BAUDOIN Michaël,
41 years old, French
http://films-lab.univ-lille1.fr/michael/
+33 (0)6 64 28 79 37
michael.baudoin@univ-lille.fr

PROFESSOR AT UNIVERSITE DE LILLE / IEMN LABORATORY
FELLOW OF INSTITUT UNIVERSITAIRE DE FRANCE

CURRENT AND PREVIOUS POSITIONS

Since 10/2019	**Fellow of the highly selective "Institut Universitaire de France (IUF)"** (Academic Institute of France), one of the highest distinctions for a professor in France (only 2% of French University professors have been distinguished by IUF)
Since 09/2016	**Professor at Université de Lille, Researcher at IEMN laboratory,** France
2008-2016	**Assistant professor at Université de Lille, Researcher at IEMN laboratory,** France
01 to 09 /2008	**Postdoctoral fellow in Microfluidics at Ecole Polytechnique, LadHyX. "**

EDUCATION

2008	**Ph.D. Award in Fluid Mechanics and Acoustics (11th January 2008), Sorbonne Université** (one of the top 3 universities in France) Topic: "Nonlinear acoustics and multiple scattering in suspensions of rigid particles"
2004	**MSc in Fluid Mechanics, Sorbonne Université,** with First Class Honors
2004	**MSc in Mechanical engineering (Automotive systems) at Paris Polytechnique Institute – ENSTA** (one of the leading School of Engineering in France)

PUBLICATIONS / PATENTS / CONFERENCES (SEE DETAILS AT THE END OF THE CV)

- **36 publications** (**Nature Comm, Science Adv.**, **Ann. Rev. Fluid Mech., PNAS**, **Phys. Rev. Lett. (3), JFM,** JASA**,** Phys. Rev. Appl., Phys. Rev. Fluid, App. Phys. Lett., Lab on Chip, Med. Eng. & Phys., Phys. Rev. E, Soft Matter) **+ 3 submitted. (Corresponding author of 77% of these publications)**
- **11 patents (6 of them licensed by a major automotive supplier in France):** 7 delivered + 4 submitted on acoustical tweezers and active slippery surfaces
- **9 invited talks in international conferences (two Keynote lectures):** 4th IHMTC International conference 2021 **(Keynote),** ASA 2018, Canada/ AFPAC 2018, UK / Acoustofluidics 2016, Denmark **(Keynote)** / 171th ASA meeting 2016, USA / IEEE Int. Ultras. Symp 2015, Taïwan / Acoustics 2012 Hong Kong / 6th IEEE-NEMS conference 2011, Taïwan
- **3 invited lectures at summer schools:** "Complex Motion in Fluids 2019", Denmark organized by Cambridge (UK), Ecole Polytechnique (France), DTU (Denmark) / "Acoustofluidics 2016" Porquerolles (France) / "Nonlinear Acoustics 2014", Oléron (France))
- **6 Highlighted papers:** 2022 Phys. Rev. Fluid Letter on everlasting bubble **highlighted in Nature and APS "Physics"** 2020: **Phys. Rev. Lett.** paper on the popping sound of soap bubbles **highlighted in APS Phys. and chosen as editor suggestion** / 2020: **Invited review** on acoustical tweezers **in Ann. Rev. Fluid Mech**. / 2017: **Phys. Rev. Appl**. paper on acoustical tweezers

highlighted **in Physics Buzz of APS** / 2017: **JFM paper** on SAW induced acoustic streaming in a droplet **highlighted in Focus on Fluids**, / 2014: **Front Cover of Soft Matter** journal for our paper on cylindrical armored bubbles

- **More than 40 communications** in peer-reviewed **international conferences**

CURRENT RESEARCH ACTIVITIES

The overall scope of my research activities focuses on subjects at the **interface between interfacial fluid mechanics, acoustics and microsystems.** In particular my team (i) has developed **some miniaturized acoustical tweezers** enabling the selective and contactless manipulation of microscopic objects and (ii) an **acoustical method** enabling to **remove droplets from an optic surface**, (iii) has unveiled **some surprising fluid/fluid interfacial dynamics in presence of hydrophobic particles** and (iv) has worked on the **dynamics of liquid plugs in complex network in relation with pulmonary obstructive diseases.**

FOUNDATION OF MY OWN RESEARCH TEAM

Since I joined Université de Lille as an Assistant professor in 2008, I started developing **my own research activity** at the interface between acoustics, microfluidics and microsystems. In 2016, I was nominated **full professor at the age of 36**. In 2019, I was nominated **fellow of the highly selective "Institut Universitaire de France"**, one of the highest distinctions in France for a professor. Now I am the **PI of a team of 5 PhD students**, **1 postdoctoral fellow and 1 engineer.** It is important to mention that the research achievements above have been obtained with an **important teaching duty** (~200h/year) and **educational responsibilities.**

AWARDS

2021 **Phys. Rev. Fluid paper** (on everlasting bubbles) **highlighted in Nature "Research Hilights", APS "Physics", and selected among the editors' suggestions.**
2020 **Phys. Rev. Lett. paper** (on the popping sound emitted by bubles) **highlighted in APS "Physics" and chosen as Editors suggestion**
2020 **Invited review in Annual Review of Fluid Mechanics (IF: 16.3)** on "Acoustic tweezers"
2019 **Elected junior fellow of Institut Universitaire de France / Medal delivered at the French Academy**
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)
2017 Distinguished by **the highly selective national award for excellence in research (PEDR)**
2017 **Phys. Rev. Appl. paper highlighted in Physics Buzz** of APS site "Physics Central"
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 paper on cylindrical armoured bubbles and paper **highlighted as one of the hot papers of the year**.
2013 Distinguished by **the highly selective national award for excellence in research (PES)**

INSTITUTIONAL/EDUCATIONAL RESPONSIBILITIES

Since 05/2021 **Member of the science faculty council** at Université de Lille
Since 09/2014 **Head of the undegraduate program in Mechanical Engineering** at Université de Lille (more than 200 students)

- Led a complete reorganization of the program in 2014 to improve (i) its attractivity, (ii) the employability of our students, (iii) the connections with French companies and (iv) improve the alumni network
- Thanks to this work, we moved from around 50 students to more than 200 students today in Mechanics with good integration of our students in the professional life

2014-2019 **Head of the Master of Engineering in Mechanics (CMI),** a 5-year selective program with additional activities to prepare students to the job of engineers in companies
2018-2019 **Head of one of the 5 departments of IEMN laboratory: Micro- & Nanosystems, Microfluidics and Biomems department** (each of the 150 researchers of the lab is attached

to one of the 5 departments, in charge of the scientific policy and laboratory funds distribution

2011-2015 **Member of the National Board of French Universities (CNU):** National institution in charge of the definition of the national policy for all Universities and national promotions.

Since 05/2015 **Member of the Mathematics and Mechanics department board**

VALORIZATION

03/2021 **Co-founder of the startup VISION,** which valorizes a surface acoustic wave technology for sensor and solar panel cleaning.

2011-2022 **11 patents (6 of them licensed by a major automotive supplier in France):** 7 delivered + 4 submitted on acoustical tweezers and active slippery surfaces

TEACHING ACTIVITIES

Since September 2008, I have accomplished my **teaching duty of ~200 hours per year in average** (undergraduate and master courses) in Solid and Fluid Mechanics and Mathematics. For each of the course, I developed an original approach, with new course material (handout, live experience, porwerpoint). In particular, I was at the origin of **the introduction and development of the project-based learning** in our program. Moreover, **I initiated and led a complete reorganization of the training in Mechanics at Université de Lille in 2014 and 2019** to obtain a more attractive, coherent and efficient program including new partnerships with French companies. **Since September 2014, I have been heading the undergraduate program in Mechanics at Université de Lille.**

ORGANIZATION OF INTERNATIONAL SCIENTIFIC MEETING

2022 Co-organizer (3 people) of the CNRS Summer School entitled "Acoustofluidique 2022", Porquerolles, France

2018 Chair of the international conference Acoustofluidics 2018, more than 120 participants from 22 countries and 4 continents, 8 invited speakers, 5 industrial sponsors, 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

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,

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

CURRENT AND PAST FUNDING (OVERALL : >2.5 MILLIONS €)

2020-2022 PI Talent project (107k€) by Region Haut de France and ISITE foundation: Program to attract talented young researchers at Université de Lille.

2020-2021 PI Start-AIRR project (105k€) funded by Region Haut de France and ISITE foundation: Program for the development of a demonstrator able to produce reconfigurable acoustic tweezers.

2018-2021 PI ISITE ERC Generator (200 k€): Selective program funded by ISITE foundation to increase the chance of promising researcher from Université de Lille to obtain the most selective research program in Europe (called ERC)

2020 Scientific coordinator of a SATT Nord technology development project (300k€) with the company VALEO for the development of an industrial demonstrator based on our patented technology (WO2017097760, FR1910588, FR1910589, FR1910590)

2018-2019 **Scientific coordinator of a SATT Nord project (140k€),** a technology maturation program for our patented active slippery surfaces (WO201709776O) **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

2011/2020 **9 grants (846k€) 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"

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2008-2020 **Supervision of 11 PhD students / 4 Postdocs / 11 Master students** (from France, Denmark, India, China, Lebanon, Syria).

I am currently the **PI of a team of 5 PhD students**, **1 Postdoctoral fellow and 1 SATT Engineer.** For 9 of the 11 PhD students and all the postdocs, that I supervised up to now, I obtained the necessary financial support for their PhD, defined the main lines of their research projects, and was the main supervisor.

COMMISSIONS OF TRUST

Since 2008 **Jury member of 10 PhD thesis** in France, United Kingdom, Australia and Denmark

2013, 2016 **Grant review panelist for the DFG** (German Research Funding Agency)

Since 2008 **Reviewer for peer-reviewed publications including: Nat. Com., Phys. Rev. Lett., J. Fluid Mech.,** New J. Phys., J. Acoust. Soc. Am., Lab Chip, J. Micromech. & Microeng, Sens. Actuators B, Soft Matter, Langmuir, Proc. Roy. Soc. A,…

DETAILED LIST OF PUBLICATIONS, PATENTS AND CONFERENCES

A. PUBLICATIONS IN PEER-REVIEWED INTERNATIONAL JOURNALS

* Corresponding author. I **am corresponding author of 75% of my publications**.

Submitted

[A37] N. Chastrette, **M. Baudoin,** P. Brunet, L. Royon, R. Wunenburger*, Elucidating the oscillation instability of sessile drops triggered by surface acoustic waves *submitted*

2022

[A36] A. Roux, A. Duchesne, **M. Baudoin***, Everlasting bubbles and liquid films resisting drainage, evaporation and nuclei-induced bursting, *Phys. Rev. Fluid (Letter),* **7**: L011601 (2022*)*
highlighted in NATURE in the "Research Highlights" and APS Physics and selected among the Editors' suggestion

[A35] P. Brunet*, **M. Baudoin**, Unstationary dynamics of drops subjected to MHZ-surface acoustic waves modulated at low frequency, *Exp. Fluids.,* **63,** 34 (2022)

2021

[A34] Z. Gong, **M. Baudoin***, Equivalence between angular spectrum-based and multipole expansion-based formulas of the acoustic radiation force and torque, *J. Acoust. Soc. Am.,* **149:** 3469-3482 (2021)

[A33] Z. Gong, **M. Baudoin***, Three-dimensional trapping and dynamic axial manipulation with frequency-tuned spiraling acoustical tweezers: A theoretical study, *Phys. Rev. Appl (IF: 4.2),* **16:** 024034 (2021)

[A32] A. Riaud*, Q. Wang, Z. Gong J. Zhou and **M. Baudoin***, Acoustic radiation force on small spheres due to transient acoustic fields, *Phys. Rev. Appl. (IF : 4.2),* **15:** 044034 (2021)

2020

[A31] Z. Gong, **M. Baudoin***, Three-dimensional trapping and assembly of small particles with synchronized spherical acoustical vortices, accepted for publication in *Phys. Rev. Appl (IF: 4.2),* **14:** 064002 (2020)

[A30] Z. Gong*, **M. Baudoin**, Acoustic radiation torque on a particle in a fluid: an angular spectrum based compact expression, accepted for publication in *J. Acoust. Soc. Am. (IF: 1.8)*, **148**(5): 3131-3140 (2020)

[A29] P. Favreau, A. Duchesne, F. Zoueshtiagh, **M. Baudoin***, The motion of long levitating drops in tubes in an anti-Bretherton configuration, *Phys. Rev. Lett. (IF: 8.4)*, **125**: 194501 (2020)

[A28] M. Baudoin*, J.-L. Thomas, R.A. Sahely, J.C. Gerbedoen, Z. Gong, A. Sivery, O. Bou Matar, N. Smagin, A. Vlandas*, Spatialy selective manipulation of cells with single beam acoustical tweezers, *Nature Commu. (IF: 12.1),* 11: 4244 (2020)

[A27] A. Bussonnière, A. Antkowiak, F.Ollivier, **M. Baudoin**, R. Wunenburger*, Acoustic sensing of forces driving fast capillary flows, *Phys. Rev. Lett. (IF: 8.4),* **124**: 084502 (2020), **Editor's suggestion, Highlighted in Physics (APS)**

[A26] M. Baudoin*, J.-L. Thomas*, Acoustic tweezers for particle and fluid micromanipulation, *Ann. Rev. Fluid Mech. (IF: 16.3),* **52**: 205-234 (2020)

2019

[A25] 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, *Science Advances* (IF: 13.1), **5**: eaav1967 (2019)

[A24] Z. Gong, **M. Baudoin*,** Particle assembly with synchronized acoustical tweezers, *Phys. Rev. Appl (IF: 4.2)*, ***12***: 024045 (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, *Int. J. Multiph. Flow (IF: 2.5)*, **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: 3.4)*: **838**: 165-191 (2018)

2017

[A21] G. Prabhudesai, I. Bihi, F. Zoueshtiagh, J. Jose, **M. Baudoin***, Nonspherical armoured bubbles vibration, *Soft Matter (IF: 3.4)*, **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: 4.2)*., **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: 3.4)*, ***81****: 384-420 (2017)* , ***highlighted in "Focus on Fluids"***

2016

[A18] 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: 8.4)*, **117**: 034501 (2016)

[A17] 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: 3.4)*, **12:** 8710-8717(2016)

[A16] A. Bussonière, **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 Bacilius spores, *Coll. Surf. B: Biointerfaces (IF: 4.4)*, **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: 3.3), **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: 4.2)*, **4**: 034004 (2015)

2014

[A11] F. Zoueshtiagh*, **M. Baudoin*,** D. Guerrin, Capillary tube wetting induced by particles: towards armoured bubbles tailoring, *Soft Matter (IF: 3.4)*, **10**(47): 9403-9412 (2014). **Front cover of the journal and selected as one of the hot papers of the year.**

[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: 9.4)*, **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: 3.6)*, **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

The percentage represents the participation to the invention.

The **patents P1, P6, P7, P8, P9, P10, P11 are licenced by a major automotive supplier**.

[P11] M. Baudoin (17%), O. Bou Matar (16,5%), R. Chutani (16,5%), F. Bretagnol (12,5%), I. Vincent (12,5%), C. Gérald (12,5%), A. Filloux (12,5%)**,** "Device based on acoustic transducers and an atomizer to clean an optical surface", submitted on 31/03/2021, application number: FR2103337

[P10] M. Baudoin (35%), R. Chutani (15%), F. Bretagnol (25%), A. Peret (25%), "Acoustical device to clean an optical surface", submitted on 14/12/2020, application number: FR2013212

[P9] M. Baudoin (35%), R. Chutani (15%), F. Bretagnol (25%), A. Peret (25%), "Acoustical device to clean an optical surface", submitted on 14/12/2020, application number: FR2013210

[P8] M. Baudoin (35%), O. Bou Matar (15%), F. Bretagnol (25%), A. Peret (25%), "Electroacoustic device designed to generate surface acoustic waves", submitted on 25/09/2019, application number: FR1910590

[P7] M. Baudoin (40%), O. Bou Matar (10%), F. Bretagnol (25%), A. Peret (25%) "Device based on multiple transducers designed to clean surfaces covered with liquids", submitted on 25/09/2019, application number: FR1910589

[P6] M. Baudoin (50%), R. Chutani (10%), F. Bretagnol (20%), A. Peret (20%), "Defrost process based on acoustic waves", submitted on 25/09/2019, application number: FR1910588

[P5] M. Baudoin (30%), A. Riaud (30%), J.L. Thomas (30%), O. Bou Matar (10%), "Electroacoustic device", submitted on 18/12/2019, application number EP19306682

[P4] M. Baudoin (30%), A. Riaud (30%), J.L. Thomas (30%), O. Bou Matar (10%), "Acoustic tweezers" based on focused acoustical vortices, international patent WO2019081521 (Priority date: 25/10/2017 - Published: 02/05/2019)

[P3] M. Baudoin (30%), A. Riaud (30%), J.L. Thomas (30%), O. Bou Matar (10%), "Acoustical tweezers" based on focused SAW, international pate(12,5%) nt WO2017202747 (Priority date: 24/05/2016 - Published: 02/04/2019)

[P2] M. Baudoin (30%), A. Riaud (30%), J.L. Thomas (30%), O. Bou Matar (10%), 'Acoustic tweezers' based on swirling SAWs, international patent WO2017157426 (Priority date: 15/03/2016 / Published: 21/09/2017)

[P1] M. Baudoin (40%)., A. Buissonnière (30%), O.Bou Matar (15%), and P. Brunet (15%), "Method for increasing the ability of at least one droplet to slide over a medium", international patent WO2017097769 (Priority date: 12/092015 / Published: 15/06/2017), **licensed by VALEO company.**

B. INVITED CONFERENCES

[B9] M. Baudoin, I. Bihi, A. Duchesne, A. Roux, F. Zoueshtiagh, Extraodinary interfacial properties induced by partially wetting microparticles, **4th International Heat and Mass Transfer Conference (IHMTC)**, 17-20 December 2021, Online, **Keynote**

[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, **176th 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, **3rd SIG Meeting of the Acosustofluidics** 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, ***171th ASA Meeting***, 23-27 May 2016, Baltimore (USA)

[B3] **M. Baudoin**, A. Riaud, J.-L. Thomas, A. Bussonière, 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, ***6th IEEE-NEMS Conference***, 20-23 février 2011, Kaohsiung (Taiwan)

B*. INVITED LECTURES AT SUMMER SCHOOLS

[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.

[C27] **M. Baudoin**, J.L. Thomas, R. El Sahely, J.C. Gerbdoen, Z. Gong, A. Sivery, O.B Matar, N. Smagin, A. Vlandas, Advanced cells manipulation with vortex based tweezers, Acoustofluidics 2020, September 2020, Online

[C26] **M. Baudoin**, O.B Matar, J.C. Gerbdoen, Z. Gong, A. Riaud, J.L. Thomas, Selective miniaturized acoustical tweezers, Acoustofluidics 2019, September 2019, University of Twente (Netherland)

[C25] P. Brunet, R. Herbaut, M. Costalonga, M. Baudoin, L. Royon, M. Limat, Non-stationay contact lines : the search for mobility laws, 8th International Symposium on Bifurcations and Instabilities in Fluid Dynamics, July 2019,University of Limeric (Ireland)

[C24] **M. Baudoin,** G. Prabhudesai, J. Jose, I. Bihi, F. Zoueshtiagh, Nonspherical armoured bubble vibration, Flow 17, 3-5 July 2017, Paris (France)

[C23] S. Signé Mamba, F. Zoueshtiagh, **M. Baudoin**, Liquid plugs in capillaries under periodic forcing, EFMC 22, 12-16 September 2016, Seville (Spain)

[C22] A. Riaud, M. Baudoin, J.L. Thomas, O. Bou Matar, Acoustical twisting, Condensed Matter in 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 (Sweeden)

[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 diplacement 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, Stokholm (Sweeden)

[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. Mannevile 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"

[C3] **M. Baudoin**, J.L. Thomas, F. Coulouvrat, D. Lhuillier, A self-consistent effective medium theory for the sound propagation in concentrated suspensions of rigid particles, 19th International Congress on Acoustics, 2-7 September 2007, Madrid (Espagne), CDROM, ISBN : 84-87985-12-2

[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-Units), AIP Conf. Proc. 838, 619 (2006),

D. NATIONAL CONFERENCES

[D9] **M. Baudoin**, Pinces acoustiques holographiques pour la micromanipulation biologique, Journée d'inauguration de l'année de la mécanique, 14 October 2021, Paris (France), invited talk

[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