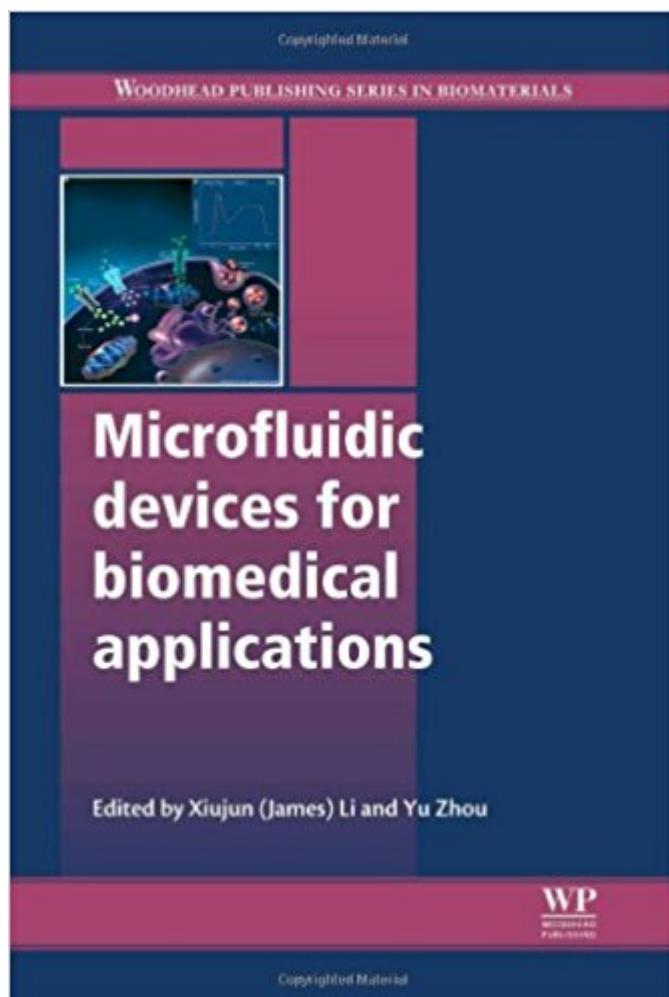


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# Microfluidic Devices For Biomedical Applications (Woodhead Publishing Series In Biomaterials)



## Synopsis

Microfluidics or lab-on-a-chip (LOC) is an important technology suitable for numerous applications from drug delivery to tissue engineering. Microfluidic devices for biomedical applications discusses the fundamentals of microfluidics and explores in detail a wide range of medical applications. The first part of the book reviews the fundamentals of microfluidic technologies for biomedical applications with chapters focussing on the materials and methods for microfabrication, microfluidic actuation mechanisms and digital microfluidic technologies. Chapters in part two examine applications in drug discovery and controlled-delivery including micro needles. Part three considers applications of microfluidic devices in cellular analysis and manipulation, tissue engineering and their role in developing tissue scaffolds and stem cell engineering. The final part of the book covers the applications of microfluidic devices in diagnostic sensing, including genetic analysis, low-cost bioassays, viral detection, and radio chemical synthesis. Microfluidic devices for biomedical applications is an essential reference for medical device manufacturers, scientists and researchers concerned with microfluidics in the field of biomedical applications and life-science industries. Discusses the fundamentals of microfluidics or lab-on-a-chip (LOC) and explores in detail a wide range of medical applications. Considers materials and methods for microfabrication, microfluidic actuation mechanisms and digital microfluidic technologies. Considers applications of microfluidic devices in cellular analysis and manipulation, tissue engineering and their role in developing tissue scaffolds and stem cell engineering.

## Book Information

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## Customer Reviews

"Mechanical and biomedical engineers, chemists, and other contributors briefly introduce the fundamentals of microfluidics, then survey current research into microfluidic devices or lab-on-chip platforms in biomedical applications. Among the topics are: surface coatings for microfluidic-based biomedical devices, actuation mechanisms."--ProtoView.com, March 2014

Assistant Professor, Department of Chemistry, University of Texas at El Paso and at the Harvard University and Wyss Institute. Professor Li is recently rewarded with the UT System STARS Award (\$250,000). The STARS (Science and Technology Acquisition and Retention) program provides funding to help purchase state-of-the-art research equipment and make necessary laboratory renovations to encourage faculty members to perform their research. Yu Zhou, PhD, is a Research Scientist in the Department of Research and Development at ABS Global Inc., USA. Dr Zhou received his Ph.D. degree in mechanical engineering from University of Illinois at Chicago in 2010. After graduation, he joined ABS Global, the world-leading genetics provider company as a key researcher and has been working on the development of a high-throughput microfluidic cytometry for biological cell detection and manipulation. He obtained extensive experience in design and fabrication of silicon-based microsystems and disposal plastic microfluidic chips, precision fluid delivery, and microfluidics-based single cell separation and analysis. He is a member of ASME and serves on the advisory editorial board for several technical journals including *Microsystem Technologies*, and *Journal of Mechanical Engineering Research (Canada)* since 2011.

I bought one hard copy of this book when it was on sale. Although many cutting-edge research topics in microfluidics and lab on a chip are covered in this book, it is still concise and easy to ready. Another important feature of this book that I like it a lot is that the book structure is well organized. Each chapter is organized from basic principles and fundamentals to advanced topics, and conclusion as well future research trends in the areas. Although I read a couple of recent books about microfluidics, this one is the book I like the most. It is a great reference book to recommend.

I am relatively new to this field. I found this book is quite informative. It is a very comprehensive book, because it covers not only the fundamentals like device fabrication, but also many interesting applications such as drug discovery, cell biology, diagnosis and so on. Another feature I like it a lot

is that it cover many new hot research fields, e.g. stem cell, tissue engineering and controlled drug delivery. I also found a couple copies of this book in our university library.

This book covers most important and cutting-edge aspects of microfluidics. One of the most straightforward books for undergraduate and graduate students interesting in microfluidics/lab on a chip.

Excellent overview. Best book for undergrad!

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