



# Andrea Fani

## Education

- 2010–2013 **Ph.D. in fluid mechanics**, *University of Pisa*, Pisa.
  - Thesis: *Global stability analysis of 2D and fully 3D incompressible flows with applications to flow control*. Under the supervision of Maria Vittoria Salvetti and Simone Camarri
- 2003–2009 **Bachelor and master in aerospace engineering**, *University of Pisa*, Pisa, *110 cum laude*.
  - Final topic: Performance of a multihull sailboat in upwind conditions

## Work history

- 2013–current **PostDoctoral fellow**, *Ecole Polytechnique Fédérale de Lausanne (EPFL)*, Switzerland.
  - Laboratory of Fluid mechanics and instabilities
  - Teaching: Discretization methods in fluid mechanics
  - Supervision of grad students and Ph.D. mentoring
- 2010–2013 **Teaching assistant**, *University of Pisa*, Italy.
  - Course: Analytical mechanics
  - Supervision of master and bachelor students for their final topic exam
- 2009 **Research internship**, *University of Pisa*, Italy.
  - Collaboration with America's Cup team +39 for the design of a multihull sailboat

## Languages and skills

- Proficiency in programming: C, Fortran 77, Matlab, Python, MPI
- Proficiency in numerics: FreeFem++, Gerris, NEK5000, PETSc, SLEPc
- Languages: Italian (mother tongue), English (fluent), French (basic)

## List of publications

- A. Fani**, S. Camarri and M.V. Salvetti, *Stability analysis and control of the flow in a symmetric channel with a sudden expansion*, **Physics of fluids**, 24(8):084102, 2012
- A. Fani**, S. Camarri and M.V. Salvetti, *Investigation of the steady engulfment regime in a three-dimensional T-mixer*, **Physics of fluids**, 25(6):064102, 2013
- A. Fani**, S. Camarri and M.V. Salvetti, *Unsteady asymmetric engulfment regime in a T-mixer*, **Physics of fluids**, 26:074101, 2014
- A. Fani**, F. Gallaire, *The motion of a 2D pendulum in a channel subjected to an incoming flow*, **Journal of Fluid Mechanics**, 764, 5–25, 2015
- E. Boujo, **A. Fani**, F. Gallaire, *Second-order sensitivity of parallel shear flows and optimal*

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*spanwise-periodic flow modification*, **Submitted to Journal of Fluid Mechanics**

- L. Siconolfi, **A. Fani**, S. Camarri and M.V. Salvetti, *Investigation of the engulfment regime in Y-junction*, In preparation
- L. Augello, **A. Fani**, F. Gallaire, *Influence of confinement in dripping to jetting transition*, In preparation
- **A. Fani**, M. Nagel, F. Gallaire, *Motion of a disk-shaped particle in a Hele-Shaw channel*, In preparation

## Conferences

- Stability and control of the flow in a plane channel with a sudden expansion, **European Post-graduate Fluid Dynamics Conference**, 2011, Goettingen. *Oral presentation*
- Stability analysis and control of the flow in a symmetric channel with a sudden expansion, **AIMETA**, 2011, Bologna. *Oral presentation*
- Passive control of the flow in a symmetric channel with a sudden expansion based on linear stability analysis, **APS Division of Fluid Dynamics**, 2011, Baltimore. *Oral presentation*
- Stability analysis of the flow inside a T-shaped micro-mixer, **European Fluid Mechanics Conference**, 2012, Rome. *Oral presentation*
- Stability and sensitivity analyses of the engulfment regime in a three dimensional T-shaped micro-mixer, **APS Division of Fluid Dynamics**, 2012, San Diego. *Oral presentation*
- Sensitivity of the engulfment to inlet flow conditions in a T-shaped micro-mixer: CFD and perturbation analysis, **European Conference on Microfluidics**, 2012, Heidelberg. *Oral presentation*
- A 2D pendulum submitted to an incoming flow: drag acting like gravity and new instabilities. **APS Division of Fluid Dynamics**, 2013, Pittsburgh. *Oral presentation*
- Linear analysis of 2D pendulum subjected to an incoming flow. **European Fluid Mechanics Conference**, 2014, Copenhagen. *Oral presentation*
- Unsteady regimes in a T-mixer. **European Fluid Mechanics Conference**, 2014, Copenhagen. *Oral presentation*

## References in alphabetical order

- **Simone Camarri**  
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- **François Gallaire**  
Ecole Polytechnique Fédérale de Lausanne, EPFL STI SGM-GE ME A2 390, Station 9, CH-1015, Lausanne, Switzerland, Office phone: +41 21 69 33365, e-mail: francois.gallaire@epfl.ch
- **Maria Vittoria Salvetti**  
University of Pisa, Largo Lucio Lazzarino 2, 56126, Pisa, Italy, Office phone: +39050 2217262, e-mail: mv.salvetti@dia.unipi.it

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