

ANNOUNCEMENT

IUTAM Symposium on Variable Density Low Speed Turbulent Flows

8–10 July 1996, Marseille, France

OBJECTIVES

This symposium will focus specifically on the structure of low turbulent flows in which density is strongly varying. Density variations mainly concerned here may result from heat or mass transfer, or from chemical reactions.

These turbulent flows are of fundamental interest because the conservation equations for thermodynamics, mass and momentum are linked together. Another interesting fundamental aspect is that such flows—in the jet or wake configuration—can develop self-excited oscillations related to absolute instability of the nozzle region. These density variations occur in many practical situations, such as in the aerospace industry, in pollution and environmental problems, in engine combustion chambers, and so on. One of the aims of this symposium will be to stimulate collaboration between experimental, theoretical and numerical approaches to the problem. Another goal will be to bring together researchers specialized in turbulence and those involved in combustion.

MAIN THEMES

Theoretical and experimental studies of the instability mechanisms for low Reynolds number flows.

Experiments and numerical methods, including DNS and LES, allowing a better understanding of the basic phenomena in the turbulent regime.

Theoretical and numerical studies allowing the development of well-suited modelling, including specific investigations into the various averaging procedures.

Theoretical and numerical studies of the zero Mach-number limit of turbulent reacting flows (topics such as the kinetics of reactions are excluded).

New experimental methods for the measurement of fluctuating scalars with emphasis on scalar dissipation, fluxes and higher-order correlations.

A specific session will focus on the possibility of developing similar strategies for investigating low speed variable density flows and supersonic flows.

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