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Nota di contenuto	Preface; Introduction; Contents; 1. Constructive Modeling of Free Developed Turbulence - Coherent Structures, Laminar-Turbulent Transition, Chaos; 2. Modeling of Richtmyer-Meshkov Instability; 3. Rayleigh-Taylor Instability: Analysis and Numerical Simulation; 4. Direct Statistical Approach for Aerohydrodynamic Problems; Appendix A Computational Experiment: Direct Numerical Simulation of Complex Gas-Dynamical Flows on the Basis of Euler, Navier-Stokes, and Boltzmann Models; Appendix B Formation of Large-Scale Structures in the Gap Between Rotating Cylinders: the Rayleigh-Zeldovich Problem Appendix C Universal Technology of Parallel Computations for the Problems Described by Systems of the Equations of Hyperbolic Type: A Step to SupersolverAppendix D Supercomputers in Mathematical Modeling of the High Complexity Problems; Appendix E On Nuts and Bolts of Structural Turbulence and Hydrodynamic Instabilities; Appendix F List of the Main Publications of O. M. Belotserkovskii
Sommario/riassunto	The book provides an original approach in the research of structural analysis of free developed shear compressible turbulence at high Reynolds number on the base of direct numerical simulation (DNS) and instability evolution for ideal medium (integral conservation laws) with

approximate mechanism of dissipation (FLUX dissipative monotone "upwind" difference schemes) and does not use any explicit sub-grid approximation and semi-empirical models of turbulence. Convective mixing is considered as a principal part of conservation law.