



## Preface

The First International Symposium on Turbulence and Shear Flow Phenomena, TSFP-1, was organized and held September 12–15, 1999 in Santa Barbara, California by the Organizing Committee composed of N. Kasagi (Chair), J.K. Eaton, J.A.C. Humphrey, M.A. Leschziner, M. Sommerfeld and S. Banerjee (Exec. Com. Chair). This new symposium series is the successor to the highly regarded biennial series of Symposia on Turbulent Shear Flows, TSF, which terminated with the eleventh one in Grenoble 1997 (see *Int. J. Heat Fluid Flow*, Vol. 19, 1998, p. 391).

TSF had been playing roles of promoting turbulence research, driving the exploitation of turbulence in engineering technologies and cultivating professional contacts and friendships among the international turbulence-research community for more than twenty years. In addition to fundamentals, experimental studies, turbulence closures and DNS/LES which the previous symposia focused, the new Organizing Committee has decided to substantially broaden the scope of future symposia to reflect the increasing range of technological applications and environmental processes in which turbulence plays a key role. More than 320 extended abstracts were received in response to the announcement of Call for Papers, and 204 papers were selected for oral presentation, and 40 for presentation at the poster sessions. Several keynote papers by leading experts were invited and presented for focal areas of TSFP-1, e.g., biomedical flows, environmental flows, flows with bubbles and particles, turbulence control and LES of combustion.

From these contributions to TSFP-1, the Editors-in-Chief selected some of the best that fell within the scope of the *IJHFF*. The authors invited have expanded and substantially revised their symposium papers by taking into account comments and suggestions given to them through symposium discussions and standard *IJHFF* review processes. The papers herein included are broadly classified into seven areas. The first group concerns fundamental studies of wall turbulence mechanics, while the second deals with some non-canonical flows such as jets and separated flows. The third group focuses on turbulent heat transfer, where the effects of strong heating and density stratification on turbulence are discussed. Then, the work on particle-laden turbulent flows is reported, and subsequently the problems of modern control and modification of turbulence are visited. In the final sixth and seventh groups, recent progress is highlighted in one-point closure modeling, its application to numerical prediction and LES.

The Editors-in-Chief are pleased to publish these selected papers from TSFP-1, and it is our hope that this special issue provides a collection of some of the latest research in turbulence and shear flow phenomena.

N. Kasagi,  
Chairman of TSFP-1

B.E. Launder  
F.W. Schmidt