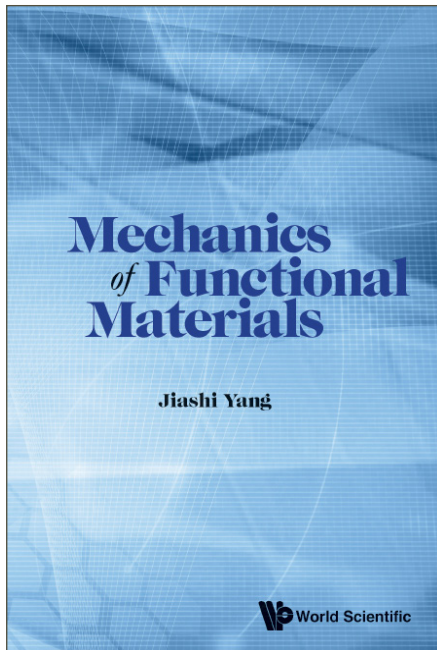


## Mechanics of Functional Materials



By Jiashi Yang  
(*University of Nebraska-Lincoln, USA*)

ISBN 9789811266010

Extent: 240pp, HB

Pub Date: 2023

Price: US\$88

Subject: Engineering / Acoustics

### ABOUT THE BOOK

Conventional books on the mechanics of materials treat elastic deformations of solids through one-dimensional models for the extension of rods, torsion of shafts and bending of beams. In functional materials, mechanical, thermal, electric and magnetic fields interact among themselves, and therefore, need a more comprehensive model.

This book presents a systematic treatment of the three-dimensional theories for these coupled phenomena and the corresponding one-dimensional models for extension, torsion and bending. This book adopts a mixed approach by devoting the first half of the book to the development of the three-dimensional theories of elastic, thermal, electric and magnetic fields as well as their interactions in dielectrics, conductors and semiconductors. The remainder of the book presents the one-dimensional models for extension, torsion and bending systematically.

### READERSHIP

University professors and graduate students, and research and development engineers in civil, mechanical and electrical engineering.

## CONTENTS

- Mechanics of Materials and Elasticity
- Heat Conduction and Thermoelasticity
- Electricity and Magnetism
- Piezoelectric and Piezomagnetic Effects
- Extension of Rods
- Torsion of Shafts
- Bending of Beams

## ABOUT THE AUTHOR

**Jiashi Yang** is a Full Professor at the Department of Mechanical and Materials Engineering of University of Nebraska-Lincoln, USA. His research area is the mechanics of electromechanical structures and devices. He has coauthored over four hundred papers in refereed journals. His previous book publications include *An Introduction to the Theory of Piezoelectricity* with Springer and *Mechanics of Piezoelectric Structures* with World Scientific. He served as an Associate Editor for the *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* from 2004–2020.

For orders and enquiries, please contact us:



**FEELBOOKS PVT. LTD.**

[www.feelbooks.in](http://www.feelbooks.in)

<b>DELHI</b>	4381/4 Ansari Road, Daryaganj, New Delhi 110002 Pushendra Kumar	<b>Mobile:</b> +91 9015043442	<b>Tel:</b> +91-11-47472630 <b>Email:</b> orders@feelbooks.in
<b>BENGALURU</b>	C-22, Brigade MM, KR Road, Jayanagar 7th Block, Bengaluru 560070 Shekar Reddy	<b>Mobile:</b> +91 9945234476	<b>Tel:</b> +91-80-26762129 <b>Email:</b> bangalore@feelbooks.in
<b>MUMBAI</b>	Alok Dube	<b>Mobile:</b> +91 9833435804	<b>Email:</b> adube@feelbooks.in
<b>CHENNAI</b>	G Srinivasan	<b>Mobile:</b> +91 9003047502	<b>Email:</b> gsrinivasan@feelbooks.in
<b>KOLKATA</b>	Dhrubajyoti Bhattacharjee	<b>Mobile:</b> +91 9836160013	<b>Email:</b> dbhattacharjee@feelbooks.in
<b>HYDERABAD</b>	Kundan Kumar.S	<b>Mobile:</b> +91 8106726072	<b>Email:</b> kundan@feelbooks.in

For any queries, please email us at [marketing@feelbooks.in](mailto:marketing@feelbooks.in)