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Titolo	Fluid Mechanics for Cardiovascular Engineering : A Primer // by Gianni Pedrizzetti
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ISBN	3-030-85943-6
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (231 pages)
Disciplina	616.10754
Soggetti	Fluid mechanics Biomedical engineering Cardiovascular system Physiology Engineering Fluid Dynamics Biomedical Engineering and Bioengineering Biomedical Devices and Instrumentation Cardiovascular Physiology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introductory Elements -- Fluid Dynamics: Conservation Laws -- Fundamentals for Mostly Unidirectional Flow -- Advanced Analysis of Separated Flow.
Sommario/riassunto	This book provides a guiding thread between the distant fields of fluid mechanics and clinical cardiology. Well rooted in the science of fluid dynamics, it drives the reader across progressively more realistic scenarios up to the complexity of routine medical applications. Based on the author's 25 years of collaborations with cardiologists, it helps engineers learn communicating with clinicians, yet maintaining the rigor of scientific disciplines. This book starts with a description of the fundamental elements of fluid dynamics in large blood vessels. This is achieved by introducing a rigorous physical background accompanied by examples applied to the circulation, and by presenting classic and recent results related to the application of fluid dynamics to the cardiovascular physiology. It then explores more advanced topics for a

physics-based understanding of phenomena effectively encountered in clinical cardiology. It stands as an ideal learning resource for physicists and engineers working in cardiovascular fluid dynamics, industry engineers working on biomedical/cardiovascular technology, and students in bio-fluid dynamics. Written with a concise style, this textbook is accessible to a broad readership, including students, physical scientists and engineers, offering an entry point into this multi-disciplinary field. It includes key concepts exemplified by illustrations using cutting-edge imaging, references to modelling and measurement technologies, and includes unique original insights.
