

## **Χαρακτηριστικά:**

- Presents comprehensive and up-to-date coverage of the latest research and developments in the field of hemodynamics and biomimetics
- Features contributions from leading researchers and experts in the field who bring together expertise from different disciplines and provide a broad overview of major themes and challenges in the field
- Provides an integrated view of the field, from the microscale to macroscale, from fundamentals to applications
- Combines theory, numerical, and experimental approaches

## **Περιεχόμενα:**

### **Section 1. Numerical methods**

1. Patient specific hemodynamics
2. Two-phase flows (VOF method, Euler-euler methods, Euler-Lagrange methods)
3. Macroscopic rheological properties estimated from microstructure of particle suspension
4. Dissipative Coupling of Fluid and Immersed Objects for Modelling of Cells in Flow
5. Flow of blood cells in microfluidic channels: a dissipative particle dynamics simulation study

### **Section 2. Biomedical applications of microfluidics**

6. Biomechanics of blood cells
7. Techniques to fabricate microparticles for hemodynamic applications
8. Hemodynamics in the Microcirculation and in Microfluidics
9. Applications of inertial microfluidics in biomedical research
10. Properties and applications of PDMS microfluidic devices
11. In vitro hemodynamics

### **Section 3. Biomimetics and bioinspired flows**

12. Review on blood analogue fluids
13. Murray's Law in blood vessel networks
14. Mechanical behavior of bio-inspired systems
15. Flow in microfluidic systems using networks of bio-inspired soft valves
16. Biomimetics of the pulmonary environment in vitro

### **Section 4. Applications to biomedicine**

17. Gas embolisms in small vessels - formation, vessel clogging, flow
18. Pathological Hemodynamics
19. Flow Visualizations in PDMS Cerebral Aneurysm Biomodel
20. Blood flow in a cerebral aneurysm
21. Mechanical characterization of pathological blood

**Section 5. Micro and nano flow applications in organ on chips**

22. PDMS surface modification for microfluidic devices and organ on chip platforms
23. Flow assessment and analysis of oxygen transport in an organ on chip platform
24. Micro/Nanomachines for biomedical applications
25. Effects of microneedle design parameters on hydraulic resistance
26. PDMS Microneedles for organ-on-chip platforms