



Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics)

Hongrui Jiang, Xuefeng Zeng

[Download now](#)

[Click here](#) if your download doesn't start automatically

Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics)

Hongrui Jiang, Xuefeng Zeng

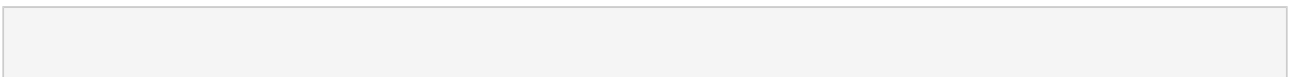
Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) Hongrui Jiang, Xuefeng Zeng

Due to the development of microscale fabrication methods, microlenses are being used more and more in many unique applications, such as artificial implementations of compound eyes, optical communications, and labs-on-chips. Liquid microlenses, in particular, represent an important and growing research area yet there are no books devoted to this topic that summarize the research to date. Rectifying this deficiency, **Microlenses: Properties, Fabrication and Liquid Lenses** examines the recent progress in the emerging field of liquid-based microlenses.

After describing how certain problems in optics can be solved by liquid microlenses, the book introduces the physics and fabrication methods involved in microlenses. It also details the facility and equipment requirements for general fabrication methods. The authors then present examples of various microlenses with non-tunable and tunable focal lengths based on different mechanisms, including:

- Non-tunable microlenses: Ge/SiO₂ core/shell nanolenses, glass lenses made by isotropic etching, self-assembled lenses and lens arrays, lenses fabricated by direct photo-induced polymerization, lenses formed by thermally reflowing photoresist, lenses formed from inkjet printing, arrays fabricated through molding processes, and injection-molded plastic lenses
- Electrically tuned microlenses: liquid crystal-based lenses and liquid lenses driven by electrostatic forces, dielectrophoretic forces, electrowetting, and electrochemical reactions
- Mechanically tunable microlenses: thin-membrane lenses with varying apertures, pressures, and surface shapes; swellable hydrogel lenses; liquid–liquid interface lenses actuated by environmentally stimuli-responsive hydrogels; and oscillating lens arrays driven by sound waves
- Horizontal microlenses: two-dimensional polymer lenses, tunable and movable liquid droplets as lenses, hydrodynamically tuned cylindrical lenses, liquid core and liquid cladding lenses, air–liquid interface lenses, and tunable liquid gradient refractive index lenses

The book concludes by summarizing the importance of microlenses, shedding light on future microlens work, and exploring related challenges, such as the packaging of systems, effects of gravity, evaporation of liquids, aberrations, and integration with other optical components.



 [Download](#) Microlenses: Properties, Fabrication and Liquid Le ...pdf

 [Read Online](#) Microlenses: Properties, Fabrication and Liquid ...pdf

Download and Read Free Online Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) Hongrui Jiang, Xuefeng Zeng

From reader reviews:

John Reed:

The e-book untitled Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) is the publication that recommended to you to learn. You can see the quality of the reserve content that will be shown to you. The language that publisher use to explained their ideas are easily to understand. The article writer was did a lot of investigation when write the book, hence the information that they share to your account is absolutely accurate. You also will get the e-book of Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) from the publisher to make you far more enjoy free time.

Sheila Foxworth:

This Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) is brand new way for you who has intense curiosity to look for some information since it relief your hunger of knowledge. Getting deeper you onto it getting knowledge more you know or else you who still having little digest in reading this Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) can be the light food for you because the information inside this book is easy to get by means of anyone. These books create itself in the form that is reachable by anyone, yeah I mean in the e-book application form. People who think that in e-book form make them feel sleepy even dizzy this book is the answer. So you cannot find any in reading a reserve especially this one. You can find actually looking for. It should be here for an individual. So , don't miss the item! Just read this e-book sort for your better life along with knowledge.

Denise Zimmerman:

Do you like reading a e-book? Confuse to looking for your chosen book? Or your book has been rare? Why so many query for the book? But virtually any people feel that they enjoy to get reading. Some people likes studying, not only science book but in addition novel and Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) or perhaps others sources were given knowledge for you. After you know how the great a book, you feel want to read more and more. Science guide was created for teacher or maybe students especially. Those guides are helping them to put their knowledge. In additional case, beside science reserve, any other book likes Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) to make your spare time considerably more colorful. Many types of book like here.

Richard Forbes:

A number of people said that they feel fed up when they reading a book. They are directly felt it when they get a half portions of the book. You can choose the book Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) to make your reading is interesting. Your current skill of

reading talent is developing when you similar to reading. Try to choose simple book to make you enjoy you just read it and mingle the feeling about book and examining especially. It is to be very first opinion for you to like to open a book and examine it. Beside that the publication *Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics)* can to be your friend when you're really feel alone and confuse using what must you're doing of this time.

Download and Read Online *Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics)* Hongrui Jiang, Xuefeng Zeng #3ZTNGWFJEO5

Read Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) by Hongrui Jiang, Xuefeng Zeng for online ebook

Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) by Hongrui Jiang, Xuefeng Zeng 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 Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) by Hongrui Jiang, Xuefeng Zeng books to read online.

Online Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) by Hongrui Jiang, Xuefeng Zeng ebook PDF download

Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) by Hongrui Jiang, Xuefeng Zeng Doc

Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) by Hongrui Jiang, Xuefeng Zeng Mobipocket

Microlenses: Properties, Fabrication and Liquid Lenses (Series in Optics and Optoelectronics) by Hongrui Jiang, Xuefeng Zeng EPub