<<旋度与湍流>>

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内容概要

This book provides an introduction to the theory of turbulence in fluids based on the representation of the flow by means of its vorticity field. It has long been understood that, at least in the case of incompressible flow, the vorticity representation is natural and physically transparent, yet the development of a theory of turbulence in this representation has been slow. The pioneering work of Onsager and of Joyce and Montgomery on the statistical mechanics of two-dimensional vortex systems has only recently been put on a firm mathematical footing, and the three-dimensional theory remains in parts speculative and even controversial.Some practical information about approximation procedures is provided in the book, as well as tools for assessing the plausibility of approximation schemes. The emphasis, however, is on the understanding of turbulence---its origin, mechanics, spectra, organized structures, energy budget, and renormalization. The physical space methodology is natural, and makes the reasoning particularly straightforward. Open questions are indicated as such throughout the book.

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书籍目录

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