television, planning to beach, or picnic in the park. They actually do ditto every week. Do you feel it? Would you like to do something different to fill your own free time/ holiday? Could possibly be reading a book may be an option to fill your free time/ holiday. The first thing that you'll ask may be what kinds of guide that you should read. If you want to try look for book, maybe the book entitled Piezoelectric Actuators: Control Applications of Smart Materials can be a fine book.

to read. May be it might be best activity to you.

Jennifer Stanley:

Often the book Piezoelectric Actuators: Control Applications of Smart Materials has a lot info on it. So when you make sure to read this book you can get a lot of advantage. The book was published by the very famous author. The author makes some research prior to write this book. This particular book very easy to read you can obtain the point easily after reading this article book.

John Almanzar:

Your reading sixth sense will not betray you actually, why because this Piezoelectric Actuators: Control Applications of Smart Materials guide written by well-known writer we are excited for well how to make book that may be understand by anyone who also read the book. Written inside good manner for you, dripping every ideas and publishing skill only for eliminate your own hunger then you still skepticism Piezoelectric Actuators: Control Applications of Smart Materials as good book not merely by the cover but also with the content. This is one reserve that can break don't determine book by its deal with, so do you still needing yet another sixth sense to pick this kind of!? Oh come on your reading sixth sense already alerted you so why you have to listening to another sixth sense.

Download and Read Online Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han #BQ7XPFANT40

Read Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han for online ebook

Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han books to read online.

Online Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han ebook PDF download

Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han Doc

Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han Mobipocket

Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han EPub

BQ7XPFANT40: Piezoelectric Actuators: Control Applications of Smart Materials By Seung-Bok Choi, Young-Min Han