

BAUDOIN Michaël,

46 years old, French

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PROFESSOR AT UNIVERSITÉ DE LILLE / IEMN LABORATORY CTO/CSO VISION

CURRENT AND PREVIOUS POSITIONS

- Since 2023 **CTO & CSO of the startup VISION** (commercializing the technology Cleardrop)
<https://cleardrop.tech>
- 03/2021 **Co-founder of the startup VISION** (spin-off from my research team at IEMN)
- Since 10/2019 **Junior 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. (Distinguished Professor of “Exceptional Class” since 2024)**
- 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)



AAAS's open-access journal



- **45 publications** (Nature Comm, Science Adv., Ann. Rev. Fluid Mech., PNAS, Phys. Rev. Lett. (3), Adv. Drug Deliv. Rev., JFM, JASA, Phys. Rev. Appl., Phys. Rev. Fluid, App. Phys. Lett., Lab on Chip, Med. Eng. & Phys., Phys. Rev. E, Soft Matter) + **4 submitted. (Corresponding author of 75% of these publications)**
- **17 patents (12 of them licensed, 7 by a major automotive supplier in France and 5 by a startup)** on acoustical tweezers and SAW-based cleaning
- **14 invited talks in international conferences (4 Keynote lectures):** IEEE IUS 2025, Netherland / Acoustofluidics 2024, Sweden / SAW Symposium 2023 (**Keynote**) / 182th ASA meeting 2022, USA / APS Journal Club, 2022 online / APS DFD 2022, USA, 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, Taiwan / Acoustics 2012 Hong Kong / 6th IEEE-NEMS conference 2011, Taiwan
- **7 invited lectures at summer schools:** “European Summer School on Physical Acoustics”, Cargèse, (France), 2024/ “Acoustofluidics”, Porquerolles (France), 2022 / “Complex Motion in Fluids 2019”, Denmark organized by Cambridge (UK), Ecole Polytechnique (France), DTU (Denmark) /

- “Acoustofluidics 2016” Porquerolles (France) / “Nonlinear Acoustics 2014”, Oléron (France)), Lab based workshop on bubbles & Drops, Univ. Florida (USA), 2011
- **7 Highlighted papers:** 2023 **Phys. Rev. Letter** paper on oscillating hydraulic jump **highlighted in APS “Physics” and chosen as Editors suggestion** / 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, (ii) has invented an **acoustical method** based on acoustical tweezer enabling to **clean surface**, (iii) has worked on the **dynamics of liquid plugs in complex network in relation with pulmonary obstructive diseases** and (iv) explored some analogies between **acoustics and quantum mechanics** and between **interfacial fluid mechanics and cosmology**.

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. Currently I am the **PI of a team of 5 PhD students, 2 postdoctoral fellows**. It is important to mention that the research achievements above have been obtained with an **important teaching duty** (~200h/year) and **educational responsibilities**.

TECHNOLOGY TRANSFER

1/ PATENTS, MATURATION AND TECHNOLOGY TRANSFER

Since 2011, I submitted **14 patents, 13 of them being granted** (1 submitted recently), **10 of them being licensed** (7 by a major automotive supplier, VALEO, 3 by the startup VISION) on SAW based cleaning technology and acoustical tweezers. To increase the TRL of the different technologies and reach a sufficient level for industrial transfer, **I led 4 maturation and 1 technology transfer programs** (funded by SATT, VALEO, ISITE and Région HDF)



2/ FOUNDATION OF THE STARTUP VISION COMMERCIALIZING THE TECHNOLOGY CLEARDROP

I co-funded the startup VISION in 2021 to commercialize a **Surface Acoustic Wave (SAW) based technology “Cleardrop”** developed by our research team at IEMN to clean optical surfaces. This technology can clean droplets, dust, frost, ice and mud from optical surfaces in a few seconds, without external water supply and without causing damage to the substrate. This startup is the **winner of the highly selective i-Lab innovation prize (2023)**. After gaining support from University of

Lille Foundation, French Public Investment Bank (BPI), French Defense Procurement agency (DGA), it did its first fund raising in 2025. **I am now CTO & CSO** of the company.

AWARDS

2024 **Distinguished Professor** (Professor of Exceptional Class)

- 2024 Distinguished by the selective national award for excellence in research (PEDR)
 2019 **Elected Junior Fellow of Institut Universitaire de France / Medal delivered at the French Academy**
 2017 Distinguished by the selective national award for excellence in research (PEDR)
 2013 Distinguished by the selective national award for excellence in research (PES)

HIGHLIGHTED PAPERS

- 2024 **Phys. Rev. Letter paper** (on oscillating hydraulic jump) **highlighted in APS “Physics” and chosen as Editors suggestion**
 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 bubbles) **highlighted in APS “Physics” and chosen as Editors suggestion**
 2020 **Invited review in Annual Review of Fluid Mechanics (IF: 16.3)** on “Acoustic tweezers”
 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.**

INSTITUTIONAL/EDUCATIONAL RESPONSIBILITIES

- 2021-2024 **Member of the science faculty council** at Université de Lille
 2025 **Development of a new undergraduate program “Mechatronics & AI”** in between the “Departement of Electrical and Electronic Engineering and Automation” and the “Department of Mechanics”
 2014-2025 **Head of the undergraduate program in Mechanical Engineering** at Université de Lille (more than 200 students)
 ➤ Led a complete reorganization of the program in 2014 and renewal in 2019, and 2025 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**

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, Mathematics and AO. For each of the course, I developed an original approach, with new course material (handout, live experience, PowerPoint). 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, 2019 and 2025** 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

- 2023 Co-organizer (3 people) of an acoustofluidics session at the microrobotics conference MARSS 2023, Abu Dhabi**
- 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 : >3,5 MILLIONS €)

- 2023-2028 Coordinator of the ANR PRME Project (369k€) ACOUSURF on Acoustic Quantum analogues**
- 2023-2027 Coordinator of the International Chair WILL project with Pr. Henrik Bruus (~500k€) from DTU and Royal Danish Academy of Science and Letters**
- 2023-2027 Coordinator of the French-Brazil international project CAPES-COFECUB (~200k€) with Pr. Glauber Silva from University of Alagoas.**
- 2020-2022 Coordinator Talent project (107k€) by Region Haut de France and ISITE foundation: Program to attract talented young researchers at Université de Lille.**
- 2020-2022 PI Start-AIRR project (145k€) 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 (WO201709776O, 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
- 2011/2025 12 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

2008-2025 **Supervision of 15 PhD students / 7 Postdocs / 2 Engineers / >11 Master students** (from France, Denmark, India, China, Lebanon, Syria).

I am currently the **PI of a team of 5 PhD students, 2 Postdoctoral fellows**. For 12 of the 15 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.

The complete list of supervised PhD students is given at the end of the CV.

COLLABORATIONS (INTERNATIONAL, NATIONAL)

- **Since 2024: Collaboration with Ass. Pr. Ratul Dasgupta (IIT Bombay, India)** on surface bubbles bursting
- **Since 2023: Collaboration with Pr. Henrik Bruus (DTU and Royal Danish Academy of Science and Letters, Denmark)** within the framework of WILL international Chair on Micro- and Nano-scales acoustofluidics
- **Since 2023: Collaboration with Pr. Glauber Silva (University of Alagoas, Brazil)** within the framework of the CAPES-COFECUB project on Acoustical tweezers.
- **Since 2023: Collaboration with Pr. Stefaan de Smedt and Ass. Pr. Félix Sauvage (University of Gand, Belgium)** within the framework of ERC “Dye-Light” on acoustical tweezers for in-vivo biological applications
- **Since 2023: Collaboration with Nicolas Berthet at Institut Pasteur**, on acoustical tweezers for in-vitro biological applications
- **Since 2022: Collaboration with Ass. Pr. Virginie Daru (ENSAM, France)** on the simulation and modeling of high frequency Acoustic Streaming

COMMISSIONS OF TRUST

Since 2008 **Jury member of 17 PhD thesis** in France, United Kingdom, Australia, Denmark, Norway
 2013, 2016 **Grant review panelist for the DFG** (German Research Funding Agency)
 Since 2008 **Reviewer for peer-reviewed publications including:** Nat. Com., Science Adv., 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 76% of my publications.

Submitted

- [A49] I. Haouche, B. Reichert, **M. Baudoin**, P.K. Farsoiya, A hybrid Volume-of-Fluid and Phase-Field method for Direct Numerical Simulations of soluble surfactant-laden interfacial flows, *submitted to J. Comp. Phys.* (2026)
- [A48] J.F. Acevedo-Espinosa, F.O.S. D'Amato, M.V.D. Vermelho, A.J.X.B. Branco, A.A.O. Carneiro, **M. Baudoin**, J.L.E. Cuello, G.T. Silva*, Reduced-parameter ultrasound electrical impedance spectroscopy for characterization of piezoelectric transducers and polymer materials, *submitted to Ultrasonics* (2026)
- [A47] J. Ghesquière, M. Terzi, O. Bou Matar, S. Cleve, A. Aleshin*, **M. Baudoin***, Hertz–Mindlin contact governs the reverse motion of particles driven by surface acoustic waves, *submitted to Phys. Rev. Lett* (2026)
- [A46] R. Al Sahely, J.C. Gerbedoen, N. Smagin, R. Chutani, O. Bou Matar, **M. Baudoin***, Ultra-High frequency vortex-based tweezers for microparticles manipulation with high spatial selectivity, *submitted to Phys. Rev. Appl*

2026



- [A45] J. P. Martishang, B. Reichert*, I. Haouche, G. Rousseau, A. Duchesne, **M. Baudoin***, Orbiting, colliding and merging droplets on a soap film: toward gravitational analogues, *PNAS NEXUS*, 5, pga079 (2026)

- [A44] J. Ghesquiere, G. Modler, S. Mollaei, D. Guérin, O. Bou Matar, H. Bruus, **M. Baudoin**, S. Cleve*, Microstreaming induced by a micro-cantilever vibrating elliptically in a viscous fluid, *J. Fluid Mech.*, 1028, A11 (2026)

2025

- [A43] S. Almohamad, G.K. Modler, R. Chutani, U. Ghosh, S. Cleve, H. Bruus and **M. Baudoin***, Patterning and micromanipulation of miscible fluids using vortex-based single-beam acoustic tweezers, *Phys. Rev. Appl.*, 23(5): 054094 (2025)

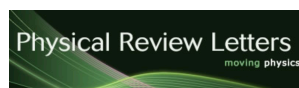


- [A42] L. Guerassimoff, S. De Smedt, F. Sauvage, **M. Baudoin***, Acoustic tweezers for targeted drug delivery, *Adv. Drug. Delivery Review*: 220: 115551 (2025)

2024

- [A41] V. Daru, **M. Baudoin***, High speed and acceleration micrometric jets induced by GHz streaming: a numerical study with direct numerical simulations, *J. Acoust. Soc. Am.*, 155, 2470-2481 (2024) (2023)

2023



- [A40] Goerlinger, M. Baudoin, F. Zoueshtiagh, A. Duchesne, Oscillations and cavity modes in the circular hydraulic jump, *Phys. Rev. Lett.* (2023), 131, 194001 **Editors' suggestion, highlighted in APS Physics**

2022

- [A39] N. Chastrette, **M. Baudoin**, P. Brunet, L. Royon, R. Wunenburger*, Elucidating the oscillation instability of sessile drops triggered by surface acoustic waves, *Phys. Rev. Fluids*, 7: 124201 (2022)
- [A38] A. Roux, J.P. Martishang, **M. Baudoin***, Self radiation force on a moving monopolar source, *J. Fluid Mech.*, 952, A22 (2022)
- [A37] Z. Gong, **M. Baudoin***, Single beam acoustical tweezers based on focused beams: A numerical analysis of 2D

and 3D trapping capabilities, *Phys. Rev. Appl.*, 18: 044033 (2022)

nature

[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.*, **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.*, **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.*, **14**: 064002 (2020)

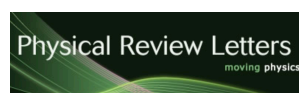
[A30] Z. Gong*, **M. Baudoin**, Acoustic radiation torque on a particle in a fluid: an angular spectrum based compact expression, *J. Acoust. Soc. Am.*, **148**(5): 3131-3140 (2020)



[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.*, **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*, Spatially selective manipulation of cells with single beam acoustical tweezers, *Nature Commu.*, **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.*, **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.*, **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*, **5**: eaav1967 (2019)

[A24] Z. Gong, **M. Baudoin***, Particle assembly with synchronized acoustical tweezers, *Phys. Rev. Appl.*, **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*, **113**: 343-357 (2019)

2018

**Journal of
Fluid Mechanics**

[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.*, **838**: 165-191 (2018)

2017

[A21] G. Prabhudesai, I. Bihi, F. Zoueshtiagh, J. Jose, **M. Baudoin***, Nonspherical armoured bubbles vibration, *Soft Matter*, **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.*, **7**: 024007 (2017), **highlighted in Physics Buzz of APS Central**

**Journal of
Fluid Mechanics**

[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.*, **81**: 384-420 (2017) ,

highlighted in "Focus on Fluids"

2016

Physical Review Letters
moving physics

[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.*, **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*, **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*, **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*, **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.*, **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*, **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.*, **4**: 034004 (2015)

2014

[A11] F. Zoueshtiagh*, **M. Baudoin***, D. Guerrin, Capillary tube wetting induced by particles: towards armoured bubbles tailoring, *Soft Matter*, **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*, **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*, **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.*, **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.*, **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.*, **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.*, **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.*, **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*, **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.*, **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.*, **121**: 3386-3397 (2007)

A* PATENTS

The percentage represents the participation to the invention. Licensed patents are highlighted in grey.

The **patents P1, P6, P7, P8, P9, P10, P11** are licensed by a major automotive supplier (VALEO). The **patents P12, P13, P14, P16 and P17** are licensed by the startup VISION commercializing the technology Cleardrop (<https://cleardrop.tech>).

[P17] **M. Baudoin (60%)**, R. Chutani (40%), "Device for cleaning a substrate comprising a low-wettability surface using an ultrasonic surface wave." submitted on 23/06/2026, application number FR2608543

[P16] **M. Baudoin (35%)**, O.B. Matar (15%), R. Chutani (25%), B. Lemkalli (25%), "Readily integrable electroacoustic device for cleaning a substrate by converting an ultrasonic bulk wave into an ultrasonic surface wave or an ultrasonic plate wave." submitted on 23/06/2026, application number FR2608545

[P15] **M. Baudoin (70%)**, O.B. Matar (15%), A. Vlandas (15%), "Optoelectroacoustic device and method for generating an acoustic field." submitted on 10/12/2025, application number FR2514970

[P14] **M. Baudoin (27,5%)**, O.B. Matar (17,5%), A. Vlandas (5%), R. Al Sahely (25%), N. Christopoulos (25%), "Device and method for cleaning a support by conversion of a bulk wave into a surface wave" submitted on 11/07/2024, application number FR2407618

- [P13] **M. Baudoin (30%)**, O. Bou Matar (20%), N. Christopoulos (25%), R. Sahely (25%), "Cleaning a photovoltaic panel by means of acoustic wave transmission", submitted on 24/01/2023, application number: FR2300659, **international patent number: WO2024156671, licensed by VISION company**
- [P12] **M. Baudoin (30%)**, O. Bou Matar (20%), N. Christopoulos (25%), R. Sahely (25%), "Cleaning of solid element with acoustic waves", submitted on 24/01/2023, application number: FR2300658, **international patent number: WO202415667, licensed by VISION company**
- [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 for cleaning an optical surface" (based on acoustic transducers and an atomizer), submitted on 31/03/2021, application number: FR2103337, **international patent number: WO2022207667** (Priority date: 31/03/2021 / Published: 10/06/2022), **licensed by VALEO company.**
- [P10] **M. Baudoin (35%)**, R. Chutani (15%), F. Bretagnol (25%), A. Peret (25%), "Device to clean an optical surface" (II), submitted on 14/12/2020, application number: FR2013212, **international patent number: WO2022128919** (Priority date: 14/12/2020, Published: 17/06/2022), **licensed by VALEO company.**
- [P9] **M. Baudoin (35%)**, R. Chutani (15%), F. Bretagnol (25%), A. Peret (25%), "Device for cleaning an optical surface", submitted on 14/12/2020, application number: FR2013210, **international patent number: WO2022128914** (Priority date: 17/06/2022 / Published: 17/06/2022), **licensed by VALEO company.**
- [P8] **M. Baudoin (35%)**, O. Bou Matar (15%), F. Bretagnol (25%), A. Peret (25%), "Electroacoustic device" (designed to generate surface acoustic waves on a non-piezoelectric substrate), submitted on 25/09/2019, application number: FR1910590, **international patent number: WO2021058666** (Priority date: 25/09/2019 / Published: 26/03/2021), **licensed by VALEO company.**
- [P7] **M. Baudoin (40%)**, O. Bou Matar (10%), F. Bretagnol (25%), A. Peret (25%) "Device for cleaning a support covered with a liquid" (based on multiple transducers), submitted on 25/09/2019, application number: FR1910589, **international patent number: WO2021058662** (Priority date: 25/09/2019 / Published: 26/03/2021), **licensed by VALEO company.**
- [P6] **M. Baudoin (50%)**, R. Chutani (10%), F. Bretagnol (20%), A. Peret (20%), "Method for melting a body by means of an ultrasonic wave" (Defrost process based on acoustic waves), submitted on 25/09/2019, application number: FR1910588, **international patent number: WO2021058664** (Priority date: 25/09/2019 / Published: 26/03/2021), **licensed by VALEO company.**
- [P5] **M. Baudoin (30%)**, A. Riaud (30%), J.L. Thomas (30%), O. Bou Matar (10%), "Electroacoustic device" (Acoustic tweezers with controlled rotation), submitted on 18/12/2019, application number EP19306682, **international patent number: WO2021122479** (Priority date: 18/12/2019 / Published: 24/06/2021)
- [P4] **M. Baudoin (30%)**, A. Riaud (30%), J.L. Thomas (30%), O. Bou Matar (10%), "Acoustic tweezers" (based on focused acoustical vortices), submitted on 25/10/2017, application number: EP17198204, **international patent number: 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%), "Acoustic tweezers" (based on focused SAW), submitted on 25/05/2016, application number: EP16305601, **international patent number: 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), submitted on 15/03/2016, **international patent number: 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", application number: 1562067, **international patent number: WO2017097769** (Priority date: 12/09/2015 / Published: 15/06/2017), **licensed by VALEO company**.

B. INVITED CONFERENCES

(Keynotes highlighted in grey)

[B15] **M. Baudoin**, "IDT-based holograms for micromanipulation", "**2025 IEEE International Ultrasonic Symposium**" (IUS 2025), Netherland, 15-18 September 2025, Utrecht (Netherland)

[B14] **M. Baudoin**, **Keynote** "Advancing the frontiers of acoustic micro-actuators", **Acoustofluidics 2024**, Sweeden, 14-16 August 2024, Upssala Universitt (Sweeden)

[B13] **M. Baudoin**, **Kenyote 1**: Acoustical tweezers based on Interdigital Transducers, **SAW Symposium 2023**, 21-22 September 2023, Dresden (Germany)

[B13] **M. Baudoin**, **Kenyote 2**: Surface cleaning with Surface Acoustic Waves, **SAW Symposium 2023**, 21-22 September 2023, Dresden (Germany)

[B12] **M. Baudoin**, Z. Gong, Single beam selective acoustical tweezers: from acoustical vortices to focused beams, **APS DFD**, 20-22 November 2022, Indianapolis (USA)

[B11] **M. Baudoin**, A. Roux, A. Duchesne, Everlasting bubbles and liquid films resisting drainage, evaporation and nuclei induced bursting, **APS Journal Club**, 22 February 2022, Online

[B10] **M. Baudoin**, J.L. Thomas, A. Riaud, R.A Sahely, J.C. Gerbedoen, Z. Gong, A. Sivery, O. Bou Matar, N. Smagin, A. Vlandas, Active holographic tweezers based on spiraling interdigitated transducers, **182th ASA Meeting**, 26 May 2022, Denver (USA)

[B9] **M. Baudoin**, I. Bihi, A. Duchesne, A. Roux, F. Zoueshtiagh, Extraordinary interfacial properties induced by partially wetting microparticles, **4th International Heat and Mass Transfer Conference (IHMTTC)**, 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*7] **European summer school on Physical Acoustics**, 1h30 course entitled "Wave synthesis with Interdigital Transducers", Cargèse (France), 16-20 September 2024

[B*6] **Microfluidics summer school**, 1h30 course entitled "Acoustics for microfluidics or Acoustofluidics", Saint-Raphaël (France), 18-23 June 2023

[B*5] **Acoustofluidics summer school**, 1h30 course entitled "Acoustics for microfluidics", Porquerolles (France), 13-17 June 2022

[B*4] **Complex Motion in Fluids summer school** (organized by University of Cambridge, Polytechnique, University of Twente, DTU), 2x2h courses entitled "Acoustic tweezers and vortices", 28-24 August 2019, Gilleleje (Denmark)

[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.

[C42] J. Ghesquiere, **M. Baudoin**, O.B. Matar, and S. Cleve, Microstreaming induced by the complex motion of a micro-pillar, Acoustofluidics 2023, 16-18 August 2023, Saint Louis (USA)

[C41] S. Almohamad, S. Cleve, U. Ghosh, R. Chutani, G. K. Modler H. Bruus, M. Baudoin, Active manipulation of inhomogeneous miscible fluid interfaces using acoustical tweezers, Forum Acusticum 2023, 1-15 September 2023, Torino (Italy)

[C40] A. Goerlinger, **M. Baudoin**, F. Zoueshtiagh, A. Duchesne, The spontaneous oscillations of a circular hydraulic jump., 76th APS DFD Meeting 19-21 November 2023, Washington (USA)

[C39] J.P. Martishang, A. Roux, **M. Baudoin**, Can an acoustic dipole propel on its self-generated radiation force? Toward a 3D macroscopic wave-particle coupling., 76th APS DFD Meeting 19-21 November 2023, Washington (USA)

- [C38] **M. Baudoin**, O.B. Matar, J.C. Gerbedoen, Z. Gong, A. Riaud, J.-L. Thomas, R.A. Sahely, A. Sivery and A. Vlandas, Selective tweezers: from reconfigurable to high frequency active holograms, DAGA 2023, 6-9 March 2023, Hamburg (Germany)
- [C37] **M. Baudoin**, A. Roux, A. Duchesne, Everlasting bubbles and liquid films, APS DFD, 22 February 2022, 20-22 November 2022, Indianapolis (USA)
- [C36] **Z. Gong**, **M. Baudoin**, Single focused-beam acoustical tweezers, Acoustofluidics 2022, 19-21 October 2022, Glasgow (Scotland)
- [C35] **M. Baudoin**, A. Roux, J.P. Martishang, Self-induced radiation force on a moving monopolar source, Acoustofluidics 2022, 19-21 October 2022, Glasgow (Scotland)
- [C34] **M. Baudoin***, P. Favreau, A. Duchesne, F. Zoueshtiagh, Beyond Hoffman regime: formation of anti-Bretherton droplets, EFMC 14th, 13-16 September 2022, Athens (Greece)
- [C33] V. Daru, M. Baudoin, GHz acoustic streaming for the synthesis of ultra-thin high speed streaming jets: a numerical study, 22nd ISNA, 4-8 July 2022, Oxford (UK)
- [C32] **M. Baudoin**, Z. Gong, Single beam acoustical tweezers based on focused waves, 182th ASA Meeting, 26 May 2022, Denver (USA)
- [C31] **Z. Gong**, **M. Baudoin**, One-Sided Acoustical Tweezers Based on Focused Acoustical vortices for 3D Trapping and Axial Positioning of Cells and Microparticles, IEEE IUS Symposium, 12-16 September 2021, Online
- [C30] **Z. Gong**, **M. Baudoin**, Axial displacement of typical cells with 3D trapping in a high-frequency single beam acoustical tweezers, Acoustofluidic 2021, 26-27 August 2021, Online
- [C29] **Z. Gong**, **M. Baudoin**, Equivalence of 3D acoustic radiation force and torque formulas based on angular spectrum and multipole expansion method, ASA meeting 2020, 7-11 December 2020, Online
- [C28] **Z. Gong**, **M. Baudoin**, Three-dimensional trapping and assembly with synchronized spherical acoustical vortices, ASA meeting 2020, 7-11 December 2020, Online
- [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 (Sweden)

[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, n° 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-Unis), AIP Conf. Proc. 838, 619 (2006),

D. NATIONAL CONFERENCES

[D9] **M. Baudoin**, Pincas 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

(Underlined speaker; grey indicates seminars invited abroad)

[E17] **M. Baudoin** et al., Acoustic manipulation: from holographic micro-tweezers to quantum analogues., MECHE Colloquium, EPFL, Switzerland, May, 2023

[E16] **M. Baudoin** et al., Dynamics and rupture of liquid plugs: networks, cycles and anti-Bretherton, University of Manchester, UK, November, 2023

[E15] **M. Baudoin** et al., Droplet displacement and surface cleaning with Surface Acoustic Waves, University of Seville, Spain, May 2023

[E14] **M. Baudoin** et al., Acoustofluidics: an overview of our research activities, NTNU University, Norway, February 2022

[E13] **M. Baudoin**, I. Bihi, A. Duchesne, A. Roux, F. Zoueshtiagh, Extraordinary properties of particle-covered interfaces, MSC Laboratory, France, November 2022

- [E12] A Duschesne, A. Roux, M. Baudoin, Everlasting bubbles and anti-bubbles, LPS laboratory, France, May 2022
- [E11] **M. Baudoin**, O. Bou Matar, J.C. Gerbedoen, Z. Gong, A. Riaud, J.L. Thomas, Acoustical vortices and micromanipulation, PPrime Laboratory, France, September 2021
- [E10] **M. Baudoin**, O. Bou Matar, J.C. Gerbedoen, Z. Gong, A. Riaud, J.L. Thomas, Manipulation of particles and fluids at microscales with selective acoustical tweezers, PMMH Laboratory, ESPCI, France, May 2019
- [E9] **M. Baudoin**, O. Bou Matar, J.C. Gerbedoen, Z. Gong, A. Riaud, J.L. Thomas, Manipulation of particles and fluids at microscales with selective acoustical tweezers, University of Bristol, UK, September 2019
- [E8] **M. Baudoin**, A. Riaud, J.L. Thomas, O. Bou Matar, On-chip generation of acoustical vortices with swirling SAWs for selective single particle manipulation, LadHyX, Polytechnique, France, April 2017
- [E7] **M. Baudoin**, A. Riaud, J.L. Thomas, O. Bou Matar, On-chip generation of acoustical vortices with swirling SAWs for selective single particle manipulation, Tokyo University of Science, December 2016
- [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

SUPERVISION

A. PHD STUDENTS (15)

- **Alireza Barani** (06/2024->...) — Subject: Acoustical tweezers for drug delivery — Funding: ERC Dye light — Supervision: F. Sauvage (40%), **M. Baudoin (30%)**, S. Cleve (20%) — In progress
- **Yves Desille** (06/2024->...) — Subject: Acoustic quantum analogues — Funding: ANR ACOUSURF — Supervision: **M. Baudoin (80%)**, S. Kuznetsova (20%) — In progress
- **Gustav Modler** (10/2023->...) — Subject: Numerical simulation of the streaming produced by microswimmers — Funding: WILL international chair — Supervision: S. Cleve (60%), H. Bruus (25%), **M. Baudoin (15%)** — In progress
- **Ilies Haouche** (10/2023->...) — Subject: Numerical simulation and instability analysis of interfacial flows — Université de Lille — Supervision: **M. Baudoin (50%)**, B. Reichert (50%) — In progress
- **Jules Guesquière** (10/2023->...) — Subject: Dynamics of granular layers induced by surface acoustic waves — Funding: Région / Europe (FEDER) / Université de Lille / VISION — Supervision: **M. Baudoin (50%)**, V. Aleshin (30%), S. Cleve (10%), O. Bou Matar (10%) — In progress
- **Jean-Paul Martishang** (10/2021->09/2024) — Subject: Two analogies based on fluid mechanics: from the cosmological scale to the atomic scale — Funding: Université de Lille — Supervision: **M. Baudoin (60%)**, B. Reichert (30%), A. Duchesne (10%)
- **Aurélien Goerlinger** (10/2021->09/2024) — Subject: Impact of jets : from oscillatory hydraulic spring to spray formation on hot surface — Funding: Ecole Normale Supérieure — Supervision: A. Duchesne (60%), **M. Baudoin (30%)**, F. Zoueshtiagh (20%),
- **Samir Almohamed** (10/2020->12/2024) — Subject: Micromanipulation of miscible fluids and collagen fibers using single-beam acoustic tweezers — Funding: Université de Lille — Supervision: **M. Baudoin (70%)**, S. Cleve (20%), O. Bou Matar (10%)
- **Aymeric Roux** (10/2019->07/2022) — Subject: Armored bubbles and antibubbles and self-induced radiation pressure: synthesis and aging of bubbles and antibubbles stabilized by particle adsorption: self-induced acoustic radiation pressure by a translating bubble — Funding: Université de Lille — Supervision: **M. Baudoin (70%)**, A. Duchesne (30%)
- **Roudy El Sahely** (10/2018->03/2022) — Subject: Acoustical tweezers based on acoustical vortices for selective 3D and contactless manipulation of micrometric particles and cells — Funding: Université de Lille – EC-Lille — Supervision: **M. Baudoin (50%)**, O. Bou Matar (50%)

- **Juan Carmelo Magniez** (10/2014->07/2017) — Subject: Two-phase flows in complex microfluidic networks. — Funding: Ecole Normale Supérieure— Supervision: **M. Baudoin (75%)**, F. Zoueshtiagh (25%)
- **Stéphanie Signé Mamba** (10/2014->02/2018) — Subject: The dynamics of liquid plugs in synthetic networks under cyclic forcings: towards understanding and treatment of respiratory diseases — Funding: Université Lille 1 — Supervision: **M. Baudoin (75%)**, F. Zoueshtiagh (25%)
- **Antoine Riaud** (09/2013->09/2016) Subject: Study of the potentialities offered by the synthesis of complex surface acoustic wave fields: focus on fluid actuation and contactless manipulation. — Funding: ANR - Région Nord Pas de Calais — Supervision: **M. Baudoin (33%)**, J-L. Thomas (33%), O. Bou Matar (33%)
- **Ilyesse Bihi** (10/ 2012->09/2016) Subject: Removal of microparticles from a surface due to interfacial and shear forces in two-phase flows — Funding: Université Lille 1 — Supervision: F. Zoueshtiagh (50%), **M. Baudoin (25%)**, J. Butler (15%), C. Faille (10%)
- **Adrien Bussonnière** (11/2011->12/2014) Subject: Surface acoustic waves actuators for microfluidics: from underlying physics to biological applications — Funding: DGA-Région Nord Pas de Calais — Supervision: **M. Baudoin (50%)**, O. Bou Matar (30%), A. Merlen (20%)