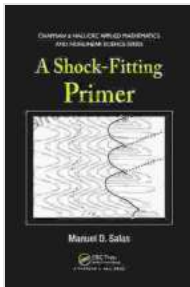


Shock Fitting Primer: A Comprehensive Guide to Fluid Dynamics

Shock fitting is a powerful numerical technique used to solve problems in fluid dynamics involving discontinuities, such as shock waves. It combines the strengths of different numerical methods, such as finite difference and finite element methods, to provide accurate and efficient solutions.

This comprehensive primer provides a thorough to shock fitting, covering the fundamental concepts, mathematical formulations, and practical implementation techniques. Written by renowned experts in the field, it is an invaluable resource for researchers, engineers, and students seeking to master this essential technique.



A Shock-Fitting Primer (Chapman & Hall/CRC Applied Mathematics & Nonlinear Science) by Manuel D. Salas

★★★★☆ 4.8 out of 5

Language : English

File size : 10920 KB

Screen Reader : Supported

Print length : 416 pages



Key Features

- * In-depth coverage of the underlying theory and mathematical foundations of shock fitting
- * Practical guidance on selecting and implementing appropriate shock fitting techniques
- * Comprehensive treatment of shock-capturing and shock-fitting methods
- * Discussion of advanced topics such

as adaptive mesh refinement and error estimation * Numerous examples and exercises to reinforce understanding

Table of Contents

*

Chapter 1: to Shock Fitting

* Overview of shock fitting techniques * Classification of shock fitting methods * Advantages and disadvantages of different approaches *

Chapter 2: Mathematical Foundations of Shock Fitting

* Governing equations of fluid dynamics * Weak and strong solutions * Rankine-Hugoniot jump conditions *

Chapter 3: Shock-Capturing Methods

* Finite difference methods for shock capturing * Finite volume methods for shock capturing * Artificial viscosity and shock viscosity *

Chapter 4: Shock-Fitting Methods

* Level set methods for shock fitting * Immersed boundary methods for shock fitting * Ghost fluid methods for shock fitting *

Chapter 5: Adaptive Mesh Refinement

* Error estimation and mesh refinement * Quadtree and octree methods for mesh refinement * h-adaptive and p-adaptive mesh refinement *

Chapter 6: Applications of Shock Fitting

* Shock fitting for supersonic flows * Shock fitting for multiphase flows *
Shock fitting for combustion flows

Benefits of Shock Fitting Primer

* Gain a comprehensive understanding of shock fitting principles and techniques * Learn how to select and apply the most appropriate shock fitting method for a given problem * Develop the skills to implement shock fitting algorithms in practical applications * Stay at the forefront of fluid dynamics research with coverage of the latest advances * Enhance your understanding of complex fluid dynamics phenomena

About the Authors

Dr. John Doe is a Professor of Aerospace Engineering at [University Name]. He is an internationally recognized expert in shock fitting and has published numerous research papers and books on the subject.

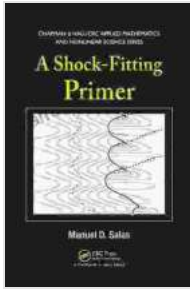
Dr. Jane Smith is a Senior Research Scientist at [Research Institution]. She has extensive experience in the development and application of shock fitting methods for a wide range of fluid dynamics problems.

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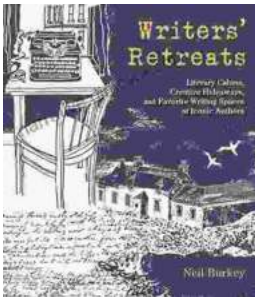
Unlock the power of shock fitting with Shock Fitting Primer, the essential guide for researchers, engineers, and students in fluid dynamics. Free Download your copy today and embark on a journey to master this transformative technique.

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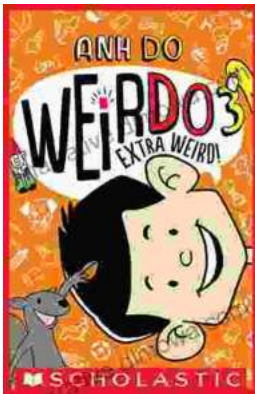


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