



Fluid & Elasticity 2009

June 23-26, 2009
Carry-le-Rouet, France



Conference Program

Tuesday, June 23

9:00 – 9:30 Registration and opening talk

9:30 – 10:10 Aeroelasticity I (Chair: M. Shelley)

- F. J. Huera-Huarte
Vortex modes in the wake of flexible circular cylinders with POD and fuzzy clustering
- E. Duarte Gutierrez, M. E. Marin Mejia, A. Cros
Membrane oscillation under periodic excitation

10:10 – 10:40 Coffee break

10:40 – 12:00 Aeroelasticity II (Chair: M. Shelley)

- N. Favrie, S. L. Gavriluk, R. Saurel
Diffuse solid-fluid interface model in cases of extreme deformations
- P. Buchak, P. M. Reis, C. Eloy, J. Bush
The clapping book: wind-driven oscillations in a stack of elastic sheets
- F. Gosselin, E. de Langre
Drag reduction by reconfiguration of flexible plates
- P. Sváček, M. Feistauer, J. Horáček
On comparison of laminar and turbulent flow models in aeroelastic problems with large amplitudes

12:00 – 14:30 Lunch break

14:30 – 15:15 Invited speaker (Chair: E. Lauga)

- A. E. Hosoi
Optimizing low Reynolds number locomotion

15:15 – 16:35 Microswimming I (Chair: E. Lauga)

- A. Andersen, T. Bohr, H. H. Jakobsen, T. Kiørboe, V. J. Langlois
Hydrodynamics of attacking, swimming, and escaping copepods
- D. Saintillan
The rheology of active particle suspensions: kinetic theory
- N. Coq, O. du Roure, M. Fermigier, D. Bartolo
Helical beating of an elastic filament
- K. Drescher, K. Leptos, I. Tuval, T. Ishikawa, T. J. Pedley, R. E. Goldstein
Dancing Volvox : Hydrodynamic bound states of swimming algae

16:35 – 17:05 Coffee break

17:05 – 18:45 Microswimming II (Chair: A. Hosoi)

- O. du Roure, A. Babataheri, M. Roper, M. Fermigier
Tethered fleximags as artificial cilia
- E. Lauga
Propulsion by surface distortion in complex fluids
- M. Polin, I. Tuval, R. Goldstein
Flow induced flagellar synchronization in Volvox carteri
- D. Bartolo, E. Lauga
Collective locomotion of soft active particles
- E. Wandersman, O. du Roure, A. Lindner, M. Fermigier
Buckled in translation

Wednesday, June 24

8:00 – 8:45 Invited speaker (Chair: T. J. Pedley)

- M. Shelley
Microscale instability and mixing in driven and active complex fluids

8:45 – 10:05 Biomechanics I (Chair: T. J. Pedley)

- M. Argentina, L. Mahadevan
A model describing fish locomotion
- S. Chatkaew, M. Georgelin, M. Leonetti
Unbinding dynamics of lipidic membrane near a substrate
- J. D. Eldredge, J. Toomey, M. M. Wilson, D. Pisani
High-fidelity computational studies of canonical problems in biomorphic locomotion
- R. Godoy-Diana
Experimental studies on model flapping-wings

10:05 – 10:35 Coffee break

10:35 – 11:55 Biomechanics II (Chair: T. J. Pedley)

- A. Leroyer, M. Visonneau, M. Porez, F. Boyer
Eel-like body swimming : extension of the elongated body theory of Lighthill, RANSE simulations and optimisation
- P. Marmottant
Study of the ultrafast trap of an aquatic carnivorous plant
- X. Noblin, J. Westbrook, M. Argentina, J. Dumais
Biomechanics of fern spores discharge
- J. Walter, A.-V. Salsac, D. Barthès-Biesel
Motion of a capsule in a simple shear flow: Coupling of finite element and boundary integral methods

11:55 – 16:00 Lunch break

16:00 – 16:45 Invited speaker (Chair: M. Heil)

- A. Bottaro
Hairfoils: passive actuators for flow control

16:45 – 18:45 Compliant walls (Chair: M. Heil)

- E. J. Brambley
The fluid-solid boundary condition for uniform flow over a compliant surface
- C. Brückner
Near wall turbulence control via flexible micro-hairs
- J. Hoepffner, A. Bottaro, J. Favier
Transient mechanisms in fluid systems with elasticity
- A. D. Lucey, M. W. Pitman
Eigen-analysis of fluid-loaded compliant panels
- M. Hosseini, S. A. Fazlzadeh
Fluid-Elastic interaction of spinning functionally graded thin-walled pipes conveying high temperature flow
- A. Song, K. Breuer
Vortex-induced flapping and twisting of a compliant plate

20:00 Special dinner

Thursday, June 25

8:00 – 8:45 Invited speakers (Chair: J. Bush)

- B. Roman, J. Bico
Capillarity and elasticity

8:45 – 10:05 Capillarity and Drops I (Chair: J. Bush)

- A. Antkowiak, C. Josserand
Dynamical origami
- M. Piñeirua, B. Roman, J. Bico
Actuating capillary origami with electrowetting
- E. de Langre, C. N. Baroud, P. Reverdy
Energy criteria for elasto-capillary wrapping
- H. Lhuissier, E. Villermaux
Soap films burst like flapping flags

10:05 – 10:35 Coffee break

10:35 – 12:15 Capillarity and Drops II (Chair: J. Bico)

- R. E. Pepper, L. Courbin, H. A. Stone
Splashing on elastic membranes: The importance of early-time dynamics
- J. W. Bush, S. Jung, C. Clanet
Spider capture thread: form and function
- A. Ponomarenko, C. Clanet, D. Quéré
Falling drops over elastic sheets
- P. M. Reis, S. Jung, C. Clanet, J. Bush
Grabbing water with thin elastic sheets: the elasto-pipette
- N. Vandenberghe, R. Vermorel, E. Villermaux
Impacts on thin elastic sheets

12:15 – 15:00 Lunch break

15:00 – 15:45 Invited speaker (Chair: S. Alben)

- E. de Langre
Plant dynamics under wind load: strategies and solutions

15:45 – 16:45 Flow-Induced Vibration I (Chair: S. Alben)

- S. Michelin, S. G. Llewellyn Smith
Flapping of flexible membranes in high-Re flows and applications to locomotion
- O. Doaré
Effect of dissipation on local and global stability of a fluid conveying pipe
- W.-X. Huang, H. J. Sung
Three-dimensional simulation of a flapping flag in a uniform flow

16:45 – 17:15 Coffee break

17:15 – 18:35 Flow-Induced Vibration II (Chair: E. de Langre)

- S. Alben
The flapping-flag instability as a nonlinear eigenvalue problem
- A. Manela, M. S. Howe
The motion and sound of a forced flag
- B. Ricaud, P. Guillemain, J. Kergomard, F. Silva, C. Vergez
Bifurcations and periodic regimes in woodwind instruments
- P. Šidlof, O. Doaré, A. Chaigne
Flow separation in flow-induced vibration of human vocal folds

Friday, June 26

8:30 – 9:15 Invited speaker (Chair: A. Bottaro)

- M. Heil
Theoretical and computational analysis of flow in collapsible tubes

9:15 – 10:35 Internal Flows I (Chair: A. Bottaro)

- M. Astorino, F. Chouly, M. A. Fernandez
An added-mass free semi-implicit coupling scheme for fluid-structure interaction arising in blood flows
- J. D. Berry, M. C. Thompson, J. Carberry
Characterisation of the forces and deformation experienced by an adhered cell
- F. Gallaire, V. Duclaux, C. Clanet
A mechanical view on abdominal aortic aneurysms
- A. Juel, A. Heap
Anomalous bubble propagation in elastic tubes

10:35 – 11:05 Coffee break

11:05 – 12:05 Internal Flows II (Chair: A. Bottaro)

- R. Kudenatti, N. M. Bujurke, T. J. Pedley
Oscillations and instability of high-Reynolds-number flow in a collapsible channel
- D. Pihler, T. J. Pedley
A quasi-one-dimensional model for collapsible channel oscillations
- H. Woolfenden, M. Blyth
Transit of an elastic capsule through a branching channel

12:05 Closing ceremony

12:15 Lunch

Scientific committee

- T. J. Pedley, **Co-Chair** (Univ. of Cambridge, UK)
- S. Alben (GeorgiaTech, USA)
- D. Barthes-Biesel (Univ. of Compiègne, France)
- A. Bottaro (Univ. of Genoa, Italy)
- J. W. M. Bush (MIT, USA)
- M. Fermigier (ESPCI, France)
- M. Heil (Univ. of Manchester, UK)
- A. E. Hosoi (MIT, USA)
- E. de Langre (Ecole Polytechnique, France)
- E. Lauga (UCSD, USA)
- M. P. Païdoussis (McGill Univ., Canada)
- B. Roman (ESPCI, France)
- M. Shelley (Courant Institute, USA)

Local organizing committee

- C. Eloy, **Co-Chair** (IRPHE, France)
- O. Doaré (ENSTA, France)
- L. Duchemin (IRPHE, France)
- L. Schouveiler (IRPHE, France)

Instructions for speakers

Contributed talks will be assigned 17 minutes for presentation, with an additional 3 minutes for questions and change of speaker.

The conference room will be equipped with a PC (capable of displaying PDF and Powerpoint presentations) and an LCD projector. Alternatively speakers may wish to bring and use their own laptop, but should test their presentation beforehand.

If any additional equipment is required, speakers should contact the Organizing Committee:
fe09@irphe.univ-mrs.fr

Information

website: <https://www.irphe.univ-mrs.fr/~fe09>
email: fe09@irphe.univ-mrs.fr