

## Hyperbolic and viscous conservation laws

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### Abstrak

Here is an in-depth, up-to-date analysis of wave interactions for general systems of hyperbolic and viscous conservation laws. This self-contained study of shock waves explains the new wave phenomena from both a physical and a mathematical standpoint. The analysis is useful for the study of various physical situations, including nonlinear elasticity, magnetohydrodynamics, multiphase flows, combustion, and classical gas dynamics shocks. The central issue throughout the book is the understanding of nonlinear wave interactions.

The book describes the qualitative theory of shock waves. It begins with the basics of the theory for scalar conservation law and Lax's solution of the Riemann problem. For hyperbolic conservation laws, the Glimm scheme and wave tracing techniques are presented and used to study the regularity and large-time behavior of solutions. Viscous nonlinear waves are studied via the recent approach to pointwise estimates.