

DNS of Wall-Bounded Turbulent Flows: A First Principle Approach

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Abstrak

This book highlights by careful documentation of developments what led to tracking the growth of deterministic disturbances inside the shear layer from receptivity to fully developed turbulent flow stages. Associated theoretical and numerical developments are addressed from basic level so that an uninitiated reader can also follow the materials which lead to the solution of a long-standing problem.

Solving Navier-Stokes equation by direct numerical simulation (DNS) from the first principle has been considered as one of the most challenging problems of understanding what causes transition to turbulence. Therefore, this book is a very useful addition to advanced CFD and advanced fluid mechanics courses.