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## **PROFESSOR AT UNIVERSITÉ DE LILLE / IEMN LABORATORY JUNIOR FELLOW OF INSTITUT UNIVERSITAIRE DE FRANCE**

### **CURRENT AND PREVIOUS POSITIONS**

Since 10/2019 **Junior fellow of Institut Universitaire de France** (Academic Institute of France)  
Since 09/2016 **Professor at University Lille 1, Researcher at IEMN laboratory**, France  
2008-2016 **Assistant professor at University Lille 1, Researcher at IEMN laboratory**, France  
01 to 09 /2008 **Postdoctoral fellow in microfluidics at Ecole Polytechnique, LadHyX**. Topic: “Two phase flows in microfluidic networks”, Advisors: C. Baroud, P. Manneville

### **EDUCATION**

2015 **Habilitation à diriger des recherches, Université Lille 1, Jury:** President: S. Zaleski / Reviewers: B. Dollet, J. Bico, A. Bouakaz / Members: H. Bruus, J. Magnaudet, O.B. Matar, F. Zoueshtiagh  
2008 **Ph.D. Award in Acoustics and Fluid Mechanics (delivered the 11th January 2008), University Paris 6**. Topic: “Nonlinear acoustics and multiple scattering in suspensions of rigid particles”, PhD advisors: F. Coulouvrat, J.L. Thomas  
2004 **MSc in Fluid Mechanics, University Paris 6**, with First Class Honors  
2004 **MSc in Mechanical engineering at ENSTA ParisTech** (one of the leading School of Engineering in France)

### **RESEARCH ACTIVITIES**

The overall scope of my research activities focuses on subjects at the interface between interfacial fluid mechanics, biomechanics, acoustics and microsystems:

- **Design and physical study of microsystems based on surface acoustic waves (SAWs) for the manipulation of fluids and particles at micro-scales.** In particular, we developed recently some selective acoustical tweezers based on some specific wavefields called acoustical vortices.
- **Interfacial flows in networks and associated sounds.** We aim at improving the physical understanding of the dynamics of liquid plugs in complex networks and the sound produced by their rupture. This project is related to the flows appearing in lungs in pathological conditions.
- **Multiple scattering of acoustic waves by complex media.** We use statistical models to describe the propagation of acoustic waves in complex media.

### **PUBLICATIONS / CONFERENCES**

- **24 publications** (Science Adv., PNAS, Phys. Rev. Lett., JFM, Phys. Rev. Appl., Med. Eng. & Phys., Phys. Rev. E, Soft Matter, Lab on Chip, App. Phys. Lett., JASA) + 1 Submitted (JFM) + 4 conference papers
- **3 patents** (WO2017157426, WO201709776O, EP16 305601.3), 2 on acoustical tweezers + 1 on active slippery surfaces + 1 submitted (EP17198204)
- **8 invited talks in international conferences (one opening Keynote lecture):** ASA 2018, Canada/ AFPAC 2018, UK / AFO 2018, UK / 4<sup>th</sup> Acoustofluidics 2016, Denmark (Keynote) / 171th ASA meeting 2016, USA / IEEE Int. Ultras. Symp 2015, Taiwan / Acoustics 2012 Hong Kong / 6<sup>th</sup> IEEE-NEMS conference 2011, Taiwan
- **3 invited lectures at Summer schools** (“Complex Motion in Fluids 2019” Denmark, “Acoustofluidics 2016” Porquerolles (France), “Nonlinear Acoustics 2014”, Oléron (France))
- **More than 30 communications** in peer-reviewed international conferences

### **Research highlights:**

- [1] M. Baudoin et al., *Science Adv.*, 5: eaav1967 (2019) [  
2] A. Riaud, M. Baudoin, et al., *J. Fluid Mech.*, 81: 384-420 (2017), **highlighted in «Focus on Fluids», Cambridge University Press**  
[3] I. Bihi, M. Baudoin, J.E. Butler, C. Faille, F. Zoueshtiagh, *Phys. Rev. Lett.*, 117: 034501 (2016)  
[4] F. Zoueshtiagh, M. Baudoin, D. Guerrin, *Soft Matter*, 10 (47): 9403-9412 (2014), **Front cover, Highlighted as one of the hot papers of the year.**  
[5] M. Baudoin et al., *Proc. Natl. Acad. Sci. USA*, 110: 859-864 (2013)

### **AWARDS**

- 2019 **Elected junior fellow of Institut Universitaire de France**  
2018 **Awarded an ERC-Generator project** by the Foundation ISITE-ULNE (highly selective program to increase the chance of promising researcher from Université de Lille Nord Europe to obtain an ERC)  
2018 **Invited for a review in Annual Review of Fluid Mechanics (IF: 17,2)** on “Acoustic tweezers”, to be released in January 2020.  
2017 **JFM paper highlighted in Focus on Fluids** in a text written by Pr. H. Bruus.  
2014 **Front cover of Soft Matter Journal** for our work entitled “Capillary tube wetting induced by particles, towards armoured bubbles tailoring”. Paper also highlighted as one of the **hot papers of the year.**  
2013 Distinguished by the **highly selective national award for excellence in research (PES).**

### **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

I am currently the **PI of a team of 3 PhD students** (supervision rate: 75%, 75% and 33%), **2 Postdoctoral fellows and 2 SATT Engineers. I also supervised in the past 5 other PhD students** (supervision rate: 75%, 75%, 50%, 33%, 25%) who defended their PhD in 2014, 2016 and 2016, 2017 and 2018. For 5 of the PhD students, I obtained the necessary financial support for their PhD and defined the main lines of their research projects, and ensured part of the supervision.

### **ORGANIZATION OF INTERNATIONAL SCIENTIFIC MEETING**

- 2018 **Chair of the international conference Acoustofluidics 2018**, more than 120 participants from 22 countries and 4 continents, 8 invited speakers, 5 industrial sponsors, find more information on: <https://cbmsociety.org/conferences/acoustofluidics18/> , Lille, France, 29-31 August 2018
- 2015 **Member of the organizing committee (5 people) of an international Summer School entitled “Microfluidics’15”**, Porquerolles, France, 21 to 26 June 2015 (all courses in English, speakers from France, Germany, United States and Denmark)  
➤ Organizer and chair of the short talk session  
➤ Organizer and chair of the poster session<sup>SEP</sup>
- 2012 **Member of the organizing committee (4 people) of an international Workshop entitled “Acoustic Waves for the control of microfluidic flows”**, Lorentz Center, the Netherlands, 23-27 April 2012,  
➤ 52 participants from 12 different countries
- 2011 **Member of the organizing committee (3 people) of an international Summer School entitled “Lab-based Workshop on bubbles and drops”**, University of Florida, 20 to 25 June 2011  
➤ 30 participants from the US, France and Japan  
➤ Funding: NSF-PIRE program

### **ORGANIZATION OF NATIONAL SCIENTIFIC MEETING**

- 2011 **Member of the organizing committee (4 people) of a session on acoustofluidics at the 15th “Journée de la Matière Condensée”**, Bordeaux, 22nd to 26th of August 2016

## INSTITUTIONAL RESPONSABILITIES

- Since 10/2018 **Head of one of the 5 scientific departments of IEMN laboratory** (the department “Micro- & Nanosystems, Microfluidics and Biomems”)
- 2011-2015 **Member of the National Board of French Universities (CNU)**
- Evaluation of the applicants for Assistant Professor qualification
  - Evaluation of the Assistant and Associate Professor applying for promotions
  - Participations in the collegial decisions concerning the evolution of French universities.
- Since 09/2014 **Director of the undergraduate studies in Mechanics** at University Lille 1 (more than 200 students)
- Complete reorganization of the training in mechanics to obtain a more attractive, coherent and efficient program
  - Creation of partnerships with companies working in the field of mechanics (PSA – ONERA – NUMECA – CENAERO)
  - Daily management of the undergraduate studies in mechanics
- Since 09/2014 **Head of the Master of Engineering in Mechanics (CMI)**, a 5 year selective program with additional activities to prepare students to the job of scientific expert in companies
- A Master of Engineering in France can obtain the CMI label only after examination of the project by a national commission. I adapted our program to satisfy the national criteria with the help of the professors of my department and defended it to obtain the label
  - Organization of the additional activities
- Since 05/2015 **Member of the Mathematics and Mechanics department board (UFR)**

## COMMISSIONS OF TRUST

- 02/2018 **Reviewer of the PhD of A. Franc-Gomez**, University of Manchester, UK
- 10/2017 **Reviewer of the PhD of M. Ley**, DTU, Denmark
- 10/2015 **Grant review panelist for the DFG** (German Research Funding Agency)
- 09/2016 **Reviewer of the PhD of I. Bernard**, Université de Grenoble-Alpes, France
- 12/2015 **Jury member of the PhD of M. Costalonga**, Université Paris VII, France
- 08/2014 **Reviewer of the PhD of D.J. Collins**, Monash University, Australia
- 12/ 2013 **Jury member of the PhD of T. Roux-Marchand**, Université de Lorraine, France
- 08/ 2013 **Grant review panelist for the DFG** (German Research Funding Agency)
- 05/2013 **External member of an appointment committee for an Assistant Professor position** in “Fluid Biomechanics”, UTC Compiègne, France
- Since 2008 **Scientific content reviewer for peer-reviewed publications including: Phys. Rev. Lett., New J. Phys., J. Micromech. & Microeng, J. Acoust. Soc. Am., Lab Chip, Sens. Actuators B, Soft Matter, Langmuir, J. Fluid. Eng., Proc. Roy. Soc. A,**

## CURRENT AND PAST FUNDINGS

- 2018-2021 PI ISITE ERC Generator (100 k€):** Highly selective program funded by ISITE-ULNE to increase the chance of promising researcher from Université de Lille Nord Europe to obtain an ERC)
- 2018-2019 Scientific coordinator of a SATT Nord project (140k€),** a technology maturation program for our patented active slippery surfaces (WO2017097760) **in collaboration with VALEO company**

- 2018-2020**     **PI ISITE Prematuration (70 k€):** Program funded by ISITE-ULNE for the maturation of a technology (in this case, the development of new functionalities of our acoustic tweezers)
- 2016-2018**     **Scientific coordinator of a SATT project (315k€),** a technology maturation program for our patented acoustical tweezers (EP16 305601.3, PCT/EP2016/055611)
- 2012/2016**     **Coordinator** (with the technical support of Pr. O. Bou Matar) **of the international project “AWESOM” (532k€)** entitled “Lab-on-a-Chip based on hybrid technologies for the manipulation and characterization of biofluids”
- funded by the French National Agency for Research (ANR)
  - consortium gathering 4 French laboratories (IEMN, INSP, IJL, MSC) and the UMI-LN2 (International laboratory) at the University of Sherbrooke
- 2011/2014**     **5 grants (486 k€) for PhD students** working on my research activities from (i) the Region “Nord-Pas-de-Calais”, (ii) the French General Directorate for Armament (DGA), (iii) the University of Lille and (iv) the “Ecole Normale Supérieure”

#### **INTERNATIONAL COLLABORATIONS**

##### **ANR AWESOM Project (532 k€)**

**Countries involved:** Canada, France

**Partners:** Sherbrooke University, Laboratory “Nanotechnologies Nanosystèmes”, Canada – Université Paris 6, “Institut des NanoSciences de Paris” – Université Paris 7, “MSC” laboratory – Université de Lorraine, “Institut Jean L’Amour”

**Role in the project:** Coordinator (with the support of Pr. O. Bou Matar)

**Collaborations with:** Alan Renaudin, Michel Grandbois, Paul Charrette (UMI- LN2) - Jean-Louis Thomas (INSP) - Philippe Brunet (MSC)

**Shared publications:** [A9], [A10], [A12], [A13], [A14], [A16], [A19], [A20]

##### **Marie Curie IRSES European Program (505 k€)**

**Countries involved:** Russia, France, Japan, USA, Israël

**Partners:** University of Florida (UF), USA- Japanese Spatial Agency (JAXA), Japan - Technion, Israel - Tokyo University of Science (TUS), Japan - Bordeaux 1 University, France - Wave Research Center of General Physics Institute (RAS), Russia - Moscow State Institute of Radio-Engineering, Electronics and Automation (MSI), Russia

**Collaboration with:** Pr. Jason Butler (UF)

**Role in the project:** Participant

**Shared publications:** [A15], [A17].

#### **TEACHING ACTIVITIES**

Since September 2008, I have accomplished my teaching duty (undergraduate and master courses) in Solid and Fluid Mechanics, Mathematics and Wave Physics (192h / year). For each course, lecture notes, media, exercises with corrections, and former exams with corrections are available on my website.

## PUBLICATIONS / PATENTS / INVITED CONFERENCE AND SUMMER SCHOOLS

### A. Publications in peer-reviewed international journals

The corresponding authors are underlined. All the publications can be downloaded at the following address: <http://films-lab.univ-lille1.fr/michael/michael/Home.html>

#### Under review

[A26] M. Baudoin, J.-L. Thomas, Fluid dynamics of acoustical tweezers, invited review in *Ann. Rev. Fluid Mech.* (IF: 17.2), to be released on January 2020

[A25] A. Bussonnière, A. Antkowiak, F. Ollivier, M. Baudoin, R. Wunenburger, Sound of interfacial flows: Unraveling the forces shaping fast capillary flows using their acoustic signature, submitted October 2018, Arxiv 1810.05599

#### 2019

[A24] M. Baudoin, J.-C. Gerbedoen, A. Riaud, O. Bou Matar, N. Smagin, J.-L. Thomas, Folding a focalized acoustical vortex on a flat holographic transducer: miniaturized selective acoustical tweezer, *under revision Science Advances* (IF: 12.8), 5: eaav1967 (2019)

[A23] S. Signé Mamba, F. Zoueshtiagh, M. Baudoin, Pressure-driven dynamics of liquid plugs in rectangular micro-channels: influence of the transition between static and dynamic film deposition regimes, *accepted for publication in Int. J. Multiph. Flow* (IF: 2.8), 113: 343-357 (2019)

#### 2018

[A22] S. Signé Mamba, J.C. Magniez, F. Zoueshtiagh, M. Baudoin, Dynamics of a liquid plug in a capillary tube under cyclic forcing: memory effects and airway reopening, *J. Fluid. Mech* (IF: 3.1): 838: 165-191 (2018)

#### 2017

[A21] G. Prabhudesai, I. Bihi, F. Zoueshtiagh, J. Jose M. Baudoin, Nonspherical armoured bubbles vibration, *Soft Matter* (IF: 3.5), 13: 3879 (2017)

[A20] A. Riaud, M. Baudoin, O. Bou Matar, L. Becera, J.-L. Thomas, Selective manipulation of microscopic particles with precursor swirling Rayleigh waves, *Phys. Rev. Appl* (IF: 4.5), 7: 024007 (2017), **highlighted in Physics Buzz of APS Central**

[A19] A. Riaud, M. Baudoin, O. Bou Matar, J.-L. Thomas, P. Brunet, On the influence of viscosity and caustics on acoustic streaming in sessile droplets: an experimental and a numerical study with a cost-effective method, *J. Fluid Mech.* (IF: 3.1):, 81: 384-420 (2017), *highlighted in "Focus on Fluids"*

#### 2016

[A18] J.C. Magniez, M. Baudoin, C. Liu, F. Zoueshtiagh, Dynamics of liquid plugs in prewetted capillary tubes: from acceleration and rupture to deceleration and airway obstruction, *Soft Matter* (IF: 3.5), 12: 8710-8717(2016)

[A17] I. Bihi, M. Baudoin, J.E. Butler, C.Faille F. Zoueshtiagh, Inverse Saffman-Taylor experiments with particles lead to capillary driven fingering instabilities, *Phys. Rev. Lett.* (IF: 9.2), 117: 034501 (2016)

[A16] A. Bussonnière, M. Baudoin, P. Brunet and O. Bou Matar, Dynamics of sessile and pendant drop excited by



surface acoustic waves: gravity effects and correlation between oscillatory and translational motions, *Phys. Rev. E (IF: 2.3)*, **93**: 053106 (2016)

[A15] C. Faille, I. Bihi, A. Ronse, G. Ronse, **M. Baudoin** and F. Zoueshtiagh, Drying conditions of a contaminated surface and the subsequent resistance to detachment of adherent microspheres and Bacillus spores, *Coll. Surf. B: Biointerfaces (IF: 3.9)*, **143**: 293-300 (2016)

[A14] A. Riaud, **M. Baudoin**, J.-L. Thomas, O. Bou Matar, SAW synthesis with inverse filter and IDTs array: toward a versatile platform for microfluidics and biological applications, *IEEE T. Ultrason. Ferr. (IF: 2.9)*, **63**(10): 1601-1607 (2016)

## 2015

[A13] A. Riaud, J.L. Thomas, **M. Baudoin** and O. Bou Matar, Taming the degeneracy of Bessel beams at anisotropic-isotropic interface: toward three dimensional control of confined vortical waves, *Phys. Rev. E (IF: 2.3)*, **92**: 063201 (2015)

[A12] A. Riaud, J.L. Thomas, E. Charron, A. Bussonière, O. Bou Matar and **M. Baudoin**, Anisotropic swirling surface acoustic waves synthesis by inverse filter for on-chip generation of acoustical vortices, *Phys. Rev. Appl. (IF: 4.5)*, **4**: 034004 (2015)

## 2014

[A11] F. Zoueshtiagh, **M. Baudoin**, D. Guerrin, Capillary tube wetting induced by particles: towards armoured bubbles tailoring, *Soft Matter (IF: 3.5)*, **10**(47): 9403-9412 (2014). Front cover of the journal.

[A10] A. Bussonière, Y. Miron, **M. Baudoin**, O. Bou-Matar, M. Grandbois, P. Charette, and A. Renaudin, Cell detachment and label-free cell sorting using modulated surface acoustic waves in droplet-based microfluidics, *Lab on a chip (IF: 6.9)*, **14**: 3556 (2014)

[A9] A. Riaud, **M. Baudoin**, J.-L. Thomas, O. Bou-Matar, Cyclones and attractive streaming generated by acoustical vortices, *Phys. Rev. E (IF: 2.3)*, **90**: 013008 (2014)

## 2013

[A8] **M. Baudoin**, Y. Song, P. Manneville, C.N. Baroud, Airways reopening through catastrophic events in a hierarchical network, *Proc. Nat. Ac. Sci. (IF: 9.6)*, **110**: 859-864 (2013)

## 2012

[A7] **M. Baudoin**, P. Brunet, O. Bou-Matar, E. Herth, Low power sessile droplet actuation via modulated surface acoustic waves, *Appl. Phys. Lett. (IF: 3.5)*, **100**: 154102 (2012)

## 2011

[A6] **M. Baudoin**, F. Coulouvrat, J.-L. Thomas, Clouds impact on the attenuation of sound, ultrasound and sonic boom, *J. Acoust. Soc. Am. (IF: 1.8)*, **130**: 1142-1153 (2011)

[A5] **M. Baudoin**, J.-L. Thomas, F. Coulouvrat, C. Chanéac, Scattering of ultrasonic shock wave in suspensions of rigid particles, *J. Acoust. Soc. Am. (IF: 1.8)*, **129**: 1209-1220 (2011)

[A4] Y. Song, **M. Baudoin**, P. Manneville and C.N. Baroud, The air-liquid flow in a microfluidic airway tree, *Med. Eng. & Phys. (IF: 1.7)*, **33**: 849-456 (2011)

## 2010

[A3] P. Brunet, **M. Baudoin**, O. Bou Matar, F. Zoueshtiagh, Droplet displacement and oscillations induced by ultrasonic

surface acoustic waves: a quantitative study, *Phys. Rev. E (IF: 2.3)*, **81**: 026315 (2010)

**2008**

[A2] **M. Baudoin**, J.L. Thomas, F. Coulouvrat, On the influence of spatial correlations on sound propagation in concentrated solutions of rigid particles, *J. Acoust. Soc. Am (IF: 1.8)*, **123**: 4127-4139 (2008)

**2007**

[A1] **M. Baudoin**, J.L. Thomas, F. Coulouvrat, D. Lhuillier, An extended coupled phase theory for the sound propagation in polydisperse concentrated suspensions of rigid particles, *J. Acoust. Soc. Am. (IF: 1.8)*, **121**: 3386-3397 (2007)

### **A\* Patents**

[A\*4] Deposited the 25<sup>th</sup> October, 2017: "Acoustic tweezers based on focalized acoustical vortices", application number EP17198204.4

[A\*3] Deposited the 24<sup>th</sup> of May, 2016: "Acoustical tweezers based on focalized SAW" Request number : 16 305601.3

[A\*2] M. Baudoin, A. Riaud, J.L. Thomas, O. Bou Matar, Acoustic tweezers, international patent WO2017157426 (21/09/2017)

[A\*1] M. Baudoin., A. Bussonnière, O. Bou Matar Lacaze, and P. Brunet, Method for increasing the ability of at least one droplet to slide over a medium, international patent WO201709776O (15/06/2017)

### **B. Invited conferences**

[B8] **M. Baudoin**, J.-C. Gerbedoen, A. Riaud, O. Bou Matar, N. Smagin, J.-L. Thomas, Compact selective tweezers based on focalized acoustical vortices and spiraling interdigitated transducers, **176<sup>th</sup> ASA Meeting**, 5-9 November 2018, Victoria (Canada)

[B7] **M. Baudoin**, O. Bou Matar, J.C. Gerbedoen, A. Riaud, J.-L. Thomas, Acoustical vortices" synthesis with flat microsystems for selective tweezing and manipulation of micro-particles, **Anglo-French Physical Acoustics 2018**, 17-19 January 2018, Surrey (UK)

[B6] **M. Baudoin**, O. Bou Matar, J.C. Gerbedoen, A. Riaud, J.-L. Thomas, Miniaturized selective acoustical tweezers based on spiraling IDTs, Acoustofluidics forum and Olympics, **3<sup>rd</sup> SIG Meeting of the Acoustofluidics** in Fluidic Network, 26-27 April 2018, Newcastle (UK)

[B5] **M. Baudoin**, A. Riaud, J.-L. Thomas, O. Bou Matar, SAW-based vortical acoustofluidics, **Acoustofluidics 2016**, Opening keynote lecture, USWNET, 22-23 September 2016, Copenhagen (Denmark)

[B4] **M. Baudoin** A. Riaud, J.-L. Thomas, O. Bou Matar, On-chip generation of acoustical vortices with swirling SAWs for single particle manipulation and vorticity control, **171<sup>th</sup> ASA Meeting**, 23-27 May 2016, Baltimore (USA)

[B3] **M. Baudoin**, A. Riaud, J.-L. Thomas, A. Bussonnière, O. Bou Matar, invited for an extended lecture (30 min), SAW synthesis with inverse filter and IDTs arrays for microfluidic and biological applications, **IEEE International Ultrasonic Symposium**, 21-24 October 2015, Taipei (Taiwan)

[B2] **M. Baudoin**, P. Brunet, O. Bou Matar, **Acoustics 2012 Hong Kong, joint conference from ASA, ASC, WESPAC and HKIOA**, 13-18 mai 2012, Hong Kong (Chine)

[B1] **M. Baudoin**, P. Brunet, O. Bou Matar, **6<sup>th</sup> IEEE-NEMS Conference**, 20-23 février 2011, Kaohsiung (Taiwan)

### **B\*. Invited lectures at summer schools**

**[B\*4] Complex Motion in Fluids summer school**, 1h+1h30 courses on "Acoustic tweezers and vortices"

**[B\*3] Acoustofluidics summer school**, 1h30 course entitled "Surface acoustics waves for microfluidics", Porquerolles, 13-17 June 2016

**[B\*2] Nonlinear acoustics and complex media summer school**, 2h course entitled "Nonlinear acoustics for microfluidics", Oléron, 1-6 June 2014

**[B\*1] Lab-Based workshop on the dynamics of bubbles and drops**, three courses (3x1h30) in English entitled "Introduction to interfacial flows", "Interfaces and vibrations" and "Dynamics of bubbles and liquid plugs in confined geometries", University of Florida, 20-24 June 2011

### **C. INTERNATIONAL CONFERENCES**

The speaker is underlined

**[C26]** S. Signé Mamba, F. Zoueshtiagh, **M. Baudoin**, Liquid plugs in capillaries under periodic forcing, EFMC 22, 12-16 September 2016, Seville (Spain)

**[C25]** A. Riaud, J.L. Thomas, O. Bou Matar, **M. Baudoin**, APS March Meeting, 14-18 March 2016, Baltimore (USA), Bulletin of the American Society", vol 61

**[C24]** J. Magniez, **M. Baudoin**, C.Liu, F. Zoueshtiagh, From catastrophic acceleration to deceleration of liquid plugs in prewetted capillary tubes, APS March Meeting, 14-18 March 2016, Baltimore (USA), "Bulletin of the American Society", vol 61

**[C23]** F. Zoueshtiagh, I. Bihi, J. Butler, C. Faille, **M. Baudoin**, Inverse Saffman-Taylor instability in Hele-Shaw experiments using micro-particles, APS March Meeting, 14-18 March 2016, Baltimore (USA), « Bulletin of the American Society", vol 61

**[C22]** A. Riaud, **M. Baudoin**, J.L. Thomas, O. Bou Matar, Acoustical twisting, Acoustical twisting, **25<sup>th</sup> Conference of the Condensed Matter Division of the EPS (CMD25)**, Paris, 24-29 August 2014, Paris (France)

**[C21]** M. Baudoin, Y. Song, P. Manneville, C.N. Baroud, Airways reopening through catastrophic events in a hierarchical network, Flow 2014 Conference, 18-21 May 2014, Twente (Netherland)

**[C20]** A. Bussonière, A. Renaudin, Y. Miron, M. Grandbois, **M. Baudoin** and P. Charette, Removal of living cells from biosensing surfaces in droplet based microfluidics using surface acoustic waves, ICA 2013, joint meeting from the Acoustical Society of America and the Canadian Acoustical Association, 2-7 June 2013, Montreal (Canada)

**[C19]** M. Baudoin, P. Brunet, O. Bou-Matar and E. Herth, Sessile droplet resonances and low power SAW actuation, USWNET 2012 Conference, 21-22 September 2012, Lund (Sweedon)

**[C18]** P. Brunet, **M. Baudoin**, O. Bou-Matar, Drops subjected to surface acoustic waves: flow dynamics, APS 65th annual DFD Meeting, 18-20 November 2012, San Diego (USA)

**[C17]** P. Brunet, **M. Baudoin**, O. Bou Matar, E. Herth, F. Zoueshtiagh, On the influence of viscosity on droplet actuation by surface acoustic waves, 2nd European Conference on Microfluidics, 8-10 December 2010, Toulouse (France)

**[C16]** M. Baudoin, Y. Song, P. Manneville, C. Baroud, Airways reopening through cascades of plug ruptures in a binary network, Multiflow, 8-10 November 2010, Brussels (Belgium)



- [C15] P. Brunet, **M. Baudoin**, O. Bou Matar, F. Zoueshtiagh, Droplet motion and deformation induced by acoustic streaming and radiation pressure, 20th International Congress on Acoustics, 23-27 August 2010, Sydney (Australia)
- [C14] P. Brunet, **M. Baudoin**, O. Bou Matar, F. Zoueshtiagh, Drop displacement and deformation induced by surface acoustic wave, 5th Conference of the International Marangoni Association, 7-10 June 2010, Florence, Italy
- [C13] **M. Baudoin**, F. Coulouvrat and J.L. Thomas Infrasound absorption by atmospheric clouds, EGU general assembly, 2-7 May 2010, Vienne (Austria)
- [C12] P. Brunet, **M. Baudoin**, O. Bou Matar, F. Zoueshtiagh, Droplet mixing and displacement by surface acoustic wave, Ultrasonic Standing Wave Network Conference 2009, 30 November-1st December 2009, Stockholm (Sweden)
- [C11] P. Brunet, **M. Baudoin**, F. Zoueshtiagh, A. Merlen, Drop mixing and displacement by surface acoustic wave, French/Chinese conference on microfluidics, 11-15 October 2009, Paris (France)
- [C10] Y. Song, **M. Baudoin**, P. Manneville and C.N. Baroud, 2nd French-Chinese Conference on Microfluidics, The air liquid flow in a microfluidic airway tree, 11-15 October 2009, Paris (France)
- [C9] P. Brunet, **M. Baudoin**, F. Zoueshtiagh, A. Merlen, Drop mixing and displacement by surface acoustic wave, International workshop Bubble and Drop Interfaces, 23-25 September 2009, Thessaloniki (Greece)
- [C8] Y. Song, **M. Baudoin**, P. Manneville, C. Baroud, The air-liquid flow in a microfluidic airway tree, 2nd Micro and Nano Flows Conference, 1-2 September 2009, Londres (RoyaumeUni)
- [C7] **M. Baudoin**, Y. Song, C. Baroud, P. Manneville, Microscopic airways reopening through cascades of plug ruptures, 7th International Conference on Nanochannels, Microchannels and Minichannels, 22-24 June 2009, Pohang (South Korea), CDROM, ISBN : 978-0-7918-3850-1
- [C6] **M. Baudoin**, Y. Song, P. Manneville and C.N. Baroud, Reopening of a microfluidic airway tree in the presence of liquid plugs., 61st Annual Meeting of the APS Division of Fluid Mechanics, 23-25 November 2008, San Antonio, Texas (USA) (Bulletin of the American Physical Society, vol. 53, nà 15, p. 115)
- [C5] **M. Baudoin**, Y. Song, P. Manneville and C.N. Baroud, The air-liquid flow in bifurcating networks of micro-channels, 7th Euromech Fluid Mechanics Conference, 14-18 September 2008, Manchester (Angleterre)
- [C4] **M. Baudoin**, J.L. Thomas, F. Coulouvrat, C. Chanéac, Acoustic shock wave propagation through solutions of nanoparticles, 18th International Symposium on Nonlinear Acoustics, 7-10 July 2008, Stockholm (Suède), AIP Conf. Proc. 1022, 241-244"
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- [C2] J.L. Thomas, F. Coulouvrat, R. Marchiano, **M. Baudoin**, L. Ganjehi, Experimental simulation of the sonic boom at the laboratory scale, 19th International Congress on Acoustics, 2-7 September 2007, Madrid (Espagne), CDROM, ISBN : 84-87985-12-2
- [C1] **M. Baudoin**, F. Coulouvrat, J.L. Thomas, Absorption of sonic boom by clouds, 17th International Symposium on Nonlinear Acoustics, 18-22 July 2005, Penn-State (Etats-Unis), AIP Conf. Proc. 838, 619 (2006),

#### D. NATIONAL CONFERENCES

- [D9] A. Bussonière, A. Antkowiak, M. Baudoin, F. Ollivier, R. Wunenburger, Identification du cri de la bulle de savon, **Congrès Français d'Acoustique 2016**, 11-15 April 2016, Le Mans (France)
- [D8] N. Chastrette, L. Royon, M. **Baudoin**, P. Brunet, R. Wunenburger, Déformation de gouttes excitées par des ondes

acoustiques de surface, Rencontres du Non linéaire, 15-17 March 2016, Paris (France), poster

[D7] C. Faille, A. Ronse, G. Ronse, G. Bourdin, I. Bihi, **M. Baudoin**, F. Zoueshtiagh, Rôle des conditions de séchage sur les interactions bactéries/matériaux, 7ème Colloque du réseau national Biofilms, 2-3 December 2015, Toulouse (France)

[D6] **M. Baudoin**, A. Riaud, J.L. Thomas, O. Bou Matar, Cyclones and attractive streaming generated by acoustical vortices (présentation en anglais), Journée nationale du GDR "Micro/NanoSystèmes et Micro/NanoFluidique, 7-8 July 2014 (France)

[D5] **M. Baudoin**, J.-L. Thomas et F. Coulouvrat, Influence des nuages sur l'atténuation du son, des infrasons et du bang sonique, 10ème Congrès Français d'Acoustique, 12-16 April 2010, Lyon (France), CDROM

[D4] P. Brunet, **M. Baudoin**, O. Bou Matar, F. Zoueshtiagh, Déformation de gouttes par ondes acoustiques de surface, 10ème Congrès Français d'Acoustique, 12-16 April 2010, Lyon (France), CDROM

[D3] P. Brunet, **M. Baudoin**, O.B. Matar, F. Zoueshtiagh, Déplacement et oscillations de gouttes sous l'effet d'ondes de surface ultrasonores, Résumé des exposés de la 13ème Rencontre du Non-Linéaire, 13 janvier 2010, Paris (France)

[D2] **M. Baudoin**, J.L. Thomas, F. Coulouvrat, D. Lhuillier, Un modèle diphasique auto-consistant pour la propagation du son dans les solutions concentrées de particules rigides, 18ème Congrès Français de Mécanique, 27-31 août 2007, Grenoble (France), CDROM (CFM2007- 1129)

[D1] **M. Baudoin**, F. Coulouvrat, J.L. Thomas, Propagation d'ondes de choc dans des suspensions diluées, 8ème Congrès Français d'Acoustique, 24-26 April 2006, Tours (France), CDROM

#### E. INVITED SEMINARS IN LABORATORIES

[E6] M. Baudoin, A. Riaud, J.L. Thomas, A. Bussonière, O. Bou Matar, Acoustical vortices for the manipulation of particles and the controlled synthesis of hydrodynamic vortices, Seminar at LIMSI laboratory, France, December 2015

[E5] M. Baudoin, Y. Song, P. Manneville, C.N. Baroud, Cascade of plug ruptures: from milk-shake to pulmonary airways, Seminar at University of Florida, USA May 2015

[E4] M. Baudoin, Y. Song, P. Manneville, C.N. Baroud, Cascade of plug ruptures: from milk-shake to pulmonary airways, Seminar at Gulliver Laboratory, ESPCI, France, October 2012

[E3] M. Baudoin, Y. Song, P. Manneville, C.N. Baroud, Cascade of plug ruptures: from milk-shake to pulmonary airways, Seminar at Laboratoire Transferts, Interfaces et Procédés, Université Libre de Bruxelles, Belgium, June 2011

[E2] M. Baudoin, Y. Song, P. Manneville, C.N. Baroud, Cascade of plug ruptures : from milk-shake to pulmonary airways, Seminar at Institut de Physique de Rennes, Université de Rennes 1, France, October 2011

[E1] M. Baudoin, Y. Song, P. Manneville, C.N. Baroud, Cascade of plug ruptures : from milk- shake to pulmonary airways, Seminar at Institut Jean le Rond d'Alembert, Université Paris 6, France, October 2010