

1. Record Nr.	UNINA9910963119303321
Titolo	The Heart's Vortex : intracardiac blood flow phenomena // Ares Pasipoularides
Pubbl/distr/stampa	Shelton, CT., : People's Medical Publishing House USA Ltd, c2010
ISBN	1-60795-116-9
Descrizione fisica	1 online resource (954 p.)
Altri autori (Persone)	PasipoularidesA
Disciplina	616.1
Soggetti	Hemodynamics Heart - Physiology Heart - Pathophysiology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	""Front matter ""; ""Table of Contents""; ""Part I : Fundamentals of Intracardiac Flows and Their Measurement""; ""1: Introduction""; ""2: Handy Mathematical Instruments of Thought""; ""3: Some Notable Pioneers""; ""4: Fluid Dynamics of Unsteady Flow""; ""5: Micromanometric, Velocimetric, Angio- and Echocardiographic Measurements""; ""6: Cardiac Morphology and Flow Patterns: Structural-Functional Correlations""; ""7: Cardiac Cycle and Central Pressure, Flow, and Volume Pulses""; ""8: Addendum to Chapters 4, 5, & 7: A Gallery of Multisensor Catheter Cardiodynamics"" ""9: Vortex Formation in Fluid Flow""""Part II: Visualization of Intracardiac Blood Flows: Methodologies, Frameworks, and Insights ""; ""10: Cardiac Computed Tomography, Magnetic Resonance, and Real-Time 3-D Echocardiography""; ""11: Postprocessing Exploration Techniques and Display of Tomographic Data""; ""12: Computational Fluid Dynamics, or ""CFD""""; ""13: CFD of Ventricular Ejection""; ""14: CFD of Ventricular Filling: Heart's Vortex""; ""15: Fluid Dynamic Epigenetic Factors in Cardiogenesis and Remodeling"" ""16: A Recapitulation with Clinical and Basic Science Perspectives: Directions of Future Research""""17: Epilogue""; ""Part III: Appendix""; ""Index ""
Sommario/riassunto	This outstanding resource provides a comprehensive guide to intracardiac blood flow phenomena and cardiac hemodynamics,

including the developmental history, theoretical frameworks, computational fluid dynamics, and practical applications for clinical cardiology, cardiac imaging and embryology. It is not a mere compilation of the most up-to-date scientific data and relevant concepts. Rather, it is an integrated educational means to developing pluridisciplinary background, knowledge, and understanding. Such understanding allows an appreciation of the crucial, albeit heretofore generally unappreciated, importance of intracardiac blood flow phenomena in a host of multifaceted functional and morphogenetic cardiac adaptations. The book includes over 400 figures, which were prepared by the author and form a vital part of the pedagogy. It is organized in three parts. Part I, Fundamentals of Intracardiac Flows and Their Measurement, provides comprehensive background from many disciplines that are necessary for a deep and broad understanding and appreciation of intracardiac blood flow phenomena. Such indispensable background spans several chapters and covers necessary mathematics, a brief history of the evolution of ideas and methodological approaches that are relevant to cardiac fluid dynamics and imaging, a qualitative introduction to fluid dynamic stability theory, chapters on physics and fluid dynamics of unsteady blood flows and an intuitive introduction to various kinds of relevant vortical fluid motions. Part II, Visualization of Intracardiac Blood Flows: Methodologies, Frameworks and Insights, is devoted to pluridisciplinary approaches to the visualization of intracardiac blood flows. It encompasses chapters on 3-D real-time and "live 3-D" echocardiography and Doppler echocardiography, CT tomographic scanning modalities, including multidetector spiral/helical dataset acquisitions, MRI and cardiac MRA, including phase contrast veloci
