

# Recent Developments in Near Field Dynamics Fluid Mechanics and Its Applications

This book presents the latest developments in near field dynamics fluid mechanics and its applications, including microfluidics, nanofluidics, and biofluid mechanics. The book is divided into four parts:



## Vortex Rings and Jets: Recent Developments in Near-Field Dynamics (Fluid Mechanics and Its Applications Book 111)

★★★★★ 5 out of 5  
Language : English  
File size : 19852 KB  
Text-to-Speech : Enabled  
Screen Reader : Supported  
Enhanced typesetting: Enabled  
Print length : 379 pages



1. Fundamentals of near field dynamics fluid mechanics
2. Applications of near field dynamics fluid mechanics in microfluidics
3. Applications of near field dynamics fluid mechanics in nanofluidics
4. Applications of near field dynamics fluid mechanics in biofluid mechanics

The book is written by leading experts in the field and provides a comprehensive overview of the latest research. It is a valuable resource for

researchers, engineers, and students working in the field of fluid mechanics.

## **Part 1: Fundamentals of near field dynamics fluid mechanics**

This part of the book provides an to the fundamental principles of near field dynamics fluid mechanics. The following topics are covered:

- The Navier-Stokes equations
- The boundary layer theory
- The lubrication theory
- The electrokinetic phenomena

This part of the book provides a solid foundation for the subsequent parts of the book, which discuss applications of near field dynamics fluid mechanics in microfluidics, nanofluidics, and biofluid mechanics.

## **Part 2: Applications of near field dynamics fluid mechanics in microfluidics**

This part of the book discusses applications of near field dynamics fluid mechanics in microfluidics. The following topics are covered:

- Microfluidics
- Lab-on-a-chip devices
- Microfluidic sensors
- Microfluidic actuators

This part of the book provides an overview of the latest developments in microfluidics and its applications. It is a valuable resource for researchers, engineers, and students working in the field of microfluidics.

### **Part 3: Applications of near field dynamics fluid mechanics in nanofluidics**

This part of the book discusses applications of near field dynamics fluid mechanics in nanofluidics. The following topics are covered:

- Nanofluidics
- Nanofluidic devices
- Nanofluidic sensors
- Nanofluidic actuators

This part of the book provides an overview of the latest developments in nanofluidics and its applications. It is a valuable resource for researchers, engineers, and students working in the field of nanofluidics.

### **Part 4: Applications of near field dynamics fluid mechanics in biofluid mechanics**

This part of the book discusses applications of near field dynamics fluid mechanics in biofluid mechanics. The following topics are covered:

- Biofluid mechanics
- Blood flow
- Microcirculation
- Biofluid mechanics devices

This part of the book provides an overview of the latest developments in biofluid mechanics and its applications. It is a valuable resource for researchers, engineers, and students working in the field of biofluid mechanics.

This book provides a comprehensive overview of the latest developments in near field dynamics fluid mechanics and its applications. It is a valuable resource for researchers, engineers, and students working in the field of fluid mechanics.



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