



**Luca Biferale** (he/his/him)  
Born August 12, 1965, in Imperia (Italy)  
Married, two children (born 1996 and 2000)  
**Nationality:** Italian  
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**Researcher unique identifier:** ResearcherID: L-4535-2013



### EDUCATION

Mar. 1993      PhD. Univ. of Rome Sapienza. Title: Anomalous scaling laws in fully developed turbulence.  
Mar. 1989      Master in Physics, Univ. of Rome Tor Vergata.

**CURRENT POSITION:** Full Professor (since 2014) of Theoretical Physics, Mathematical and Numerical Modelling, Dept. Physics, University of Rome Tor Vergata, Italy.

### OTHER POSITIONS

05/2020 - 04/2022      Scientific Expert, **Italian Embassy in Paris**, France  
01/2019 & 01/2020      Visiting Professor at **SUSTech** (Shenzhen, China)  
03/2016                  Visiting Professor at **Johns Hopkins University** (Baltimore, USA)  
2011                      Visiting Professor at **Technische University Eindhoven** (The Netherlands)  
06/2011 & 07/2012      Visiting Professor at **Observatory of Nice** (France)  
07/2008                  Visiting Scientist at **University of Chicago** (USA)  
06/2006-07/2006      Visiting Professor at **Johns Hopkins University** (Baltimore, USA)  
01/2005-03/2014      Associate Professor, Dept. Physics, **University of Rome Tor Vergata** (Italy)  
01/1995-12/2004      Researcher, Dept. of Physics, **University of Rome Tor Vergata** (Italy)  
02/1993-12/1994      Marie Curie and H. Poincare Post-doc fellow, **Observatory of Nice** (France)  
06/1989-12/1989      Fellow **European Centre Scientific & Engineering Computing**, IBM (Italy)

### FELLOWSHIPS/HONOURS/AWARDS

2025-present      Member of **Academia Europaea**  
2022-present      Member of **ITATEC** – Italian Academy of Engineering and Technology  
2021-2026          **European Research Council** Advanced Grant ‘Smart-TURB’, PE8  
2014-2019          **European Research Council** Advanced Grant ‘NewTURB’, PE8  
2015                  **Outstanding Referee** Physical Review Journals  
2010                  **Elected Fellow. EUROMECH** Society, division of *Fluid Dynamics*  
2008                  **Elected Fellow. APS**, division of *Statistical and Nonlinear Physics*  
1986/87/88/89      Distinguished undergraduate student. Awarded by **Acc. Nazionale dei Lincei** (Italy)

### GRADUATE STUDENTS AND POSTDOC

**Ph.D (Total 21.** Ongoing only listed): F. Fossella, A. Freitas  
**Post-doc (Total 20):** I. Daumont, B. Devenish, A.S. Lanotte, G. Manzi, E. Foard, G. Sahoo, F. Bonaccorso, S.K. Malapaka, K. Gustafsson, M. Linkmann, M. Buzzicotti, M. De Pietro, P. Clark di Leoni, Q. Ni, R. Scatamacchia, I. Mazzitelli, R. Heinonen, T. Li, L. Piro. F. Guglietta.

**SCIENTIFIC ACTIVITY** (key words): Complex fluids. Turbulence. Multifractals, Machine-Learning. Reinforcement Learning. Microfluidics and Biofluidic. Lattice Boltzmann equations, Dynamical Systems. Information Theory. Stochastic Processes. Renormalization Group. Monte Carlo methods.

### Key numbers (scientific impact, Google Scholar)

**Number of published papers: 300+**  
**Hirsch-index (H): 59**  
**Citations (total): 13000+; Citations (2024): 1000+**



### TEACHING EXPERIENCE

**Undergraduate.** Dept. Physics (DP) and Faculty Mech. Engineering (ME) U. Rome Tor Vergata: Mathematical Methods for Physics (DP); Dynamical Systems (DP); Turbulence and Complex Fluids (ME), Quantum Mechanics (DP), Statistical Mechanics (DP), Computational Physics (DP).

**Postgraduate.** Faculty of Engineering, U. Rome La Sapienza: Turbulence (short course, 2000); Royal Institute of Technology Stockholm (SE): Lagrangian and Eulerian Turbulence (short course, 2012); Dept. Physics University Hong Kong (CN): Modern problems in turbulence (short course, 2003); SUSTech (CN): Statistical Turbulence (short course, 2019 & 2020)

### MEMBER STEERING/ORGANISING COMMITTEES (most recent only)

- Workshop on **Challenges and Benchmarks for quantitative AI in Complex Fluids and Complex Flows**, Centro Enrico Fermi, Rome, Italy 2022
- HPC applications to Turbulence and Complex Flows (**EJD-Stimulate School**). Rome, Italy 2020
- **HPC-LEAP** Conference. Cambridge, UK 2018
- **FSIM-2017**: Fluid and structures: interactions and modeling (COST meeting). Naples, Italy 2017
- HPC applications to Turbulence and Complex Flows (**EJD-HPCLEAP School**). Rome, Italy 2016
- **FlowMat 2015** Flowing Matter Across Scales (ERC & COST meeting). Rome, Italy 2015
- Workshop on **Instantons and Extreme Events in Turbulence** (IMPA). Rio de Janeiro, Brazil 2015
- **9th European Fluid Mechanics Conference** (EFMC9). Rome, Italy 2012
- Program on **New Directions in Turbulence**. Kavli Institute of Theoretical Physics (KITPC), Beijing, China 2012
- **Breakup of small aggregates in turbulence** (COST meeting). Rome, Italy 2011
- **Numerical issues in Lagrangian and Eulerian Turbulence** (COST meeting). Rome, Italy 2010
- **Discrete Simulations of Fluid Dynamics** 19th, DSFD2010 Conference. Rome, Italy 2010

### INSTITUTIONAL RESPONSIBILITIES

- 2023-2024 Committee Fluid Dynamics Prize, APS-DFD
- 2021-present Institutional Relations Manager **ERCinItaly**
- 2022-2026 Supervisory Board, **European Joint Doctorate** Program AQTIVATE
- 2020-2021 Chairman elected and Chairman Nominating Committee APS Division Fluid Mechanics
- 2018-2022 Supervisory Board, **European Joint Doctorate** Program STIMULATE
- 2014-2019 Supervisory Board, **European Joint Doctorate** Program HPC-LEAP
- 2014-2018 Managing Committee, **COST Action Flowing Matter** ESF
- 2017 Access Committee, **PRACE** (Partnership Advancing Computing in Europe).
- 2017 Scientific Board, Italian Technion Association
- 2015-2018 **Executive Committee**. Dept. Physics University of *Tor Vergata*, Rome (Italy)
- 2014-2021 **EUROMECH** Fluid Mechanics Prize and Fellow Committee
- 2013-2019 Director, **CAST** (Inter-department Centre for Applications of Calculus to Science and Technology), Univ. *Tor Vergata*, Rome (Italy)
- 2013-2017 Physical Science Working Group (**European Space Agency**)
- 2013-2017 Steering Committee, **European High Performance Infrastructure in Turbulence**. EU
- 2012-2017 Scientific Committee, High Performance Computing Centre **CINECA**, Bologna (Italy)
- 2013-present **Doctoral Studies Committee**, Dept. Physics Univ. *Tor Vergata*, Rome (Italy)
- 2008-2013 Financial Rapporteur & Managing Committee, **COST Action Particles in Turbulence**. ESF
- 2007-2009 Coordinator **ERASMUS** Project, Dept. Physics Univ. *Tor Vergata*, Rome (Italy)
- 2004-2009 **Euromech** board, **European Turbulence Conference**
- 2006-2016 National Coordinator, **Scientific Initiatives Particles and Fields in Turbulence** INFN (Italy)



**MEMBERSHIPS OF SCIENTIFIC SOCIETIES** (only those still active)

**INFN** (National Institute of Nuclear Physics); **EUROMECH** (European Mechanics Society); **APS** (American Physical Society); **CECAM** (Centre Européen de Calcul Atomique et Moléculaire), **ELLIS** (European Laboratory for Learning and Intelligent Systems)

**EDITORIAL AND REVIEWING ACTIVITIES**

2020-present Editorial Board, **Physical Review E**  
2007-2013 Divisional Associate Editor, **Physical Review Letters** (Fluid Mechanics)  
2004-2018 Associate Editor, **Journal of Turbulence**  
2018-2019 Editorial Board, **Entropy**  
2011-present Editorial Board, **European Journal of Physics E (Ejpe)**  
2007-2011 Editorial Board, **European Journal of Physics B (EPJB)**

**Evaluator for (only major):** Italian Ministry of Research (**MUR**), European Science Foundation (**ESF**), European Research Council (**ERC**), **US-Israel** binational science foundation. Italian Supercomputing Resources Allocations (**ISCRA**); Partnership for advanced computing in Europe (**PRACE**). **Italian-French** University. **ETH** Zurich. **Agence Nationale de la Recherche** (France). European Cooperation in Science and Technology (**COST**).

**FUNDING** (only most important > 20 Keuro, as PI or local PI)

<b>2023-2025</b>	PRIN (MUR)	110 Keuro
<b>2022-2026</b>	FARE (Smart-HEART, MUR)	384 Keuro
<b>2022-2026</b>	MSCA-EU European Joint Doctorate (AQTIVATE, H2020)	260 Keuro
<b>2021-2026</b>	ERC AdG (Smart-TURB, H2020)	2248 Keuro
<b>2018-2022</b>	MSCA-EU European Joint Doctorate (Stimulate, H2020)	515 Keuro
<b>2014-2019</b>	MSCA-EU European Joint Doctorate (HPC-LEAP, H2020)	515 Keuro
<b>2014-2019</b>	ERC AdG (NewTURB, FP7)	1986 Keuro
<b>2013-2017</b>	European High Performance Infrastructure in Turbulence (EuHIT, FP7)	320 Keuro
<b>2006-2016</b>	National Coordinator Iniziativa Specifica (FieldTURB-INFN)	~100 Keuro
<b>2006</b>	Advanced Project “Non-Newtonian Fluids” (CNISM)	~50 Keuro
<b>2000-2004</b>	Training and Research Network (Nonideal Turbulence, FP5)	~200 Keuro

**HIGH PERFORMANCE COMPUTING (HPC) (Only major grants <10y):** *Fractal Turbulence* (22MH, PRACE 2012). *Monte-Carlo methods for instantons in Turbulence* (13MH INFN 2012). *Multiphase systems in porous media* (10MH PRACE 2013). *Turbulence under Rotation* (55MH PRACE 2014). *Homogeneous and Anisotropic Turbulence* (27MH PRACE 2015). *Superfluid Turbulence under counter-flows* (22MH PRACE 2016). *Instantons and Intermittency in Hydrodynamic Turbulence: A Lattice Monte Carlo Approach* (18MH PRACE 2017). *Inverse and direct cascades in rotating turbulent flows* (60MH PRACE 2018).

**EDITOR SPECIAL ISSUES (<10 y)** *Discrete simulation of fluid dynamics: applications* Phil. Trans. Royal Soc. A **369**, 2384 (2011) and Phil. Trans. Royal Soc. A **369**, 2152 (2011). *Fluids and Structures, multiscale coupling and modeling*. Eur. Phys. J. E. **42**, 3 (2018). *Multi-scale phenomena in Complex Flows and flowing Matter*, Eur. Phys. J. E **39**, 56 (2016).