

CHRISTOPHE BAILLY

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Current position

2003 - present Full Professor at Ecole Centrale de Lyon (CE2 Sept. 2016)
2021 - present Head of the Fluid Mechanics and Acoustics Laboratory (LMFA, UMR 5509)
2007 - 2012 Junior Member of the Institut Universitaire de France

Publications, research topics and teaching

115+ archival Journals, 2 books, 23 invited lectures, 200+ international communications with refereed scientific meetings (exclusive of invited lectures)

34 PhD dissertations supervised

h-index of 34 in WebOfScience with 4000+ citations,

using (AU=(Bailly C))and(AD=(Ecully or Clamart))or(AU=(Bailly C)and(AD=Chatenay)and(PY=1990-2000))

[ORCID iD](#) • [HAL](#) • [Google Scholar](#)

Research topics - My main research activities are centered around the physics of noise emission mechanisms of subsonic and supersonic free shear turbulent flows, with the development of direct computation of aerodynamic noise and numerical algorithms for large eddy simulation, numerical and experimental identification of noise sources, very long range propagation of infrasound waves in the atmosphere, and more recently parietal pressure fluctuations

Teaching - Physics of turbulent flow (3rd year Centrale Lyon & MSc), Turbulence and stability (2nd year Centrale Lyon), Order, chaos and fractals (2nd year Centrale Lyon), Fluid mechanics and energy (1st year Centrale Lyon)

In charge with J.C. Béra (LabTAU, INSERM) of the MSc in Acoustics of Lyon (2016-2021), <https://master-acoustics.ec-lyon.fr>

Editorial boards & Professional affiliations

Associate Editor of the *AIAA Journal* (2005 - present)

Advisory Editor, *Flow, Turbulence and Combustion* (dec 2011 - present)

Member of the French Acoustical Society (SFA, head of Aero- and Hydro-Acoustics Group 2007-2010), of the French Society of Mechanics (AFM), of the European Mechanics Society (Euromech), and of the American Institute of Aeronautics and Astronautics (AIAA)

Awards

CEAS Aeroacoustics Award (2020)

Medal of the National Air and Space Academy (Toulouse, 2016)

Alexandre Joannidès Great Prize of the Academy of Sciences (Paris, 2001)

Yves Rocard Prize of the French Acoustical Society (1996)

Five significant publications

- BOGEY, C. & BAILLY, C., 2004, A family of low dispersive and low dissipative explicit schemes for noise computation, *Journal of Computational Physics*, **194**(1), 194-214.
- ARGUILLAT, B., RICOT, D., BAILLY, C. & ROBERT, G., 2010, Measured wavenumber - frequency spectrum associated with acoustic and aerodynamic wall pressure fluctuations, *Journal of the Acoustical Society of America*, **128**(4), 1647-1655.
- BAILLY, C. & FUJII, K., 2016, High-speed jet noise, *Mechanical Engineering Reviews, Journals of the Japan Society of Mechanical Engineers*, **3**(1), 1-13.
- SABATINI, R., MARSDEN, O., BAILLY, C. & GAINVILLE, O., 2019, Three-dimensional direct numerical simulation of infrasound propagation in the Earth's atmosphere, *Journal of Fluid Mechanics*, **859**, 754-789.
- SPIESER, E. & BAILLY, C., 2020, Sound propagation using an adjoint based method, *Journal of Fluid Mechanics*, **900**, A5 1-25.

Committees

Member of the CT2 committee (fluid dynamics & complex fluids) of the GENCI, French national high-performance computing (HPC) agency (2009 - 2016)

Responsible of the Special Interest Group in Aeroacoustics (SIG-39) of Ercoftac, *European Research Community On Flow, Turbulence And Combustion* (2009-2022)

Head of the Scientific Council of IROQUA, *Research Initiative for Aeronautics Acoustic Optimization* (Onera, CNRS, Safran, Airbus, Dassault, Eurocopter, ADP, 2010-2015)

Member of the Scientific Council of the Institute for Engineering and Systems Sciences (INSIS, CNRS, 2010-2014)

Elected member of the Scientific Council of Ecole Centrale de Lyon (2009-2013 & 2013-2017), Elected member of the Teaching Council (CE) of Ecole Centrale de Lyon (2017-2021), Member of the Council of the teaching Department MFAE (2011 - present)

Recent collaborative projects

- Chairholder ARENA, *Aeroacoustics of New Engine Architectures in Aeronautics* (ANR - LMFA - Safran Aircraft Engines, 2019-2023, funding 2.1 M€)
- French programs AMBROSIA (2019-2022) & FEDER-IJES, FUI-CAA (2020-2023)
- Modelling infrasonic propagation (LETMA, 2015-present), with CEA, CNRS, Centrale Lyon and Sorbonne University (Institut Jean Le Rond d'Alembert)
- Industrial chair ADOPSYS (resp. of a WP, ECL/SNECMA, funding 2.4 M€, jan. 2014 - 2018)
- European projects ENOVAL (7th PCRD, 2013-2017), CANOBLE (7th PCRD, 2016-2019)
- Partner in ANR SONOBL (fév. 2012 - 2015), experimental determination of the wall pressure spectrum (\mathbf{k}, ω), and identification of the acoustic contribution.
- Principal investigator of ANR JESSICA (janvier 2011-2014), shocked supersonic jets and aeroacoustic couplings, with Pprime and LaMSID laboratories.

Education & Appointments

2001 - 2020	Lecturer at ENSTA ParisTech
1995 - 2006	Lecturer at Ecole Centrale Paris
1995 - 2003	Assistant Professor at Ecole Centrale de Lyon
1994 - 1995	Post-doctoral position at Centre National d'Études Spatiales
1990 - 1991	Military service as a scientist in air force
1999	Habilitation à diriger des recherches (qualified to supervise PhD Theses)
1995 - 2003	Assistant Professor at Ecole Centrale de Lyon
1994 - 1995	Post-doctoral position at Centre National d'Études Spatiales
1991 - 1994	PhD Thesis at Ecole Centrale Paris (now CentraleSupélec)
1989 - 1990	Diplôme d'Études Approfondies d'Acoustique (MSc in Acoustics)
1987 - 1990	Engineering Degree of Ecole Centrale de Lyon