Curriculum Vitae
Nathanaël MACHICOANE, Ph.D.

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Education

July 2014 **PhD in Physics**, École Normale Supérieure de Lyon (ENSL), France
"Material particles in turbulent flows. Transport, long-time dynamics and heat transfer"

July 2011 **Master's Degree Sciences de la Matière**, specialization in **Physique des systèmes hors-équilibre**, ENSL, France

July 2009 **Bachelor's Degree Sciences de la Matière**, specialization in Physics, ENSL, France

Research experience

from 02/2020 **CNRS Researcher** – Grenoble, France
LEGI, Grenoble Alps University
Research areas : Multiphase flows, Turbulence, Experimental methods for Fluid Mechanics : Atomization and sprays ; Turbulent liquid fragmentation ; Preferential concentration and droplet settling dynamics in turbulent particle-laden flows ; Two-phase turbulent pipe flows ; Jets and particles ; MHD ; X-ray imaging.

09/2016 - 01/2020 **Post-doctoral researcher** – Seattle, USA
Multiphase & Cardiovascular Flow Lab, University of Washington (UW), with *Alberto Aliseda*
Research area : Real-time feedback control of sprays.
Experimentally investigated the multi-physics control strategies of a coaxial two-fluid atomizer. Designed a canonical atomizer and implemented external control strategies such as acoustic and electric fields.
Work at collaborators:
– Synchrotron X-ray measurements of a dense spray with *A. Kastengren* at Advanced Photon Source, Argonne National Laboratory, March and August 2017, August and December 2018
– X-ray measurements of a dense spray with *T. Heindel* at Iowa State University

09/2014 - 08/2016 **Post-doctoral researcher** – Paris, France
Laboratory Fluids, Automatics and Thermal Systems (FAST), Paris-Sud University, with *Pierre-Philippe Cortet* and *Frédéric Moisy*
Research area : Rotating turbulence and inertial waves.
Experimentally and theoretically studied inertial waves in rotating flows. Experimentally investigated how rotation influences turbulent drag on the blades of an impeller and the flow transition from 3D to 2D as rotation increases.

09/2011 - 08/2014 **PhD Thesis** – Lyon, France
Physics Laboratory of ENSL, Advisor: *Romain Volk*, Co-advisor: *Jean-François Pinton*
Research area : Turbulent transport and heat transfer of large particles.
Experimentally investigated the transport and heat transfer of large particles in anisotropic and inhomogeneous turbulence. Implemented a 3D shadow tracking setup and a noise-reduction method for turbulent two-point statistics (Eulerian and Lagrangian).
Work at collaborators:
– Large particles preferential sampling measurements in turbulence with *J. Burguete* at University of Navarra, Spain, May 2013
– Towed particle path instabilities measurements with *M. Uhlmann* at Karlsruhe Technical Institute (KIT), Germany, October 2013

Awards

25/04/2022	Travel award AFM-CNFM
02/08/2017	1st place in the Flow Visualization Competition of Fluids Engineering Division Summer Meeting (American Society of Mechanical Engineers)
29/04/2013	Travel award – COST action MP0806 (European Cooperation in Science and Technology)

Scientific publications

Web of Science (ResearcherID AAB-7150-2019)
Google Scholar
Scopus (ID 55985040500)

Journal articles

1. R. Osuna-Orozco*, N. Machicoane, P. Huck, A. Aliseda, *Effect of electrostatic forcing on coaxial two-fluid atomization*, **Physical Review Fluids 7**, 074301 (2022), doi:10.1103/PhysRevFluids.7.074301

2. M. Kaczmarek*, R. Osuna-Orozco*, P. Huck, A. Aliseda, N. Machicoane, *Spatial characterization of the flapping instability of a laminar liquid jet fragmented by a swirled gas co-flow*, **International Journal of Multiphase Flow 152**, 104056 (2022), doi:10.1016/j.ijmultiphaseflow.2022.104056

3. P. Huck, R. Osuna-Orozco*, N. Machicoane, A. Aliseda, *Spray dispersion regimes following atomization in a turbulent co-axial gas jet*, **Journal of Fluid Mechanics 932**, A36 (2021), doi:10.1017/jfm.2021.992

4. G. Ricard*, N. Machicoane, R. Osuna-Orozco*, P. Huck, A. Aliseda, *Role of convective acceleration in the interfacial instability of liquid-gas coaxial jets*, **Physical Review Fluids 6**, 084302 (2021), doi:10.1103/PhysRevFluids.6.084302

5. G. Maurice, N. Machicoane, S. Barre, H. Djeridi, *Coupled X-ray high-speed imaging and pressure measurements in a cavitating backward facing step flow*, **Physical Review Fluids 6**, 044311 (2021), doi:10.1103/PhysRevFluids.6.044311

6. N. Machicoane, R. Volk, *Transport of large particles through the transition to turbulence of a swirling flow*, **Physical Review Fluids 6**, 044303 (2021), doi:10.1103/PhysRevFluids.6.044303

7. F. Chassagne, M. Barbour, V. Chivukula, N. Machicoane, L. Kim, M. Levitt, A. Aliseda, *The effect of Dean, Reynolds and Womersley numbers on the flow in a spherical cavity on a curved round pipe. Part 1. Fluid mechanics in the cavity as a canonical flow representing intracranial aneurysms*, **Journal of Fluid Mechanics 915**, A123 (2021), doi:10.1017/jfm.2020.1114

8. M. Barbour, F. Chassagne, V. Chivukula, N. Machicoane, L. Kim, M. Levitt, A. Aliseda, *The effect of Dean, Reynolds and Womersley numbers on the flow in a spherical cavity on a curved round pipe. Part 2. The haemodynamics of intracranial aneurysms treated with flow-diverting stents*, **Journal of Fluid Mechanics 915**, A124 (2021), doi:10.1017/jfm.2020.1115

9. R. Osuna-Orozco*, N. Machicoane, P. Huck, A. Aliseda, *Feedback Control of the Spray Liquid Distribution of Electrostatically assisted Coaxial atomization*, **Atomization and Sprays 30**(1), 1-9 (2020), doi:10.1615/AtomizSpr.2020033430

10. N. Machicoane, G. Ricard*, R. Osuna-Orozco*, P. Huck, A. Aliseda, *Influence of steady and oscillating swirl on the near-field spray characteristics in a two-fluid coaxial atomizer*, **International Journal of Multiphase Flow 129**, 103318 (2020), doi:10.1016/j.ijmultiphaseflow.2020.103318

11. J. Bothell*, N. Machicoane, D. Li, T. Morgan, A. Aliseda, A. Kastengren, T. Heindel, *Comparison of X-ray and optical measurements in the near-field of an optically dense coaxial air-assisted atomizer*, **International Journal of Multiphase Flow 125**, 103219 (2020), doi:10.1016/j.ijmultiphaseflow.2020.103219

12. R. Osuna-Orozco*, N. Machicoane, P. Huck, A. Aliseda, *Feedback control of coaxial atomization based on the spray liquid distribution*, **Atomization and Sprays 29**(6), 545-551 (2019), doi:10.1615/AtomizSpr.2019031766

13. D. Li, J. Bothell*, T. Morgan, N. Machicoane, A. Aliseda, A. Kastengren, T. Heindel, *Time-averaged Spray Analysis in the Near-field Using Broadband and Narrowband X-ray Measurements*, **Atomization and Sprays 29**(4), 331-349 (2019), doi:10.1615/AtomizSpr.2019030744

14. P. Huck, N. Machicoane, R. Volk, *Lagrangian acceleration time-scales in anisotropic turbulence*, **Physical Review Fluids 4**, 064606 (2019), doi:10.1103/PhysRevFluids.4.064606

15. N. Machicoane, J. Bothell *, D. Li, T. Morgan, T. Heindel, A. Kastengren, A. Aliseda, *Synchrotron radiography characterization of the liquid core dynamics in a canonical two-fluid coaxial atomizer*, **International Journal of Multiphase Flow 115**, 1-8 (2019), doi:10.1016/j.ijmultiphaseflow.2019.03.006

16. N. Machicoane, A. Aliseda, R. Volk, M. Bourgoin, *A simplified and versatile calibration method for multi-camera optical systems in 3D Particle Imaging*, **Review of Scientific Instruments 90**, 035112 (2019), doi:10.1063/1.5080743

17. A. Clark, N. Machicoane, A. Aliseda, *A quantitative study of track initialization of the 4-frame Best Estimate algorithm for 3D Lagrangian particle tracking*, **Measurement Science and Technology 30**(4), 045302 (2019), doi:10.1088/1361-6501/ab0786

18. N. Machicoane, V. Labarre *, B. Voisin, F. Moisy, P.-P. Cortet, *Wake of inertial waves of a horizontal cylinder in horizontal translation*, **Physical Review Fluids 3**, 034801 (2018), doi:10.1103/PhysRevFluids.3.034801

19. N. Machicoane, M. López-Caballero, M. Bourgoin, A. Aliseda, R. Volk, *A multi-time-step noise reduction method for measuring velocity statistics from particle tracking velocimetry*, **Measurement Science and Technology**, 28(10), 107002 (2017), doi:10.1088/1361-6501/aa78cf

20. P. Huck, N. Machicoane, R. Volk, *Production and dissipation of turbulent fluctuations close to a stagnation point*, **Physical Review Fluids 2**, 084601 (2017), doi:10.1103/PhysRevFluids.2.084601

21. N. Machicoane, P. Huck, R. Volk, *Estimating two-point statistics from derivatives of a signal containing noise: Application to auto-correlation functions of turbulent Lagrangian tracks*, **Review of Scientific Intruments 88**, 065113 (2017), doi:10.1063/1.4986467

22. P. Huck, N. Machicoane, R. Volk, *A Cost-efficient Shadow Particle Tracking Velocimetry Setup Suitable for Tracking Small Objects in a Large Volume*, **Procedia IUTAM**(20), 175-182 (2017, invited article for the International Congress of Theoretical and Applied Mechanics 2016) doi:10.1016/j.piutam.2017.03.024

23. N. Machicoane, F. Moisy, P.-P. Cortet, *Two-dimensionalization of the flow driven by a slowly rotating impeller in a rapidly rotating fluid*, **Physical Review Fluids 1**(7), 073701 (2016), doi:10.1103/PhysRevFluids.1.073701

24. C. Mauger, R. Volk, N. Machicoane, M. Bourgoin, C. Ybert, C. Cottin-Bizonne, F. Raynal, *Diffusiophoresis at the macro-scale*, **Physical Review Fluids 1**(3), 034001 (2016), doi:10.1103/PhysRevFluids.1.034001

25. A. Campagne, N. Machicoane, B. Gallet, P.-P. Cortet, F. Moisy, *Turbulent drag in a rotating frame*, **Journal of Fluid Mechanics Rapids 794**, R5 (2016), doi:10.1017/jfm.2016.214

26. N. Machicoane, R. Volk, *Lagrangian velocity and acceleration correlations of large inertial particles in a closed turbulent flow*, **Physics of Fluids 28**, 035113 (2016) ; doi:10.1063/1.4944523

27. N. Machicoane, M. López-Caballero, L. Fiabane, J.-F. Pinton, M. Bourgoin, J. Burguete, R. Volk. *Stochastic dynamics of particles trapped in turbulent flows*, **Physical Review E 93**, 023118 (2016) ; doi:10.1103/PhysRevE.93.023118

28. M. Obligado †, N. Machicoane †, A. Chouippe, R. Volk, M. Bourgoin, M. Uhlmann, *Path instability on a sphere towed at constant speed*, **Journal of Fluids and Structures 58**, 99–108 (2015) ; doi:10.1016/j.jfluidstructs.2015.08.003

29. N. Machicoane, P.-P. Cortet, B. Voisin, F. Moisy. *Influence of the multipole order of the source on the decay of an inertial wave beam in a rotating fluid*, **Physics of Fluids 27**, 066602 (2015) ; doi:10.1063/1.4922735

30. N. Machicoane †, R. Zimmermann †, L. Fiabane, M. Bourgoin, J.-F. Pinton, R. Volk, *Large sphere motion in a nonhomogeneous turbulent flow*, **New Journal of Physics 16**, 013053 (2014) ; doi:10.1088/1367-2630/16/1/013053

31. N. Machicoane, J. Bonaventure *, R. Volk, *Melting dynamics of large ice balls in a turbulent swirling flow*, **Physics of Fluids 25**, 125101 (2013) ; doi:10.1063/1.4832515

∗. Mentored student
†. These authors contributed equally

Peer-reviewed conference proceedings

1. L. Vu, A. Han, N. Machicoane, O. Desjardins, *High-fidelity multi-scale simulation of air-blast atomization with drop size comparison against experiments*, **Institute for Liquid Atomization and Spray Systems - Americas, 2022**

2. L. Vu, N. Machicoane, D. Li, T. Morgan, T. Heindel, A. Aliseda, O. Desjardins, *Detailed Validation of Numerical Simulations of Air-blast Spray Atomization against Experimental Back-lit Images and Radiographs*, **Institute for Liquid Atomization and Spray Systems, 2021**

3. P. Huck, R. Osuna-Orozco *, N. Machicoane, A. Aliseda, *Effects of Acoustic Actuation on a Multi-Phase Jet*, **Institute for Liquid Atomization and Spray Systems, 2021**

4. L. Vu, N. Machicoane, D. Li, T. Morgan, T. Heindel, A. Aliseda, O. Desjardins, *Validation of In ow Modeling for Numerical Simulations of Air-blast Atomization Against Experimental Backlit Imaging and Radiographs*, **Institute for Liquid Atomization and Spray Systems - Americas, 2021**

5. T. Heindel, J. Bothell *, T. Burnett, D. Li, T. Morgan, A. Aliseda, N. Machicoane, K. Matusik, A. Kastengren, *The Effect of Nozzle Electrification on Spray Formation from an Airblast Atomizer*, **4th Thermal and Fluids Engineering Conference, 2019**

6. T. Heindel, T. Morgan, T. Burnett, J. Bothell *, D. Li, A. Aliseda, N. Machicoane, *High-Speed Flow Visualization of a Canonical Airblast Atomizer Using Synchrotron X-rays*, **AJK2019 - Joint ASME/JSME/KSME Fluids Engineering Division Summer Meeting, 2019**

7. J. Bothell *, D. Li, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, *Statistical Analysis of Focused Beam Measurements taken from a Coaxial Airblast Atomizer*, **Institute for Liquid Atomization and Spray Systems, 2019**

8. D. Li, J. Bothell *, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, *Analysis of Primary Breakup of a Spray Using Broadband X-ray Radiography*, **Institute for Liquid Atomization and Spray Systems, 2019**

9. T. Morgan, J. Bothell *, T. Burnett, D. Li, T. Heindel, A. Aliseda, N. Machicoane, K. Matusik, A. Kastengren, *Optimization of High-Speed White Beam X-ray Imaging for Spray Characterization*, **Institute for Liquid Atomization and Spray Systems, 2019**

10. N. Machicoane, R. Osuna-Orozco *, P. Huck, A. Aliseda, *Experimental investigation of multi-physics control of a two-fluid coaxial atomizer*, **Institute for Liquid Atomization and Spray Systems, 2018**

11. R. Osuna-Orozco *, P. Huck, N. Machicoane, A. Aliseda, *Primary break-up instabilities in a gas-liquid coaxial atomizer combined with electro-spray*, **Institute for Liquid Atomization and Spray Systems, 2018**

12. P. Huck, N. Machicoane, R. Osuna-Orozco *, A. Aliseda, *Experimental characterization of a canonical two-fluid coaxial atomizer*, **Institute for Liquid Atomization and Spray Systems, 2018**

13. A. Aliseda, R. Osuna-Orozco *, P. Huck, N. Machicoane, *Effect of modulation of the swirl ratio and gas and liquid flow rates on the structure of the spray produced by a two-fluid coaxial atomizer*, **Institute for Liquid Atomization and Spray Systems, 2018**

14. T. Morgan, J. Bothell, D. Li, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, *Feasibility of Monochromatic X-ray Imaging of the Near-Field Region of an Airblast Atomizer*, **Institute for Liquid Atomization and Spray Systems, 2018**

15. D. Li, J. Bothell, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, *Quantitative Analysis of an Airblast Atomizer in the Near-field Region Using Broadband and Narrowband X-ray Measurements*, **Institute for Liquid Atomization and Spray Systems, 2018**

16. J. Bothell, D. Li, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, *Characterizing the Near-Field Region of a Spray using White Beam and Focused Beam X-ray Measurements*, **Institute for Liquid Atomization and Spray Systems, 2018**

17. T. Heindel, D. Li, T. Morgan, J. Bothell, A. Aliseda, N. Machicoane, A. Kastengren, *X-ray Observations in the Spray Near-Field using Synchrotron X-rays*, **Institute for Liquid Atomization and Spray Systems, 2017**

18. N. Machicoane, A. Aliseda, *Experimental characterization of a canonical coaxial gas-liquid atomizer*, **Institute for Liquid Atomization and Spray Systems, 2017**

19. P. Huck, N. Machicoane, R. Volk, *A shadow PTV technique for particle tracking in an inhomogeneous turbulent flow*, **XXIV ICTAM, 2016**

20. M. López-Caballero, N. Machicoane, L. Fiabane, J.-F. Pinton, M. Bourgoin, J. Burguete, R. Volk, *Dynamic of large particles embedded in shear flows*, **15th European Turbulence Conference, 2015**, 372

21. N. Machicoane, J. Bonaventure*, R. Volk, *Dynamique de fusion de billes de glace en écoulement turbulent*, **Rencontre du Non-Linéaire 2014**, 54

22. N. Machicoane, J. Bonaventure*, R. Volk, *Changement de phase de grosses particules dans un écoulement turbulent*, **Congrès Français de Mécanique 2013**

23. C. Mauger, N. Machicoane, R. Volk, M. Bourgoin, C. Cottin-Bizonne, C. Ybert, F. Raynal, *Migration de particules par gradients salins*, **Congrès Français de Mécanique 2013**

24. N. Machicoane, L. Fiabane, R. Zimmermann, M. Bourgoin, J.-F. Pinton, R. Volk, *Dynamique lente de particules matérielles dans un écoulement de von Kármán*, **Rencontre du Non-Linéaire 2013**, 84

Book chapter

1. N. Machicoane, P. Huck, A. Clark, A. Aliseda, R. Volk, R. Bourgoin, *Recent developments in particle tracking diagnostics for turbulence research*, in : F. Toschi, M. Sega (eds) **Flowing Matter**, p. 177-209, Springer, Cham, 2019, link.springer.com/chapter/10.1007/978-3-030-23370-9_6

2. P. Huck, N. Machicoane, R. Volk, *Small Scale Statistics of Turbulent Fluctuations Close to a Stagnation Point*, in : Gorokhovski M., Godeferd F. (eds) **Turbulent Cascades II**. ERCOFTAC Series, vol 26, p. 125-132, Springer, Cham, 2019, link.springer.com/book/10.1007%2F978-3-030-12547-9

Research support

2023 - 2024	LabEx Tec21, 60 000€ (PI)
2022 - 2026	ANR JCJC 347 000€ (PI, ANR-22-CE30-0003-01)
2022 - 2025	Sponsorship from Akwel 278 000€ (PI)
2022	Thomas Jefferson Fund 10 000€ (PI)
2022 - 2025	UGA Cross Disciplinary Programs "MuSiTox" 1 200 000€ (ANR-15-IDEX-02)
2022 - 2025	French Ministry of Research fellowship 105 000€ (co-PI, one PhD student fellowship)
2021	ESRF beamtime granted at ID19, 3 days (PI)
2021 - 2022	LabEx Tec21, 60 000€ (co-PI)
2021	CNRS PEPS ENERGIE grant 15 000€ (PI)
2020 - 2023	LabEx Tec21 Long duration visitor grant 120 000€ (co-PI)
2020 - 2023	French Ministry of Research fellowship 95 000€ (PI, one PhD student fellowship)
2020	LEGI starting grant 25 000€ (PI)
2016 - 2019	NSF CBET Major Research Instrumentation, $ 639 700 (1626424)
2015 - 2016	LabEx PALM, 60 000€ (post-doctoral fellowship)

Invited seminars

1. Institut de Recherche sur les Phénomènes Hors Équilibre (**IRPHE**), Université Aix-Marseille, December 2nd, 2022

2. IFP Energies nouvelles (**IFPEN**), Lyon, August 31st, 2022

3. International Journal of Multiphase Flow (**IJMF**) Spotlight V-Seminar Series, June 15th, 2021 (recording)

4. Laboratoire des Écoulements Géophysiques et Industriels (**LEGI**), Université Grenoble-Alpes, February 11th, 2020

5. Center for Environmental and Applied Fluid Mechanics, Johns Hopkins University, November 15th, 2019

6. Department of Mechanical and Process Engineering, ETH Zurich (**ETHZ**), March 20th, 2019
7. Mechanical and Industrial Engineering Department, Montana State University (**MSU**), February 14th, 2019
8. Institut Jean le Rond d'Alembert (***∂*'Alembert**), Université Pierre et Marie Curie, September 18th, 2015
9. COmplexe de Recherche Interprofessionnel en Aérothermochimie (**CORIA**), Université de Rouen – INSA Rouen, September 7th, 2018
10. Institut PPrime (**P′**), Université de Poitiers, September 6th, 2018
11. Institut de Recherche sur les Phénomènes Hors Équilibre (**IRPHE**), Université Aix-Marseille, July 20th, 2018
12. Institut de Mécanique des Fluides de Toulouse (**IMFT**), Université Toulouse 3, July 18th, 2018
13. Mechanical Engineering Department, Iowa State University, September 21st, 2017
14. Laboratoire des Écoulements Géophysiques et Industriels (**LEGI**), Université Grenoble-Alpes, March 1st, 2016
15. Institut Jean le Rond d'Alembert (***∂*'Alembert**), Université Pierre et Marie Curie, December 8th, 2015
16. Laboratoire de Mécanique des Fluides et d'Acoustique (**LMFA**), École Centrale de Lyon, April 10th, 2015
17. Institut de Mécanique des Fluides de Toulouse (**IMFT**), Université Toulouse 3, March 26th, 2015
18. Laboratoire Fluides, Automatique et Systèmes Thermiques (**FAST**), Université Paris-Sud, November 27th, 2014
19. Unité de Mécanique de l'École Nationale Supérieure de Techniques Avancées (**ENSTA**), Palaiseau, October 23rd, 2014
20. Institut de Mécanique des Fluides de Toulouse (**IMFT**), Université Toulouse 3, February 20th, 2014
21. Institut de Recherche sur les Phénomènes Hors Équilibre (**IRPHE**), Université Aix-Marseille, January 29th, 2014

Conferences

Invited talks

1. N. Machicoane, O. Tolfts *, **ERCOFTAC Workshop Turbulence and Interface**, Lyon, *Statistics and dynamics of a liquid jet surrounded by a gas jet*, from June 15 to 17, 2022
2. N. Machicoane, M. Bourgoin, R. Volk, **OpenPTV** discussions under COST action MP0806 (European Cooperation in Science and Technology, "particles in turbulence"), Tel Aviv, *Particles Tracking Velocimetry in Lyon*, from April 29 to 3, 2013

Contributed talks

1. N. Machicoane, O. Stamati, E Ando, B. Marks, S. Roux, **Réunion du GdR Navier-Stokes 2.00**, Lille, *How many spheres can a jet juggle ?*, from November 2 to 4, 2022
2. N. Machicoane, R. Osuna-Orozco *, A. Aliseda, **14th European Fluid Mechanics Conference**, Athens, *Regimes of the length of a laminar liquid jet fragmented by a gas co-flow*, from September 13 to 16, 2022
3. O. Tolfts *, N. Machicoane, **14th European Fluid Mechanics Conference**, Athens, *Influence of atomization regimes on spray formation processes*, from September 13 to 16, 2022
4. M. Obligado, A. Ferran *, N. Machicoane, N. Mordant, A. Aliseda, **14th European Fluid Mechanics Conference**, Athens, *Gravitational settling of inertial particles in turbulent environments*, from September 13 to 16, 2022
5. O. Stamati, E Ando, B. Marks, S. Roux, G. Viggiani, N. Machicoane, A. Escobar, T. Faug, **5th International Conference on Tomography of Materials and Structure**, Grenoble, *3D particle tracking in flowing granular media with only X-ray radiography : Application to three case studies*, from June 27 to July 1, 2022
6. M. Obligado, A. Ferran *, N. Machicoane, N. Mordant, A. Aliseda, **ERCOFTAC Workshop Turbulence and Interface**, Lyon, *Gravitational settling of inertial particles in homogeneous isotropic turbulence*, from June 15 to 17, 2022

7. N. Machicoane, M. Kaczmarek*, **Réunion du GdR TransInter**, Aussois, *Large-scale instabilities in coaxial two-fluid atomization*, from June 6 to 9, 2022

8. L. Vu, N. Machicoane, O. Desjardins, **74th Annual Meeting of the APS Division of Fluid Dynamics**, Phoenix, *Effect of Static Contact Angle in Simulations of Coaxial Gas-assisted Atomization*, from November 21 to 23, 2021

9. R. Osuna-Orozco*, X. Xue, N. Machicoane, P. Huck, A. Aliseda, **74th Annual Meeting of the APS Division of Fluid Dynamics**, Phoenix, *The effect of Electrostatic Forcing on the Droplet Distributions in Swirling Coaxial Atomization*, from November 21 to 23, 2021

10. A. Ferran*, A. Aliseda, N. Machicoane, N. Mordant, O. Obligado, **74th Annual Meeting of the APS Division of Fluid Dynamics**, Phoenix, *Gravitatory settling of inertial particles in turbulent environments*, from November 21 to 23, 2021

11. X. Xue, R. Osuna-Orozco*, P. Huck, N. Machicoane, K. Fong, A. Aliseda, **74th Annual Meeting of the APS Division of Fluid Dynamics**, Phoenix, *4D Characterization of the swirling gas jet flow field in a coaxial two-fluid atomizer*, from November 21 to 23, 2021

12. O. Tolfts*, G. Deplus*, N. Machicoane, **Réunion du GdR Navier-Stokes 2.00**, Orsay, *Role of liquid turbulence on the near field of gas-assisted atomization*, from October 27 to 29, 2021

13. N. Machicoane, M. Kaczmarek*, R. Osuna-Orozco*, A. Aliseda, **Réunion du GdR Navier-Stokes 2.00**, Orsay, *Is the flapping instability of a liquid jet surrounded by a gas jet 2D or 3D ?*, from October 27 to 29, 2021

14. A. Ferran*, N. Machicoane, N. Mordant, A. Aliseda, O. Obligado, **Réunion du GdR Navier-Stokes 2.00**, Orsay, *Gravitatory settling of inertial particles in turbulent environments*, from October 27 to 29, 2021

15. L. Vu, N. Machicoane, D. Li, T. Morgan, T. Heindel, A. Aliseda, O. Desjardins, **15th Triennial International Conference on Liquid Atomization and Spray Systems**, Edinburgh, *Detailed Validation of Numerical Simulations of Air-blast Spray Atomization against Experimental Back-lit Images and Radiographs*, from August 29 to September 2, 2021

16. P. Huck, R. Osuna-Orozco*, N. Machicoane, A. Aliseda, **15th Triennial International Conference on Liquid Atomization and Spray Systems**, Edinburgh, *Effects of Acoustic Actuation on a Multi-Phase Jet*, from August 29 to September 2, 2021

17. A. Ferran*, N. Machicoane, N. Mordant, A. Aliseda, O. Obligado, **Congrès des Jeunes Chercheurs en Mécanique**, virtual, *Gravitatory settling of inertial particles in turbulent environments*, from August 24 to 27, 2021

18. O. Tolfts*, G. Deplus*, N. Machicoane, **Réunion du GdR TransInter**, Aussois, *Role of liquid turbulence on the near field of gas-assisted atomization*, from June 26 to 28, 2021

19. L. Vu, N. Machicoane, D. Li, T. Morgan, T. Heindel, A. Aliseda, O. Desjardins, **ILASS-AMERICAS 31th Annual Conference on Liquid Atomization and Spray Systems**, virtual, *Validation of In ow Modeling for Numerical Simulations of Air-blast Atomization Against Experimental Backlit Imaging and Radiographs*, from May 17 to 19, 2021

20. N. Machicoane, G. Ricard*, R. Osuna-Orozco*, P. Huck, and A. Aliseda, **Réunion INTERFACES du GdR TransInter**, virtual, *Role of convective acceleration in the interfacial instability of liquid-gas coaxial jets*, March 18, 2021

21. N. Machicoane, R. Osuna-Orozco*, P. Huck, A. Kastengren, A. Aliseda, **73th Annual Meeting of the APS Division of Fluid Dynamics**, virtual, *Destabilization of a Liquid Jet by a Swirled Gas Co-flow*, from November 22 to 24, 2020

22. P. Huck, R. Osuna-Orozco*, N. Machicoane, A. Aliseda, **73th Annual Meeting of the APS Division of Fluid Dynamics**, virtual, *Liquid droplet formation and dispersion characteristics in a turbulent round jet*, from November 22 to 24, 2020

23. N. Machicoane, R. Osuna-Orozco*, P. Huck, A. Aliseda, **72th Annual Meeting of the APS Division of Fluid Dynamics**, Seattle, *Multi-scale characterization of the effect of gas swirl on two-fluid coaxial atomization*, from November 23 to 26, 2019

24. R. Osuna-Orozco*, N. Machicoane, P. Huck, A. Aliseda, **72th Annual Meeting of the APS Division of Fluid Dynamics**, Seattle, *Feedback control of a combined two-fluid/electro-spray coaxial injector via real-time measurements and Principal Component Analysis* (flash presentation), from November 23 to 26, 2019

25. P. Huck, R. Osuna-Orozco*, N. Machicoane, A. Aliseda, **72th Annual Meeting of the APS Division of Fluid Dynamics**, Seattle, *Physics of liquid break-up in a two-fluid coaxial atomizer forced by an external acoustic field*, from November 23 to 26, 2019

26. R. Volk, P. Huck, N. Machicoane, **72th Annual Meeting of the APS Division of Fluid Dynamics**, Seattle, *Lagrangian acceleration time scales in anisotropic turbulence*, from November 23 to 26, 2019

27. T Burtnett, T. Morgan, D. Li, J. Bothell*, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, **72th Annual Meeting of the APS Division of Fluid Dynamics**, Seattle, *A Near-field Comparison of Flows at Similar Momentum Ratios in a Co-Flow Airblast Atomizer*, from November 23 to 26, 2019

28. T. Heindel, T. Morgan, T. Burnett, J. Bothell*, D. Li, A. Aliseda, N. Machicoane, K. Matusik, A. Kastengren, **AJK2019 - Joint ASME/JSME/KSME Fluids Engineering Division Summer Meeting**, *High-Speed Flow Visualization of a Canonical Airblast Atomizer Using Synchrotron X-rays*, San Francisco, from July 28 to August 1, 2019

29. F. Chassagne, M. Barbour, N. Machicoane, V. Chivukula, L. Marsh, C. Kelly, S. Levy, M. Levitt, L. Kim, A. Aliseda, **25th Congress of the European Society of Biomechanics**, Vienna, Austria, *In vitro investigation of the effect of flow-diverting stent treatment on hemodynamics of intracranial aneurysms*, from July 7 to 10, 2019

30. N. Machicoane, P. Huck, T. Morgan, J. Bothell*, R Osuna-Orozco*, D. Li, T. Heindel, A. Kastengren, A. Aliseda, **10th International Conference on Multiphase Flow**, Rio de Janeiro, *Multi-scale characterization of the effect of gas swirl on the spray produced by a coaxial two-fluid atomizer*, from May 19 to 24, 2019

31. R Osuna-Orozco*, N. Machicoane, P. Huck, A. Aliseda, **10th International Conference on Multiphase Flow**, Rio de Janeiro, *The impact of an external electric field on the atomization in a combined two-fluid/electro-spray coaxial injector*, from May 19 to 24, 2019

32. P. Huck, N. Machicoane, R Osuna-Orozco*, A. Maxwell, A. Aliseda, **10th International Conference on Multiphase Flow**, Rio de Janeiro, *Ultrasonic actuation on the spray produced by a coaxial two-fluid atomizer : modified interfacial instabilities and droplet transport*, from May 19 to 24, 2019

33. A. Aliseda, P. Huck, N. Machicoane, R Osuna-Orozco*, **10th International Conference on Multiphase Flow**, Rio de Janeiro, *The influence of oscillations in the liquid and gas flow rates on the liquid breakup instabilities and on the clustering of droplets in a turbulent coaxial spray*, from May 19 to 24, 2019

34. J. Bothell*, D. Li, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, **ILASS-AMERICAS 30th Annual Conference on Liquid Atomization and Spray Systems**, *Statistical Analysis of Focused Beam Measurements taken from a Coaxial Airblast Atomizer*, Tempe, from May 12 to 15, 2019

35. D. Li, J. Bothell*, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, **ILASS-AMERICAS 30th Annual Conference on Liquid Atomization and Spray Systems**, *Analysis of Primary Breakup of a Spray Using Broadband X-ray Radiography*, Tempe, from May 12 to 15, 2019

36. T. Morgan, J. Bothell*, T. Burnett, D. Li, T. Heindel, A. Aliseda, N. Machicoane, K. Matusik, A. Kastengren, **ILASS-AMERICAS 30th Annual Conference on Liquid Atomization and Spray Systems**, *Optimization of High-Speed White Beam X-ray Imaging for Spray Characterization*, Tempe, from May 12 to 15, 2019

37. T. Heindel, J. Bothell*, T. Burnett, D. Li, T. Morgan, A. Aliseda, N. Machicoane, K. Matusik, A. Kastengren, **4th Thermal and Fluids Engineering Conference**, *The Effect of Nozzle Electrification on Spray Formation from an Airblast Atomizer* from April 14 to 17, 2019

38. N. Machicoane, R. Osuna-Orozco*, P. Huck, A. Aliseda, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *Break-up instabilities and resulting droplet distributions in a gas-liquid coaxial atomizer combined with electro-spray*, from November 18 to 20, 2018

39. P. Huck, N. Machicoane, R Osuna-Orozco*, A. Maxwell, A. Aliseda, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *Control and ultrasonic actuation of a coaxial two-fluid atomizer*, from November 18 to 20, 2018

40. A. Aliseda, P. Huck, N. Machicoane, R Osuna-Orozco *, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *Modulation of the liquid flow rate and the gas swirl ratio as an actuation strategy for control of a two-fluid coaxial atomizer spray*, from November 18 to 20, 2018

41. F. Chassagne, N. Machicoane, V. Chivukula, J. Beckman, C. Mahr, A. Aliseda, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *In-vitro investigation of the hemodynamics of the Left Ventricle supported by a Left Ventricular Assist Device*, from November 18 to 20, 2018

42. M. Barbour, F. Chassagne, N. Machicoane, V. Chivukula, L. Kim, M. Levitt, A. Aliseda, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *Parametric Characterization of the Hemodynamics Inside Cerebral Aneurysms Undergoing Flow Diverting Stent Therapy*, from November 18 to 20, 2018

43. J. Bothell *, T. Morgan, D. Li, T. Burtnett, T. Heindel, A. Aliseda, N. Machicoane, K. Matuzik, A. Kastengren, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *Electrifying an airblast atomizer and its effect on the flow field near the exit region*, from November 18 to 20, 2018

44. D. Li, J. Bothell *, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *Near-field Characterization of an Airblast Atomizer Using Broadband X-ray Radiography*, from November 18 to 20, 2018

45. C. Beringer, J. Bothell *, T. Morgan, D. Li, T. Heindel, A. Aliseda, N. Machicoane, K. Matuzik, A. Kastengren, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *High-Speed X-ray Flow Visualization of a Liquid Jet*, from November 18 to 20, 2018

46. T. Burtnett, T. Morgan, D. Li, J. Bothell *, T. Heindel, A. Aliseda, N. Machicoane, K. Matuzik, A. Kastengren, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *High Speed Observations of the Near-Field Region from an Electrified Airblast Atomizer*, from November 18 to 20, 2018

47. P. P. Cortet, N. Machicoane, V. Labarre *, B. Voisin, F. Moisy, **71th Annual Meeting of the APS Division of Fluid Dynamics**, Atlanta, *Wake of inertial waves of a horizontal cylinder in horizontal translation*, from November 18 to 20, 2018

48. N. Machicoane, F. Chassagne, V. K. Chivukula, J. Beckman, N. Mokadam, C. Mahr, A. Aliseda, **8th World Congress of Biomechanics**, Dublin, *Hemodynamics of the Left Ventricle supported by an apically-inserted Left Ventricular Assist Device*, from July 8 to 12, 2018

49. N. Machicoane, R. Osuna-Orozco *, P. Huck, A. Aliseda, **14th International Conference for Liquid Atomization and Spray Systems**, Chicago, *Experimental investigation of multi-physics control of a two-fluid coaxial atomizer*, from July 22 to 26, 2018

50. R. Osuna-Orozco *, P. Huck, N. Machicoane, A. Aliseda, **14th International Conference for Liquid Atomization and Spray Systems**, Chicago, *Primary break-up instabilities in a gas-liquid coaxial atomizer combined with electro-spray*, from July 22 to 26, 2018

51. P. Huck, N. Machicoane, R. Osuna-Orozco *, A. Aliseda, **14th International Conference for Liquid Atomization and Spray Systems**, Chicago, *Experimental characterization of a canonical two-fluid coaxial atomizer*, from July 22 to 26, 2018

52. A. Aliseda, R. Osuna-Orozco *, P. Huck, N. Machicoane, **14th International Conference for Liquid Atomization and Spray Systems**, Chicago, *Effect of modulation of the swirl ratio and gas and liquid flow rates on the structure of the spray produced by a two-fluid coaxial atomizer*, from July 22 to 26, 2018

53. T. Morgan, J. Bothell, D. Li, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, **14th International Conference for Liquid Atomization and Spray Systems**, Chicago, *Feasibility of Monochromatic X-ray Imaging of the Near-Field Region of an Airblast Atomizer*, from July 22 to 26, 2018

54. D. Li, J. Bothell, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, **14th International Conference for Liquid Atomization and Spray Systems**, Chicago, *Quantitative Analysis of an Airblast Atomizer in the Near-field Region Using Broadband and Narrowband X-ray Measurements*, from July 22 to 26, 2018

55. J. Bothell, D. Li, T. Morgan, T. Heindel, A. Aliseda, N. Machicoane, A. Kastengren, **14th International Conference for Liquid Atomization and Spray Systems**, Chicago, *Characterizing the Near-Field Region of a Spray using White Beam and Focused Beam X-ray Measurements*, from July 22 to 26, 2018

56. P. P. Cortet, N. Machicoane, V. Labarre, B. Voisin, **Journée Sillages et Ondes de Surface 3**, Orsay, *Sillage d'ondes d'inertie d'un cylindre horizontal en translation dans un fluide en rotation*, May 4, 2018

57. N. Machicoane, R. Osuna-Orozco, A. Aliseda, **70th Annual Meeting of the APS Division of Fluid Dynamics**, Denver, *Liquid harmonic forcing in a gas-assisted coaxial atomization experiment*, from November 19 to 21, 2017

58. P. P. Cortet, N. Machicoane, V. Labarre, B. Voisin, **CNRS workshop on Interdisciplinary Geo-Astro Fluid Dynamics**, Paris, *Wake of inertial waves of a horizontal cylinder in horizontal translation*, from October 16 to 18, 2017

59. P. P. Cortet, G. Bordes, A. Campagne, T. Dauxois, B. Gallet, N. Machicoane, F. Moisy, **Congrès Général de la Société Française de Physique**, Orsay, *Turbulence en mécanique des fluides et en plasmas*, from July 3 to 7, 2017

60. T. Heindel, D. Li, T. Morgan, J. Bothell, A. Aliseda, N. Machicoane, A. Kastengren, **ILASS-AMERICAS 29th Annual Conference on Liquid Atomization and Spray Systems**, Atlanta, *X-ray Observations in the Spray Near-Field using Synchrotron X-rays*, from May 15 to 18, 2017

61. N. Machicoane, A. Aliseda, **ILASS-AMERICAS 29th Annual Conference on Liquid Atomization and Spray Systems**, Atlanta, *Experimental characterization of a canonical coaxial gas-liquid atomizer*, from May 15 to 18, 2017

62. P. P. Cortet, G. Bordes, A. Campagne, T. Dauxois, B. Gallet, N. Machicoane, F. Moisy, **Rencontre du Non-Linéaire**, Paris, *Turbulence en rotation et ondes d'inertie: quelques expériences*, from March 21 to 23, 2017

63. P. P. Cortet, N. Machicoane, V. Labarre, B. Voisin, **Journée de Dynamique des Fluides du Plateau**, Orsay, *Sillage d'ondes d'inertie*, January 31st, 2017

64. N. Machicoane, P.-P. Cortet, F. Moisy, **69th Annual Meeting of the APS Division of Fluid Dynamics**, Portland, *A slowly rotating impeller in a rapidly rotating fluid*, from November 20 to 22, 2016

65. R. Volk, P. Huck, N. Machicoane, *A shadow PTV technique for particle tracking in an inhomogeneous turbulent flow*, **24th International Congress of Theoretical and Applied Mechanics**, from August 22 to 26, 2016

66. P. P. Cortet, A. Campagne, N. Machicoane, F. Moisy, **Instabilities and Turbulence in Strato-Rotational Flows**, Le Havre, *A rotating impeller in a rotating fluid : Dissipation of energy, instability and wake of inertial waves*, from July 11 to 13, 2016

67. N. Machicoane, P.-P. Cortet, F. Moisy, **Réunion du GdR Turbulence**, Paris, *Dissipation d'énergie et sillage d'ondes d'inertie dans une expérience de turbulence en rotation*, from June 20 to 22, 2016

68. P. P. Cortet, A. Campagne, B. Gallet, N. Machicoane, F. Moisy, **New Challenges in Turbulence Research IV**, Les Houches *Rate of energydissipation in a rotatingturbulence*, from March 20 to 25, 2016

69. N. Machicoane, A. Campagne, B. Gallet, P.-P. Cortet, F. Moisy, **Journée de Dynamique des Fluides du Plateau**, Orsay, *Réduction de traînée en turbulence en rotation*, February 9, 2016

70. N. Machicoane, P.-P. Cortet, B. Voisin, F. Moisy, **68th Annual Meeting of the APS Division of Fluid Dynamics**, Boston, *Influence of the multipolar order of the source on the viscous decay of inertial waves*, from November 22 to 24, 2015

71. N. Machicoane, P.-P. Cortet, A. Campagne, B. Gallet, F. Moisy, **68th Annual Meeting of the APS Division of Fluid Dynamics**, Boston, *Do inertial wave interactions control the rate of energy dissipation of rotating turbulence ?*, from November 22 to 24, 2015

72. P. P. Cortet, N. Machicoane, F. Moisy, B. Voisin, **New challenges in internal wave dynamics**, Lyon, *Viscous decay of an inertial wave beam in a rotating fluid*, from October 14 to 16, 2015

73. M. López-Caballero, N. Machicoane, L. Fiabane, J.-F. Pinton, M. Bourgoin, J. Burguete, R. Volk, **15th European Turbulence Conference**, Delft, *Dynamic of large particles embedded in shear flows*, from August 25 to 28, 2015

74. N. Machicoane, P.-P. Cortet, F. Moisy, **Bifurcations and Instabilities in Fluid Dynamics**, Paris, *Influence of the multipolar order of the source on the viscous decay of inertial waves*, from July 15 to 17, 2015

75. N. Machicoane, P.-P. Cortet, F. Moisy, **Journée de Dynamique des Fluides du Plateau**, Orsay, *Déclin visqueux d'un faisceau d'ondes d'inertie dans un fluide en rotation*, March 24th, 2015

76. N. Machicoane, B. Voisin, P.-P. Cortet, F. Moisy, **19th International Couette-Taylor Workshop**, Cottbus, *Influence of the multipolar order of the source on the viscous decay of inertial waves*, from June 22 to 24, 2015

77. F. Moisy, A. Campagne, N. Machicoane, P.-P. Cortet, B. Gallet, **19th International Couette-Taylor Workshop**, Cottbus, *What is the energy dissipation rate in rotating turbulence ?*, from June 22 to 24, 2015

78. P.-P. Cortet, A. Campagne, B. Gallet, N. Machicoane, F. Moisy, **Réunion du GdR Turbulence**, Grenoble, *Taux de dissipation de l'énergie en turbulence en rotation*, from June 1 to 3, 2015

79. R. Volk, N. Machicoane, **67th Annual Meeting of the APS Division of Fluid Dynamics**, San Francisco, *Melting dynamics of large ice balls in a turbulent flow*, from November 23 to 25, 2014

80. N. Machicoane, R. Volk, **European Fluid Mechanics Conference 10**, Copenhague, *Particles size effect on their dynamics in inhomogeneous turbulence*, from September 14 to 18, 2014

81. N. Machicoane, R. Volk, **Réunion du GdR Turbulence**, Paris, *Structure moyenne et turbulence pour des particules matérielles*, from June 2 to 4, 2014

82. N. Machicoane, R. Volk **Rencontre du Non-Linéaire 2014**, Paris, **long talk**, *Dynamique de fusion de billes de glace en écoulement turbulent*, from March 18 to 20, 2014

83. N. Machicoane, P.-P. Cortet, F. Moisy, **Journées de la Physique Statistique**, Paris, *Déclin visqueux d'un faisceau d'ondes d'inertie dans un fluide en rotation*, from January 29 to 30, 2014

84. N. Machicoane, R. Volk, L. Fiabane, M. Bourgoin, J. F. Pinton, **European Turbulence Conference 14**, Lyon, *Dynamics of large particles in a von Kármán flow*, from September 1 to 4, 2013

85. N. Machicoane, J. Bonaventure, R. Volk, **Congrès Français de Mécanique**, Bordeaux, *Fusion de grosses particules en turbulence*, from August 26 to 30, 2013

86. C. Mauger, N. Machicoane, R. Volk, M. Bourgoin, C. Cottin-Bizonne, C. Ybert, F. Raynal, **Congrès Français de Mécanique 2013**, *Migration de particules par gradients salins*, from August 26 to 30, 2013

87. N. Machicoane, R. Volk, L. Fiabane, M. Bourgoin, J. F. Pinton, **Réunion du GdR Turbulence**, Paris, *Dynamique lente de grosses particules en écoulement turbulent*, from June 4 to 5, 2013

88. N. Machicoane, L. Fiabane, R. Zimmermann, M. Bourgoin, J. F. Pinton, R. Volk **Rencontre du Non-Linéaire 2013**, Paris, *Dynamique lente de particules matérielles dans un écoulement de von Kármán*, from March 26 to 27, 2013

89. N. Machicoane, D. Chareyron, R. Volk, J. F. Pinton, **Réunion du GdR Turbulence**, Poitiers, *Changement de phase dans un écoulement turbulent*, from October 15 to 17, 2012

90. N. Machicoane, D. Chareyron, R. Volk, J. F. Pinton, **European Fluid Mechanics Conference 9**, Rome, *Turbulent phase change of particles in a swirling flow*, from September 9 to 14, 2012

91. N. Machicoane, R. Volk, M. Bourgoin, **Réunion du GdR Turbulence**, Aussois, *Étude de la signature de la diffusion dans un jet turbulent*, from December 12 to 14, 2011

Presentations to granting agencies

1. A. Aliseda, R. Osuna-Orozco, P. Huck, N. Machicoane, **ONR Power and Propulsion Program Review**, Washington, D. C., *Real-Time Feedback Control on a Canonical Two-Fluid Atomizer*, March 7th 2019

2. A. Aliseda, R. Osuna-Orozco, P. Huck, N. Machicoane, **ONR 331 Hydrodynamics Program Review**, San Diego, *Actuation on a Canonical Two-Fluid Atomizer : Open Loop Characterization for Feedback Control*, June 18th 2018

3. A. Aliseda N. Machicoane, **ONR MURI Grant Review**, Chicago, *Experimental characterization of a canonical two-fluid coaxial atomizer*, August 14st 2017

4. A. Aliseda N. Machicoane, **ONR MURI Grant Review**, Portland, *Experimental implementation of a canonical two-fluid coaxial atomizer*, November 21st 2016

Teaching and mentoring activities

Teaching

Fall 2022	Instructor for Turbulent Two-Phase Flows (developed, coordinated and taught), **MS**	UGA
Winter 2021	Instructor for Fluid Dynamic and Turbulence (developed, coordinated and taught), **MS**	UGA
Winter 2020	Turbulence guest lectures, **MS**	UGA
Winter quarter 2019	Adviser for ME 495 Senior design projects, **BS (senior)**	UW
Winter quarter 2019	Co-instructor for ME 507 Graduate Fluid Mechanics, **MS/PhD**	UW
July 2017	Heat transfer guest lecture, **BS (junior/senior)**	UW
Fall quarter 2018	Instructor for ME 431/538 Advanced Fluids (developed, coordinated and taught), **BS (senior)/MS/PhD**	UW
July 2017	Heat transfer guest lecture, **BS (junior/senior)**	UW
Spring 2016	Fluid mechanics practicals, **MS**	UPMC, Paris
Fall 2015	Thermal science tutorials, **BS (junior)**	UPMC, Paris
Spring 2015	Heat transfer practicals, **BS (senior)**	UPMC, Paris
Academic year 2011 - 2012	Physics practicals, **BS (freshmen)**	CPE Lyon, France
Fall 2011, 2012, 2013	Physics practicals, **BS (senior)**	ENSL, France

Mentoring

‡Pursuing or completed PhD.

Santanu Kumar Sahoo	Post-doc	Turbulent fragmentation	2023 - present	UGA
Neda Ansari Shirvan	PhD	Two-phase fluidic oscillator	2022 - present	UGA
Pablo Alvarez	PhD	High Reynolds numbers bubbly flows	2022 - present	UGA
Akashdeep Singh	BS	Charpak Lab scholarship	5 - 7/2022	UGA
Ahmad Mahmood	MS	Turbulence	1 - 5/2022	UGA
Olga Stamati	Post-doc	X-ray measurements of a fluidized bed	2021 - 2022	UGA
Guillaume Deplus	MS	Liquid turbulence in atomization	4-7/2021	UGA
Carlos Perez Fernandez	MS	Tunable turbulence gas jet	3-6/2021	UGA
Amélie Ferran	PhD	Particles in turbulence gradients	2020 - present	UGA
Oliver Tolfts	PhD	Role of liquid turbulence in atomization	2020 - present	UGA
Maxime Kaczmarek	MS	Atomization instabilities	5 - 7/2020	UGA
Majd Armaly‡	MS	Clustering in particle-laden flows	2 - 7/2020	UGA
Sari Barczay	BS	Experiments in fluids	Fall 2019	UW
Nouf Alabdullatif	BS	KAUST enrichment program	Summer 2019	UW
Amani Al Rumaih	BS	KAUST enrichment program	Summer 2019	UW
Sierra Bishop	BS	Spray control	Spring 2019	UW
August Honnell	BS	Spray control	Spring 2019	UW
Jannah Bongato	BS	STARS program	2019	UW
Dylan Bergen	BS	Turbulence and droplets	Fall 2018	UW
Guillaume Ricard‡	MS	Atomization instabilities	8/2018 - 7/2019	UW
Julie Bothell	PhD	Spray control	Fall 2018	UW
Yvon Boulay	BS	Spray control	Summer 2018	UW
Peter Huck	Post-doc	Spray control	2018 - 2020	UW
Fanette Chassagne	Post-doc	Imaging cardiovascular flows	2018 - 2020	UW
Rodrigo Osuna-Orozco	PhD	Spray control	2016 - 2021	UW
Corentin Jorajuria‡	MS	Spray characterization	Summer 2017	UW
Vincent Labarre‡	MS	Inertial waves wake	Summer 2016	FAST
Qiong Meng	MS	Fibers transport in turbulence	Summer 2014	ENSL
Gabriel Meyer	BS	Holographic size measurements	Summer 2014	ENSL
Peter Huck‡	MS	Turbulent mixing	Summer 2013	ENSL
Julien Bonaventure‡	MS	Turbulent melting of ice balls	Summer 2012	ENSL

Involvement (%) in supervisory team of PhD students at UGA

Period	Student name	%	Supervisor	Other members
2022 - 2025	N. Ansari Shirvan	30	H. Djeridi	Z. Huang, C. Bonamy
2022 - 2025	P. Alvarez	50	R. Fortes Patella	-
2020 - 2023	O. Tolfts	100	N. Machicoane	-
2020 - 2023	A. Ferran	35	M. Obligado	A. Aliseda, N. Mordant

Educational outreach and dissemination

2015	Participating in the outreach event "Fête de la Science" at Laboratory FAST
2011 - 2014	Supervisions of high school student internships
2011 - 2014	Presentations of the laboratory to high school classes
2011 - 2013	Participating (yearly) in the outreach event "Fête de la Science" at ENSL

Service to the scientific community

2021 - present	In charge of the department seminars at LEGI
11/2017 - present	Chair in international conferences (APS DFD 2019, Flash Oral Presentations : Multiphase Flows, Turbulence : Mixing ; ICLASS 2018, Drop and Ligament Breakup III ; APS DFD 2017, Multiphase Flows: Particle Laden I)
11/2019	Member of the local organizing committee for the 72nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics (3500 participants). Abstract sorting, recruitment and coordination of the conference volunteers (about 100 persons).
2021 - present	Reviewer for granting agencies (ANR - French National Research Agency, GACR - Czech Science Foundation)
2016 - present	Reviewer for international peer-reviewed journals (Journal of Fluid Mechanics, Flow, Physics of Fluids, International Journal of Multiphase Flow, American Institute of Chemical Engineers Journal, International Journal of Heat and Mass Transfer, Experimental Thermal and Fluid Science, Data In Brief, IEEE Transactions on Industrial Electronics, IEEE Access, Journal of Marine Science and Engineering, Applied Sciences, Energies, Processes, Water, Measurement Science and Technology)
2014 - 2017	Contributed to updates of the PIVMat toolbox (vector fields analysis, www.fast.u-psud.fr/pivmat, created by F. Moisy, language: *Matlab*)
2013 - 2016	Contributed to the development of an open-source particle tracking software (3D-PTV, www.openptv.net, project initiated by A. Liberzon, language: *Python*)
09/2014	Member of the local organizing committee for the European Turbulence Conference 14 (600 participants, Lyon, France). Coordinator of on-site registration, conference rooms' management, recruitment and coordination of the conference volunteers (about 30 persons).
01/2012 - 08/2014	PhD student representative for the Department of Physics of ENSL

PhD defense committees

2022	Examiner : Louise Cottier, INSA de Rouen Normandie, Caractérisation fine de l'influence de la viscoélasticite sur un processus d'atomisation
2022	External member : Lam Vu, Cornell University, Multi-scale modeling and control of liquid-gas flows with a focus on spray atomization
2022	Examiner : Brandon Blakeley, University of Washington, Toward a fundamental understanding of scalar iso-surface kinematics in turbulent flows
2021	Reading committee member : Rodrigo Osuna-Orozco, University of Washington, Characterization and Control of Electrostatically Assisted Coaxial Atomization
2020	Examiner : Guangjian Zhang, Ecole Nationale Supérieure d'Arts et Métiers, Etude expérimentale de la structure et de la dynamique des écoulements cavitants