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Autore	Morales de Luna Tomás
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Nota di contenuto	Chapter 1 A comparison of the Coco-Russo scheme and -FEM for elliptic equations in arbitrary domains -- Chapter 2 A semi-implicit method for a degenerating convection-diffusion-reaction problem modeling secondary settling tanks -- Chapter 3 Multidimensional approximate Riemann solvers for hyperbolic nonconservative systems: a review -- Chapter 4 Challenges in Stochastic Galerkin Methods for Nonlinear Hyperbolic Systems with Uncertainty -- Chapter 5 On the role of momentum correction factor and general tube law in one-dimensional blood flow models for networks of vessels -- Chapter 6 Numerical modelling of the hemodynamic changes in the inferior vena cava in response to the Valsalva maneuver.
Sommario/riassunto	This book presents a curated collection of recent research contributions in the field of nonlinear partial differential equations (PDEs), with an emphasis on hyperbolic problems. These equations are essential for modeling complex physical phenomena such as wave propagation, fluid dynamics, blood flow, and sediment transport. In many real-world applications, the governing equations are not purely hyperbolic but involve intricate interactions with elliptic or parabolic

components. As the field advances through theoretical insights and practical needs, this volume captures innovative developments shaping current research. The contributions included here were originally presented at the 10th International Congress on Industrial and Applied Mathematics (ICIAM), held in Tokyo in 2023. They were selected from minisymposia on hyperbolic PDEs and related topics, each organized by leading experts in the field. The chapters in this book reflect a rich diversity of perspectives and approaches, ranging from rigorous mathematical analysis to computational techniques and real-world applications. By bringing together these works, the volume offers a comprehensive snapshot of the state of the art in hyperbolic PDE research, highlighting both foundational insights and emerging trends. Edited by the organizers of the relevant ICIAM 2023 minisymposia, this book serves as a valuable resource for researchers, practitioners, and graduate students interested in the theoretical and applied aspects of nonlinear PDEs. Whether you are exploring the mathematical underpinnings of wave phenomena or developing models for complex systems in science and engineering, this volume provides both inspiration and practical tools to advance your work.
