

VORTEX SHEDDING DYNAMICS IN THE LAMINAR WAKES OF VARIOUS BLUFF BODIES (CYLINDERS, SPHERES AND CONES)

M.PROVANSAL¹, P.MONKEWITZ²

¹ IRPHE Aix-Marseille University, UMR 6594 CNRS,
Technopôle de Château-Gombert,
49 rue F.Joliot-Curie, B.P. 146
13384 Marseille cedex 13 FRANCE

² Laboratory of Fluid Mechanics (LMF),
Swiss Federal Institute of Technology Lausanne (EPFL),
ME B2 485 (building ME), station 9,
CH-1015 Lausanne, SWITZERLAND

michel.provansal@irphe.univ-mrs.fr, peter.monkewitz@epfl.ch

Abstract

The main characteristics of the vortex shedding in the wakes of circular cylinder are recalled and compared to the first bifurcations occurring in the wakes of spheres [1]. The effects of boundary conditions and passive control have been investigated. Extrinsic and intrinsic phenomena might be clarified. The different non-linear modelling of these oscillators are introduced.

In the second part, the results of recent experiments on two cones [2] of different taper ratios in the periodic Reynolds number range (between 40 and 180) are reported. The visualizations of the plan view of the wake with hydrogen bubbles (Fig.) allow to determine local instantaneous frequencies, wavelengths and shedding angles from digital movie. The shedding frequency adjusts in a stepwise manner to the continuous variation of the cone diameter. Our results lead to revisit the original work of Gaster [3].

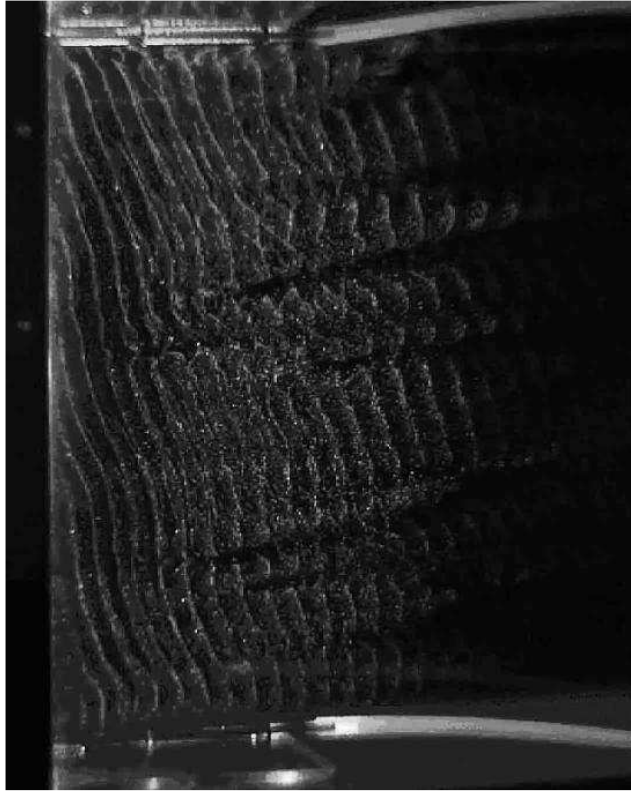


Fig. Visualizations of the vortex lines in the wake of the longer cone

References

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