

Preface

Special issue on axial-flow fluid–structure interactions

This special issue is the second of a series devoted to flow-induced vibrations, related to the Eighth International Conference on Flow-Induced Vibrations (FIV2004) which was held in July 2004, in École Polytechnique, Palaiseau, France. Earlier versions of several of the papers in this issue were first presented in FIV2004.

The conference was a continuation of a very successful series, the first six of which were held in England (most at Keswick in the Lake District) and the seventh, in 2000, in Lucerne, Switzerland. The ninth conference is already in the planning phase and will be held in Prague in 2008. Since the first conference, held in Keswick in 1973, focused on the needs of the nuclear industry, the scope of papers has become progressively broader, addressing a wide range of practical applications and technical domains, ranging from civil engineering and marine structures to aeroelasticity and biomechanics. In this eighth conference, 160 papers were presented, with 210 participants from 30 countries. The breadth of applications is exemplified by the major headings of the topics covered, which included: fluid–structure interaction theory, axial flow and thin walls, tube arrays, piping, gates and turbines, flow-acoustic coupling, two-phase flow, computational methods, biomechanics, ship and offshore applications, vortex-induced vibration, wing aeroelasticity, wind-induced vibration, and bluff bodies. All papers have been published in the proceedings available during the conference (E. de Langre & F. Axisa (Eds.), 2004. *Flow-Induced Vibrations*, École Polytechnique), and many shall appear, in up-dated and expanded versions, in the forthcoming series of special issues in this journal.

The eight papers in this special issue have in common the fact that they all deal with fluid–structure interactions involving slender structures and axial flows. Papers 1 and 2 deal with different aspects of fluid–structure interactions with pipes containing flow, while paper 3 deals with Coriolis mass-flow meters, and paper 4 with cylindrical shells conveying fluid. Papers 5 and 6 deal with different aspects of fluid–structure interactions in veins, and paper 7 with fluid–structure interactions of vocal chords. Finally, paper 8 discusses some not yet fully resolved issues in axial-flow fluid–structure interactions. These papers give a glimpse of the great variety of topics of interest in the realm of fluid–structure interactions with axial flow: some analytical, some experimental, and some numerical. In a forthcoming special issue this year, issue 20(8), other such topics (this time involving plates in axial flow) will be presented.

We take this opportunity to thank the authors for taking the time to update their FIV2004 presentations and the referees for their excellent reviews in extra-fast time, to ensure the timely publication of this special issue. In the case of the papers not related to FIV2004, we thank the authors for agreeing to be part of this special issue; we also thank Associate Editors Professors R.D. Kamm and M. Amabili for handling the reviewing of the two papers involved.

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