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## Curriculum Vitae: Roberto Verzicco

### Personal information

Born [REDACTED] in [REDACTED]  
[REDACTED]

URL: [people.uniroma2.it/roberto.verzicco/](http://people.uniroma2.it/roberto.verzicco/)

### Education

Jul. 1991: Degree in Aeronautical Engineering, *University of Rome "La Sapienza"* ("cum Laude").

May 1994: PhD in Aerospace Engineering at the *University of Rome "La Sapienza"*

### Current and Previous Positions

1994 – 1997: Assistant Professor in the Department of Mechanics and Aeronautics *University of Rome "La Sapienza"* (Italy).

1997 – 2003: Associate Professor of Fluid Dynamics in the Department of Mech. Engineering *Politecnico di Bari*

2003 – 2007: Full Professor of Fluid Dynamics in the Department of Mech. Engineering *Politecnico di Bari*

From Nov. 2007 on: Full Professor of Fluid Dynamics in the Department of Industrial Engineering *University of Rome "Tor Vergata"*

From Jan. 2010 on: Part-time Professor of Direct Numerical Simulation of Turbulence in the Physics of Fluids group of *University of Twente*.

### Fellowships and Awards

- Fellow of the American Physical Society, Division of Fluid Dynamics, since 2013.
- Fellow of EUROMECH since 2012.
- Wim Nieuwpoort Award for Scientific Computing, 2012 (with R. Ostilla-Monico, E. van del Poel and D. Lohse).
- Frenkiel Award from the American Physical Society, 2005.

### Research Interests

- Biofluidmechanics.
- Computational and Experimental Fluid Dynamics.
- Direct Numerical Simulation of Turbulence.
- Complex-Geometry Flows and Fluid/Structure Interaction.
- Heat Transfer and Wall Turbulence (Rayleigh-Bénard and Taylor-Couette Flows).

### Teaching Activities

- 1998-2007 'Fluid-dynamics' for BSc Mechanical Engineering of Politecnico di Bari
- 2003-2007 'Turbulence' for MSc Mechanical Engineering of Politecnico di Bari
- 1998-2007 'Turbulence Dynamics and Modeling' for PhD of Mechanical Engineering of Politecnico di Bari
- 2007-present 'Gasdynamics and Combustion' (presently 'Gasdynamics') for MSc Mechanical Engineering of Università di Roma 'Tor Vergata'.
- 2009-present 'Fluid Mechanics' for BSc and MSc Mechanical Engineering and Energy Engineering of Università di Roma 'Tor Vergata'.

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- 2009–present ‘Computational Methods for Mechanical Engineering’ for PhD in Mechanical Engineering at Università di Roma ‘Tor Vergata’.
  - 2010–present ‘Turbulence Dynamics and Modelling’ for MSc Mechanical and Energy Engineering at Università di Roma ‘Tor Vergata’.
  - 2013–present ‘Mechanics of Biological Systems’ for BSc Medical Engineering at Università di Roma ‘Tor Vergata’.
  - 2014–present ‘Continuum Mechanics’ for PhD school GSSI (Gran Sasso Science Institute) of L’Aquila (Italy).

#### Key numbers from Google Scholar (SCOPUS), Aug. 30<sup>th</sup>, 2017)

- Number of published refereed papers: 144 (142)
- Hirsch-index:  $H = 37$  (30)
- m-index =  $H/(\# \text{ of years after PhD}) = 1.61$  (1.30)
- Citations in 2016: 615 (393)
- Total citations: 6149 (3839)
- Average citations/article: 42.7 (27.0)
- Number of (present) PhD students + PostDocs of Verzicco’s group: 7+3
- Number of finished PhD theses supervised: 25
- Total external funding received as PI in last 10 years:  $\approx 3\text{M€}$

#### Editorial Boards

- Associate Editor of *Journal of Fluid Mechanics* 2013–present (Cambridge University Press),
- Section Editor of *Applied Mechanics Reviews* (ASME) 2012–present (ASME),
- Advisory Editor of *Flow, Turbulence & Combustion* 2009–present (Springer),
- Member of the Advisory Board of *Acta Mechanica* 2008–present (Springer).
- Member of the Advisory Board of *Computers and Fluids* 2008–present (Elsevier).

#### International Scientific Boards

- Chairman (2015–present) and Member (2010–2015) of the EUROMECH “European Fluid Mechanics Conference Committee”.
- Member of the CFD core-committee of ECCOMAS (2014–present).
- Member of the EUROMECH Council (2016–present).

#### National Scientific Boards

- 2016–present Member of the National Panel for the Abilitation to Associate and Full Professor in Naval, Aeronautics and Aerospace Engineering
- 2009–2013 Member of the Evaluation and Assessment committee of the University of Rome “Tor Vergata”
- 2009–present Chairman of the degree program in Engineering Sciences (taught in English) University of Rome “Tor Vergata”

#### Meeting Organization (most recent)

- Chair of the 9<sup>th</sup> European Fluid Mechanics Conference in Rome 9–13 September, 2012.



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- Organization and Chair of the International Conference on “Vortical Structures and Wall Turbulence” 19–20 September, 2014.
  - Organization (with D. Lohse) of RBC2018, on “International Conference on Rayleigh–Bénard Turbulence”, (May 14–18, 2018, Enschede)

#### Service to the Community within last 10 years (selection)

- Evaluator for PRACE (Partnership for Advanced Computing in Europe)
- Evaluator for ERC (European Research Council)
- Evaluator for CERG (Research Grants Council Hong Kong)
- Evaluator for CRG (Competitive Research Grant of KAUST, Saudi Arabia)
- Evaluator for ANR (Agence Nationale de la Recherche, France)
- Evaluator for Natural Sciences and Engineering, Research Council of Canada
- Member of the Board for the Evaluation of research proposals of the Swedish Research Council
- Evaluator of research proposals and projects for Italian Research Agencies (Prin, Fibr, POR)
- Member of PhD defense committees in Italy, France, Germany and the Netherlands
- Member of the scientific committee or ETMM Conference series
- Member of the scientific committee or TSFP Conference series
- Member of committees to appoint faculties or to promote tenured staff in Italy, France, The Netherlands, Sweden, Canada, United States, Saudi Arabia and India.
- Reviewer for: Nature, Journal of Fluid Mechanics, Physical Review Fluids, Physics of Fluids, European Journal of Mechanics B/Fluids, Computer and Fluids, Journal of Computational Physics, Journal of Sound and Vibration, AIAA Journal, Numerical Linear Algebra with Applications, Physical Review Letters, Physical Review E, Flow Turbulence & Combustion, Journal of Low Temperature Physics, Acta Mechanica, Journal of Fluids Engineering, Environmental Fluid Mechanics, Journal of Engineering Mathematics, International Journal of Heat and Fluid Flows, International Journal of Multiphase Flows, Journal of Biomechanics.

**Invited and Named Lectures:** Roberto Verzicco has given more than 30 invited lectures and seminars in the last 10 years some of them “plenary” at conferences or named lectures. Some highlights:

- European Fluid Mechanics Conference 2008 (Manchester, UK),
- DLES7 2008 (Trieste, Italy),
- Euromech Colloquium 507 on Immersed Boundary Methods: Current Status and Future Research Directions 2009 (Amsterdam, The Netherlands),
- Euromech Colloquium 520 on High Rayleigh number convective turbulence 2010 (Les Houches, France),
- Burgers Lecture 2013, (Enschede, NL),
- Gauss Lecture 2013 (Braunschweig, Germany),
- Marine 2015 (Rome, Italy).
- IUTAM Symposium on Bubbly Flows, 2015 (Oaxaca, Mexico).
- ECCOMAS Conference, 2016 (Crete, Greece).
- MUSAF III Conference, 2016 (Toulouse, France).
- Inaugural Lecture for Max Planck Center for Complex Fluid Dynamics, 2017 (Enschede, NL).

#### Ten representative publications of the last 10 years (*not the ten most cited*):

- Y. Yang, R. Verzicco & D. Lohse, “From convection rolls to finger convection in double-diffusive turbulence” Proc. Nat. Acad. of Sci., 110(1), 69–73, (2016).



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- Verzicco, R. “Boundary layer structure in confined turbulent thermal convections” J. Fluid Mech., 706, 14, (2012). (Focus on Fluids)
  - Stevens, R.J.A.M., Verzicco, R. & Lohse, D. “Radial boundary layer structure and Nusselt number in Rayleigh-Bénard convection” J. of Fluid Mech., 643, 495, (2010).
  - Ahlers, G., Bodenschatz, E., Funfschilling, D., Grossmann, S., He, X., Lohse, D., Stevens, R.J.A.M., Verzicco, R. “Logarithmic Temperature Profiles in Turbulent Rayleigh-Bénard Convection” Phys. Rev. Lett., 109, 114501, (2012).
  - de Tullio, M., Cristallo, A., Balaras, E. & Verzicco, R., “Direct numerical simulation of the pulsatile flow through an aortic bileaflet mechanical heart valve” J. of Fluid Mech., 622, 259, (2009).
  - F. De Vita, M.D. de Tullio & R. Verzicco, “Numerical simulation of the non-Newtonian blood flow through a mechanical aortic valve: Non-Newtonian blood flow in the aortic root”, Theor. Comp. Fluid Dyn., 30(1-2), 129, (2016).
  - de Tullio, M.D., Pascasio, G., Weltert, L. De Paulis, R. & Verzicco, R. “Evaluation of prosthetics-valved devices by means of numerical simulations” Phil. Trans. R. Soc. A, 369(1945), 2502, (2011)
  - Biferale, L., Meneveau, C. & Verzicco, R. “Deformation statistics of sub-Kolmogorov-scale ellipsoidal neutrally buoyant drops in isotropic turbulence” J. of Fluid Mech., 754, 184 (2014)
  - Spandan, V., Meschini, V., Ostilla-Mónico, R., Lohse, D., Querzoli, G., de Tullio, M.D., Verzicco, R. “A parallel interaction potential approach coupled with the immersed boundary method for fully resolved simulations of deformable interfaces and membranes” J. of Comput. Phys. , 348, 567–590, (2017)
  - Pacheco, J.R. & Verzicco, R. “Formation of columnar baroclinic vortices in thermally stratified non-linear spin-up” J. of Fluid Mech., 702, 265, (2012)

**Inspiration for young scientists:** Since the beginning of his career Roberto Verzicco has tutored or co-tutored more than 25 PhD students or Postdocs and many of them hold a tenured position in Universities or research centres all over the world. Some examples are G. Iaccarino (Professor at Stanford University), M.D. de Tullio (Assoc. Prof. at Politecnico di Bari), R. Ostilla-Mónico (Assist. Prof. University of Houston), Y. Yang (Assist. Prof. Peking University), R.J.A.M. Stevens (Assist. Prof. University of Twente), P. Oresta (Assist. Prof. at Politecnico di Bari), A. Sameen (Assoc. Prof. IIT Madras), R. Lakkaraju (Assist. Prof. IIT Madras), G. Stringano (R&D General Electrics), Antonio Cristallo (R&D General Electrics).

**Publications and visibility:** Roberto Verzicco published more than 140 papers in refereed scientific journals, including 2 PNAS paper, 5 Physical Review Letters, 45 Journal of Fluid Mechanics/Physics of Fluids/Physical Review Fluids, 4 Journal of Computational Physics and 2 Reviews for Applied Mechanics Review (ASME). He has written also the description of the word “*Fluidodinamica*” on the most prestigious Italian Enciclopedia (*Enciclopedia Treccani XXI Secolo, (l’Universo Fisico), (2010), p. 213–222*).

**Characteristics of work:** The main characteristics of Verzicco’s work is the interaction between numerical simulations with experiments and theory performed partially in Verzicco’s laboratory and partially through a network of collaborations all over the world. He is not method-driven, but rather physics-driven or application-driven and often had to acquire the necessary knowledge from some other field to solve some particular problem. This led to various fruitful collaborations with different disciplines, such as physics, mathematics, medicine, biology, and computer science. Most of his research subjects involve fundamental research even if with an “application perspective”.