

1. Record Nr.	UNINA9910360849303321
Titolo	Ocular Fluid Dynamics : Anatomy, Physiology, Imaging Techniques, and Mathematical Modeling // edited by Giovanna Guidoboni, Alon Harris, Riccardo Sacco
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Birkhäuser, , 2019
ISBN	3-030-25886-6
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (606 pages)
Collana	Modeling and Simulation in Science, Engineering and Technology, , 2164-3725
Disciplina	612.84
Soggetti	Mathematical models Biomathematics Mathematics - Data processing Soft condensed matter Mathematical Modeling and Industrial Mathematics Mathematical and Computational Biology Computational Science and Engineering Soft and Granular Matter
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I. Introduction -- Mathematical and physical modeling principles of complex biological systems -- Part II. Blood -- Vascular Anatomy and Physiology of the Eye -- Pathological Consequences of Vascular Hemodynamic Alterations in the Eye -- Measurement of geometrical and functional parameters related to ocular blood flow -- Mathematical modeling of blood flow in the eye -- Part III. Aqueous Humor -- Changes in Parameters of Aqueous Humor Dynamics Throughout Life -- Aqueous Humor Dynamics and its Influence on Glaucoma -- Approaches to Aqueous Humor Outflow Imaging.
Sommario/riassunto	The chapters in this contributed volume showcase current theoretical approaches in the modeling of ocular fluid dynamics in health and disease. By including chapters written by experts from a variety of fields, this volume will help foster a genuinely collaborative spirit

between clinical and research scientists. It vividly illustrates the advantages of clinical and experimental methods, data-driven modeling, and physically-based modeling, while also detailing the limitations of each approach. Blood, aqueous humor, vitreous humor, tear film, and cerebrospinal fluid each have a section dedicated to their anatomy and physiology, pathological conditions, imaging techniques, and mathematical modeling. Because each fluid receives a thorough analysis from experts in their respective fields, this volume stands out among the existing ophthalmology literature. Ocular Fluid Dynamics is ideal for current and future graduate students in applied mathematics and ophthalmology who wish to explore the field by investigating open questions, experimental technologies, and mathematical models. It will also be a valuable resource for researchers in mathematics, engineering, physics, computer science, chemistry, ophthalmology, and more.

---