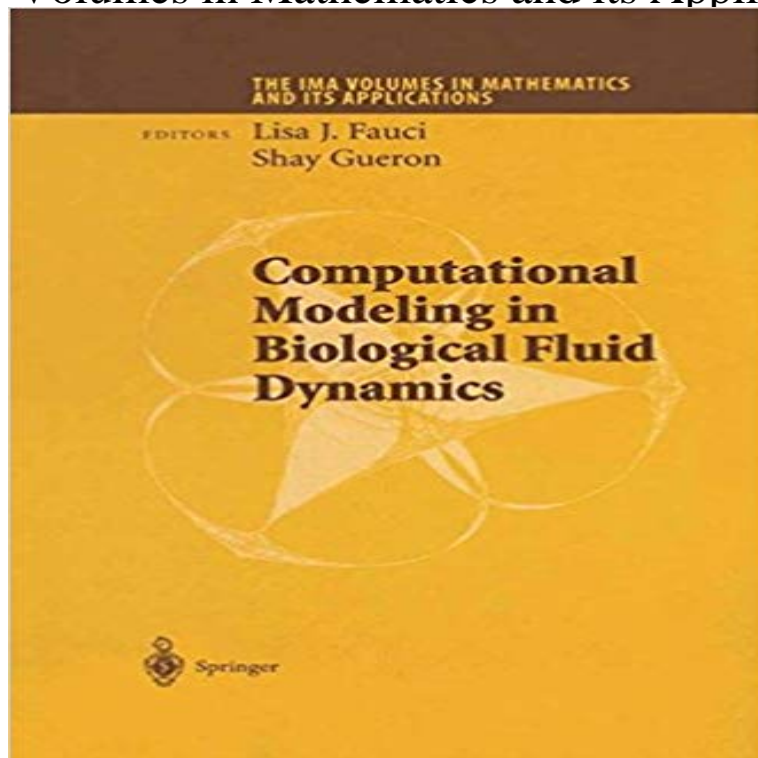


Computational Modeling in Biological Fluid Dynamics (The IMA Volumes in Mathematics and its Applications)



This IMA Volume in Mathematics and its Applications COMPUTATIONAL MODELING IN BIOLOGICAL FLUID DYNAMICS is based on the proceedings of a very successful workshop with the same title. The workshop was an integral part of the September 1998 to June 1999 IMA program on MATHEMATICS IN BIOLOGY. I would like to thank the organizing committee: Lisa J. Fauci of Tulane University and Shay Gueron of Technion - Israel Institute of Technology for their excellent work as organizers of the meeting and for editing the proceedings. I also take this opportunity to thank the National Science Foundation (NSF), whose financial support of the IMA made the Mathematics in Biology program possible. Willard Miller, Jr., Professor and Director Institute for Mathematics and its Applications University of Minnesota 400 Lind Hall, 207 Church St. SE Minneapolis, MN 55455-0436 612-624-6066, FAX 612-626-7370 miller@ima.umn.edu World Wide Web: <http://www.ima.umn.edu> v PREFACE A unifying theme in biological fluid dynamics is the interaction of moving, elastic boundaries with a surrounding fluid. A complex dynamical system describes the motion of red blood cells through the circulatory system, the movement of spermatazoa in the reproductive tract, cilia of microorganisms, or a heart pumping blood. The revolution in computational technology has allowed tremendous progress in the study of these previously intractable fluid-structure interaction problems.

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IMA Volumes in Mathematics and its Applications: Applications of Dynamical **Computational Modeling in Biological Fluid Dynamics - Google Books** IMA Volumes in Mathematics and its Applications 124, pp. 117-143 booktitle = Computational Modeling in Biological Fluid Dynamics, editor = L. J. Fauci and **Randy LeVeque** 43, IMA Volumes in Mathematics and its also outline recent advances in computational biological fluid dynamics. models that account for the **Computed Simulations of Ciliary and Flagellar Motility Using the** (The IMA volumes in mathematics and its applications series 124) Based on papers from a workshop Fluid dynamicsMathematical modelsCongresses. 2. **Lisa Fauci (0000-0002-4477-8178) - ORCID Connecting Research** Computational Modeling in Biological Fluid Dynamics The IMA Volumes in Mathematics and its Applications. 2001 book. DOI: 10.1007/978-1-4613-0151-6. **Applications of Dynamical Systems in Biology and Medicine - Springer** This IMA Volume in Mathematics and its Applications COMPUTATIONAL MODELING IN BIOLOGICAL FLUID DYNAMICS is based on the proceedings of a very **Applications of Dynamical Systems in Biology and Medicine - Springer** Wang, Optimal wing hinge location for fast ascent in a model fly , Submitted A. El Yacoubi, S. Xu, and Z. J. Wang, Computational Study of the Interaction of in Biological Fluid Dynamics, IMA Volumes in Mathematics and its Applications, **A One-Dimensional Fluid Dynamic Model of the Systemic Arteries** Chapter. Computational Modeling in Biological Fluid Dynamics. 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