

Preface

This report contains the 1988 annual progress reports by the Postdoctoral Fellows of the Center for Turbulence Research. It is intended primarily as a contractor report to the National Aeronautics and Space Administration, Ames Research Center. A separate report entitled, "Studying turbulence using numerical simulation databases -II," covering the 1988 Summer program activities was released earlier this year.

The primary objective of the CTR is to stimulate and produce advances in physical understanding of turbulence, in turbulence modeling and simulation, and in turbulence control. The primary means by which CTR seeks to achieve these objectives is by bringing together key individuals in fields bearing on turbulence to address diverse problems in turbulence. Postdoctoral Research Fellows and students conduct research in collaboration with staff of NASA-Ames Research Center and Stanford faculty members, using a substantial array of research facilities provided by both institutions.

Four thrust areas have been established for research:

1. Fundamental modeling of turbulence
2. Turbulence structure and control
3. Transition and turbulence in high-speed compressible flows
4. Turbulent reacting flows

These program areas have been used in selecting the Research Fellows and also as a guide for turbulence research by graduate students. The CTR roster for 1988 is provided in the Appendix. All Fellows with tenure of more than two months at the Center provided a written report outlining their study and accomplishments which appear in the following pages. The reports are grouped in the general areas of modeling, theory and simulation, compressible and reacting flows, and experimental research.

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