



## Fluid–solid interactions: modeling, simulation, bio-mechanical applications

### Foreword

This thematic issue of the *Comptes Rendus Mécanique* contains the texts of the four lectures given 1 June 2004 during a special session of the *Section de Sciences Mécaniques* of the French National Academy of Sciences dedicated to *Fluid–Solid Interactions*; it contains also two additional articles, relevant to the main topics of this session. The above event took place at the Academy, quai de Conti, in Paris.

For many scientists and engineers *fluid–solid interaction = aero-elasticity*; this was never true, but one has to acknowledge that for many years aero-elasticity has been the dominating topic of this theme. It is our opinion that the situation is dramatically changing due to the strong emergence of applications from *bio-mechanics*, in particular those related to the *cardio-vascular system*. One of the main objectives of this special issue is to reflect this evolution by presenting research oriented articles discussing the modeling and simulation of fluid–elastic solid interactions, with a strong emphasis on cardio-vascular applications; it contains also articles related to particulate flow (in the spirit of [1]). All together these articles offer a perspective of fluid–solid interactions going beyond aero-elasticity. We definitely hope that this volume will motivate further investigations in an area very rich in complicated and interesting problems, related to important applications from Science and Engineering, and whose solution offers exciting challenges to the Modeling and Simulation communities.

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#### References

- [1] M.C. Rocco (Ed.), *Particulate Two-Phase Flow*, Butterworth–Heinemann, Boston, MA, USA, 1993.

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