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26 years old

Gaby Launay

Current situation : TA at the LMFA of Lyon (France)
Research interest on chaos theory applied to acoustic-driven cavity flows.

Research experiences

2016–today **Research assistant**.
Non-linear dynamics theory applied to the transition to chaos of acoustic-driven cavity flows.
Laboratory : Dept. of complex fluids and transfer, LMFA, Lyon, France.

2013–2016 **PhD in fluid mechanics**.
Interaction between a free-surface flow and an emerging obstacle : Experimental study of the evolution of the structure and dynamics of the horseshoe vortex.
Defended the 17th November 2016 at the "Ecole Centrale of Lyon" (France).
Laboratory : LMFA, Lyon, France
Jury members : Pr. Jacques Boree, *Reporter, President*
Pr. Lionel Schouveiler, *Reporter*
Ass. Pr. Hélène Roux, *Examiner*
Ass. Pr. Emmanuel Mignot, *Examiner*
Pr. Richard Perkins, *Advisor*
Pr. Nicolas Rivière, *Co-advisor*

2012–2013 **Master internship in fluid mechanics**.
Experimental study of the properties of a shear thinning fluid in HIT (Homogeneous and Isotropic Turbulence) by PIV (Particle Image Velocimetry).
Laboratory : LMFA, Lyon, France.
Supervisor : Pr. Serge Simoens

Academic background

2012–2013 **Master degree in fluid mechanics**, *UCBL (Claude Bernard University of Lyon).*
Courses : Flow stability, experimental methods (PIV, hot wire, LDA), turbulence, statistical and physical mechanics and numerical fluid mechanics.

2011–2012 **Internship in numerical development**, *6 months.*
Implementation of a turbulence model in an innovative CFD code (Finite pointset method).
Company : ESI Group, Lyon, France.

2008–2013 **Mechanical engineer**, *INSA (National Institute of Applied Sciences)*, Lyon.

2008 **Scientific high school degree**.

Teaching experience

2016–2017 **Teacher assistant in fluid mechanics**, *INSA, Lyon.*
Master level :
144h of laboratory (head loss, centrifugal pump, debit measurement)
96h of tutorials (fluid static and kinematic, NS equations, notions of turbulence, turbomachinery, boundary layer)

2013–2016 **Teaching in fluid mechanics**, *INSA, Lyon.*
Master level : 92h of practical work, 44h of tutorials
Bachelor level : 56h of engineering projects (as supervisor)

2013–2016 **Hydraulic technician training**.
Technician from EDF company :
40h of practical work (debit measurement, head loss, Bernoulli equation)

Supervising

2016–2017 **Master degree internship**.
Chaotic mixing on acoustic-driven cavity flows.
Co-directed by Pr. Florence Raynal.

2014–2015 **Master degree internship**.
Super-critical flow around emerging obstacles. (Associated publication below)
Co-directed by Pr. Nicolas Rivière.

2013–2014 **Supervision of a TIPE (supervised personal work of initiative)**.
Validation of velocity profiles measured on a developing boundary layer.
Project of a student in preparatory class.

Communications

International communications

- Mignot, E., W. Cai, **G. Launay**, N. Riviere, and C. Escauriaza.
  Coherent Turbulent Structures at the Mixing-Interface of a Square Open-Channel Lateral Cavity. *Physics of Fluids 28, n° 4 (2016) : 045104.*
- Rivière N., G. Vouaillat, **G. Launay** and E. Mignot.
  Emerging Obstacles in Supercritical Open-Channel Flows : Detached Hydraulic Jump versus Wall-Jet-Like Bow Wave. *Journal of Hydraulic Engineering, 2017, 04017011..*

Submitted communications

- Launay, G., E. Mignot, N. Riviere and R. Perkins.
  On the laminar horseshoe vortex around an emerging obstacle : Experimental investigation of the regime transitions. *Submitted to "Journal of Fluid Mechanics".*
- Launay, G., E. Mignot and N. Riviere.
  Laminar free-surface flow around emerging obstacles : Impact of the obstacle elongation. *Submitted to "Physics of Fluids".*

Conferences

- Launay, G., E. Mignot and N. Riviere.
  Flow around emerging obstacles : Experimental study of the laminar horseshoe vortices dynamic.
  11th European fluid mechanics conference, 12th to 16th september 2016, Seville, Spain.
- Launay, G., E. Mignot and N. Riviere.
  Interaction between a free-surface flow and an emerging obstacle : Experimental study of the horseshoe vortex structure
  22th French congress of mechanics, 24th to 28th august 2015, Lyon, France.

Seminaries and presentations

Feb. 2016 *Invited speaker at the LEGI, Grenoble, France.*
Nov. 2014 *Internal seminar at the LMFA.*
Oct. 2014 *Invited speaker for the Runoff and thin-films research group (GDR).*
Mars 2014 *Invited speaker at the LEGI.*

Skills

French	Native language
English	Read, spoken, written (TOEIC : 920)
Experimental	Laser velocimetry (PIV), Velocimetry by fluorescence (FPIV), Velocimetry acoustic by Doppler effect
Data analysis	Non-linear time series analysis, Coherent structures detection, Image analysis, Complex data visualization, Statistical analysis
Languages	Python, Matlab, C++, ELisp
Publishing	Emacs, Latex, Inkscape (vectorial drawing), Gimp, Matplotlib.