DESCRIPTION

Providing a comprehensive grounding in the subject of turbulence, *Statistical Theory and Modeling for Turbulent Flows* develops both the physical insight and the mathematical framework needed to understand turbulent flow. Its scope enables the reader to become a knowledgeable user of turbulence models; it develops analytical tools for developers of predictive tools. Thoroughly revised and updated, this second edition includes a new fourth section covering DNS (direct numerical simulation), LES (large eddy simulation), DES (detached eddy simulation) and numerical aspects of eddy resolving simulation.

In addition to its role as a guide for students, *Statistical Theory and Modeling for Turbulent Flows* also is a valuable reference for practicing engineers and scientists in computational and experimental fluid dynamics, who would like to broaden their understanding of fundamental issues in turbulence and how they relate to turbulence model implementation.

- Provides an excellent foundation to the fundamental theoretical concepts in turbulence.
- Features new and heavily revised material, including an entire new section on eddy resolving simulation.
- Includes new material on modeling laminar to turbulent transition.
- Written for students and practitioners in aeronautical and mechanical engineering, applied mathematics and the physical sciences.
- Accompanied by a website housing solutions to the problems within the book.
ABOUT THE AUTHOR

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Paul Durbin is a research professor within the flow physics and computational engineering department at Stanford University. He and his students carry out computational and modeling research on turbulent and transitional flows, exploring new analytical formulations and testing models in a wide range of applications with the practical aim of improving existing methods for computing engineering flows.

Björn Anders Pettersson Reif spent 4 years post-doc working as an R&D engineer at Kongsberg Defence and Aerospace (Norway) until he started his present position as a senior scientist at the Norwegian Defence Research Establishment. He was also appointed Adjunct Professor in Turbulence Modeling between 2003 and 2009. His research has mainly been dedicated to numerical fluid mechanics, turbulence physics and single-point turbulence modeling.

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