

## CURRICULUM VITAE

### Roberto Verzicco

**Name:** Roberto Verzicco  
**Birthplace:** Rome, Italy  
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**Address:** Via del Politecnico 1, Roma 00133, Italy  
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#### Education:

1991 Degree in Aeronautical Engineering, University of Rome, 110/110 cum laude. Advisor Prof. P. Orlandi  
1992–1995 Ph.D in Fluid Dynamics Department of Meccanica e Aeronautica, University of Rome “La Sapienza”, advisor Prof. P. Orlandi

#### Employment history:

1993–1998 Assistant Professor at Department of Meccanica e Aeronautica, University of Rome “La Sapienza”  
1998–2003 Associate Professor of Fluid Dynamics at DIMeG and CEMeC of Politecnico di Bari.  
2003–2007 Professor of Fluid Dynamics at DIMeG and CEMeC of Politecnico di Bari.  
2007–present Professor of Fluid Dynamics at DIM Università di Roma “Tor Vergata”.  
2010–present Part-time Professor of “Direct Numerical Simulation of Turbulence” at Physics of Fluids group of University of Twente (NL).

## Research Interests

- Computational Fluid Dynamics.
- Direct Simulation of Turbulence.
- Geophysical Flows.
- Experimental Fluid Dynamics.
- Turbulence Modeling and Large-Eddy-Simulation
- Heat Transfer and Wall Turbulence (Turbulent Rayleigh-Bénard and Taylor-Couette Flows)
- Complex-Geometry Industrial Flows
- Biofluidmechanics.

## Visiting positions

1. 1994-2001 Visiting Scientist of 'Center for Turbulence Research' and 'NASA Ames Research Center' in Stanford (1 month per year)
2. 1994-1999 Visiting Scientist of 'Departimento de Termofluidodinamica y Propulsion' of Technical University of Madrid (2 weeks per year)
3. 1992-2010 Visiting Scientist of 'Fluid Dynamics Laboratory' of Eindhoven University of Technology (3-4 weeks per year)

## Experience

1. 1999 Chairman of EUROMECH 396 'Vortical Structures in Rotating and Stratified Fluids' Cortona.
2. 1999 Chairman of ERCOFTAC Workshop 'Rotating and Stratified Turbulence'.
3. 1999 Chairman of TAO (European Science Fundation) Workshop 'Effects of Rotation and Stratification on Mixing'.
4. 2006 Co-chairman of EUROMECH 480 'High Rayleigh number thermal convection' ICTP Trieste.
5. 2010-2015 Member of the European Fluid Mechanics Conference committee of EUROMECH (Chair from 2015).
6. Chairman of the European Fluid Mechanics Conference, Rome September 2012.
7. 2005-present member of Advisory Editorial Board of "Acta Mechanica"
8. 2006-present Advisory Editor of "Flow Turbulence & Combustion"
9. 2012-present Section Editor of "Applied Mechanics Review", ASME
10. 2013-present Associate Editor of "Journal of Fluid Mechanics"

11. Reviewer for Journal of Fluid Mechanics, 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.
12. Reviewer of Fluid Dynamics textbooks for ASME, EJMB/fluids
13. Guest Editor of European Journal of Mechanics B/Fluids (1999-2000)
14. Principal investigator in research contracts with MURST, ASI, INSEAN, CIRA and several Private Companies.
15. Consultant for: Dow Chemical, General Motors, INSEAN, Cascade Inc., CIRA, Karalit, TOTO Costruzioni, Eurolink.
16. 2000–2007 Coordinator for fluid dynamics activities in the ‘Excellence Center of Computational Mechanics’ in the Technical University of Bari.
17. 2000–2003 Member of the committee of the Master in Computational fluid Mechanics organized by TCN/CRS4
18. Advisor of Master and PhD students in Italy and The Netherlands
19. Member of PhD final committees in Italy, The Netherlands, France and Switzerland.
20. 2008–2012 Member of the Technical–Scientific committee of the CASPUR consortium
21. 2009–present Chairman of the committee for the degree in ”Engineering Sciences” University of Roma ”Tor Vergata”
22. 2011–present Member of the European Fluid Mechanics Conference Committee (Chair from 2016)
23. 2015–present Member of EUROMECH Council

### **Memberships, Invited Lectures and Awards**

1. Member of EUROMECH, ERCOFTAC, AIMETA, APS
2. Invited speaker the March Meeting of American Physical Society 2002 (Indianapolis, USA), Vth World Congress of Computational Mechanics 2002 (Wien, Austria), Euromech Colloquium 443 on “High Rayleigh number thermal convection” 2003 (Leiden, The Netherlands), AIMETA GIMC 2004 (Genova, Italy), ETMM6 2006 (Sardinia Italy), Congress on “Turbulent Thermal Convection” 2005 Bangalore (India), Workshop on “Classical and Quantized Vortex Rings” ICTP 2005, Trieste, Italy, 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), ECCO-MAS 2016 (Crete, Greece), MUSAF III (Toulouse, France)

3. Frenkiel Prize 2005 from the American Physical Society.
4. 2012 EUROMECH Fellow of the European Mechanics Society.
5. 2012 Wim Nieuwpoort Award for Scientific Computing.
6. 2013 APS Fellow of the American Physical Society.

### **Teaching Activities**

1. 1998-2007 Course of "Fluid-dynamics" for Mechanical and Management Engineering of Politecnico di Bari (undergraduate)
2. 2003-2007 Course of "Turbulence" for Mechanical Engineering of Politecnico di Bari (undergraduate)
3. 1998-2007 Course of "Turbulence Dynamics and Modeling" for the PhD program of Mechanical Engineering of Politecnico di Bari (graduate)
4. 2003-2006 Course of "Fluid Mechanics" for Food and Agriculture Engineering of Università del Molise (Campobasso).
5. 2007-2010 Course of "Gasdynamics and Combustion" for Mechanical Engineering of Università di Roma 'Tor Vergata'.
6. 2009-present Course of "Fluid Mechanics" for Mechanical Engineering and Energy Engineering of Università di Roma 'Tor Vergata'.
7. 2009-present Course of "Computational Methods for Mechanical Engineering" for PhD in Mechanical Engineering at Università di Roma 'Tor Vergata'.
8. 2010-present Course of "Turbulence Dynamics and Modelling" for Mechanical and Energy Engineering at Università di Roma 'Tor Vergata'.
9. 2013-present Course of "Mechanics of Biological Systems" for Medical Engineering at Università di Roma 'Tor Vergata'.

## List of Publications of Roberto Verzicco

### International Journals

1. R. Verzicco and P. Orlandi “Vortex rings interacting with a wall” *App. Sci. Res.* **51**, (1993), 469.
2. P. Orlandi and R. Verzicco “Vortex rings impinging on walls: axisymmetric and three-dimensional simulations”, *J. Fluid Mech.*, **256**, 1993, 615–646.
3. P. Orlandi and R. Verzicco, “Identification of zones in a free evolving vortex ring”, *App. Sci. Res.*, **53**, 1994, 387–399.
4. R. Verzicco and P. Orlandi “Direct simulations of the transitional regime of a circular jet” *Phys. of Fluids*, **6**(2), 1994, 751.
5. R. Verzicco, J.B.Flór, G.J.F. van Heijst and P. Orlandi “Numerical and experimental study of the interaction between a vortex dipole and a circular cylinder” *Exp. in Fluids*, **18**, 1995, 153.
6. R. Verzicco and P. Orlandi “Normal and oblique collisions of a vortex ring with a wall” *Meccanica*, **29**, 1994, 383.
7. K. Shariff, R. Verzicco and P. Orlandi “A numerical study of three-dimensional vortex ring instabilities: viscous corrections and early non-linear stage.” *J. Fluid Mech.*, **279**, 1994, 351.
8. R. Verzicco and P. Orlandi “Mixedness in the formation of a vortex ring” *Phys. of Fluids*, **7**, 1995, 1513.
9. R. Verzicco, J. Jiménez and P. Orlandi “On steady columnar vortices under local compression” *J. Fluid Mech.*, **299**, 1995, 367.
10. R. Verzicco and P. Orlandi “A finite-difference scheme for the three-dimensional incompressible flows in cylindrical coordinates” *J. Comp. Phys.*, **123**, 1996,402.
11. M.V. Salvetti, P. Orlandi and R. Verzicco “Direct simulations of transitional axisymmetric coaxial jets” *AIAA J.*, **34**, 1996, 736–743.
12. R. Verzicco & G.Vittori “Direct simulation of transition in Stokes boundary–layers” *Phys. of Fluids*, **8**, 1996, 1341–1343.
13. R. Verzicco, P.Orlandi, A.H.M. Eisenga, G.J.F. van Heijst & G.F. Carnevale “Dynamics of a vortex ring in a rotating fluid” *J. Fluid Mech.*, **317**, 1996, 215–239.
14. R. Verzicco, A.Iafrati, G. Riccardi, & M. Fatica “Analysis of the sound generated by the pairing of two axisymmetric co–rotating vortex rings” *J. Sound Vibr.*, **200**, 1997, 347–358.
15. R. Verzicco, F. Lalli & E. Campana “Dynamics of baroclinic vortices in a rotating stratified fluid: a numerical study” *Phys. of Fluids*, **9**, 1997, 419–432
16. R. Verzicco & R. Camussi “Transitional regimes of low–Prandtl number thermal convection in a cylindrical cell” *Phys. of Fluids*, **9**, 1997, 1287–1295.
17. A.H.M. Eisenga, R. Verzicco & G.J.F. van Heijst “Dynamics of a vortex ring moving perpendicular to a background rotation” *J. of Fluid Mech.*, **354**, 1998, 69–100.

18. R. Camussi & R. Verzicco “Convective turbulence in mercury: scaling laws and spectra” *Phys. of Fluids*, **10**, (1998), 516–527.
19. G. Vittori and R. Verzicco “Direct simulation of Stokes boundary layer” *J. of Fluid Mech.*, **371**, (1998), 207–232.
20. R. Verzicco and R. Camussi “Prandtl number effects in convective turbulence” *J. of Fluid Mech.*, **383**, (1999), 55–73.
21. R. Verzicco and J. Jiménez “On the survival of nonuniform vortex filaments in model turbulence” *J. of Fluid Mech.*, **394**, (1999), 261–279.
22. M. Beckers, R. Verzicco, H.J.H. Clercx and G.J.F. van Heijst “A comparison between the evolution of vortices in a linearly stratified fluid and two-dimensional flows” *Il Nuovo Cimento*, **22**, (1999), 847–856.
23. Verzicco, R., Mohd-Yusof, J., Orlandi, P. and Haworth, D. “Large-Eddy Simulation in Complex Geometric Configurations Using Boundary Body Forces” *AIAA J.*, **38**, (2000), 427–433.
24. Camussi, R. and Verzicco, R., “Anomalous scaling exponents and coherent structures in high *Re* fluid turbulence” *Phys. of Fluids*, **12**(3), (2000), 676–687.
25. M.Mammetti, R.Verzicco, P.Orlandi ”The study of vortex ring/wall interaction for artificial nose improvement” *ESAIM*, **7**, (1999), pp. 258–269.
26. Fadlun, E.A., Verzicco, R., Orlandi, P. & Mohd-Yusof, J. “Combined immersed-boundary/finite-difference methods for three-dimensional complex flow simulations” *J. of Comp. Phys.*, **161**, (2000), 35–60.
27. M. Beckers, R. Verzicco, H.J.H. Clercx and G.J.F. van Heijst “The vertical structure of pancake-like vortices in a stratified fluid: experiments, theory and numerical simulations” *J. of Fluid Mech.*, **433**, (2001), 1–27.
28. Satijn, M.P., Cense, A.W., Verzicco, R., Clercx, H.J.H. and van Heijst, G.J.F., “Three-dimensional structure and decay properties of vortices in shallow fluid layers” *Phys. of Fluids*, **13**(7), (2001), 1932–1945.
29. Verzicco, R. and Camussi, R. “Structure function exponents and pdf of the velocity difference in turbulence” *Phys. of Fluids*, **14**(2), (2002), 906–909.
30. Beckers, M., Clercx, H.J.H., van Heijst, G.J.F., and Verzicco, R. “Dipole formation by two interacting shielded monopoles in a stratified fluid” *Phys. of Fluids*, **14**(2), (2002), 704–720.
31. R. Verzicco, Fatica, M., G. Iaccarino, P. Moin and B. Khalighi, “Large Eddy Simulation of a Road Vehicle with Drag Reduction Devices” *AIAA Journal*, **40**(12), (2002), 2447–2455. also *CTR Manuscript 179*, 2001.
32. R. Verzicco “Side wall finite conductivity effects in confined turbulent thermal convection” *J. of Fluid Mech.*, **473**, (2002), 201–210.
33. R. Verzicco & R. Camussi “Numerical experiments on strongly turbulent thermal convection in a slender cylindrical cell” *J. of Fluid Mech.*, **477**, (2003), 19–49.
34. Beckers, M., Clercx, H.J.H., van Heijst, G.J.F., and Verzicco, R. “Evolution and instability of monopolar vortices in a stratified fluid” *Phys. of Fluids*, **15**(4), (2003), 1033–1045.

35. R. Verzicco, “Turbulent thermal convection in a closed domain: viscous boundary layer and mean flow effects” *Eur. Phys. J. B*, **35**, (2003), 133–140.
36. R. Verzicco, G. Iaccarino, M. Fatica and P. Orlandi, “Flow in an impeller stirred tank using an immersed boundary method” *AIChE Journal*, **50**(6), (2004), 1109–1118.
37. R. Camussi & R. Verzicco “Temporal statistics in high Rayleigh number convective turbulence” *Eur. J. of Mech. B/fluids*, **23**, (2004), 427–442.
38. R. Verzicco, “Effects of non perfect thermal sources in turbulent thermal convection” *Phys. of Fluids*, **16**(6), (2004), 1965–1979.
39. Schram, C., Hirschberg, A. & Verzicco, R. Sound produced by vortex pairing: prediction based on particle image velocimetry *AIAA J.*, **42**(11), (2004), 2234–2244.
40. Sbrizzai, F., Verzicco, R., M. Pidria and Soldati, A. Mechanisms for selective radial dispersion of microparticles in the transitional region of a confined turbulent round jet *Intl. J. of Multiphase Flows*, **30**(11), (2004), 1389–1417.
41. Lalli, F., Piscopia, R., Esposito, P.G. and Verzicco, R. Fluid–Particle flow simulation by averaged continuous model *Computers and Fluids*, **34**(9), (2005), pp. 1040–1061.
42. Stringano, G. and Verzicco, R. “Mean flow structure in thermal convection in a cylindrical cell of aspect–ratio one half” *J. of Fluid Mech.*, **548** (2006), 1–16.
43. Blondeaux, P., Fornarelli, F., Guglielmini, L. Triantafyllou, M.S, and Verzicco, R. “Numerical experiments on flapping foils mimicking fish–like locomotion” *Phys. of Fluids*, **17**, (2005), 113601.
44. Amati, G., Koal, K., Massaioli, F., Sreenivasan, K.R. and Verzicco, R. “Turbulent thermal convection at high Rayleigh numbers for a constant-Prandtl-number fluid under Boussinesq conditions” *Phys. of Fluids*, **17**, (2005), 121701.
45. Sbrizzai, F., Lavezzo, V., Verzicco, R., Campolo, M. and Soldati, A. Direct numerical simulation of turbulent particle dispersion in an unbaffled stirred–tank reactor *Chem. Eng. Science*, **61**(9), 2843–2851, (2006).
46. Stringano, G., Pascazio, G. and Verzicco, R. “Turbulent thermal convection over grooved plates” *J. of Fluid Mech.*, **557**, 307–336, (2006).
47. Cristallo, A. and Verzicco, R. “Combined immersed boundary/large–eddy–simulations of incompressible three–dimensional complex flows” *Flow Turbulence and Combustion*, **77**, 3–26, (2006).
48. Oresta, P., Stringano, G. and Verzicco, R. “Transitional regimes and rotation effects in Rayleigh–Bénard convection in a slender cylindrical cell” *Eur. J. of Mech. B/fluids*, **26**(1), 1–14, (2007).
49. Lalli, F., Falchi, M., Romano, G.P., Romolo, A. and Verzicco, R. “Jet–wall interaction in shallow waters” *Int. J. of Offshore and Polar Eng.*, **17**(2), 1–5, (2007).
50. Verzicco, R. and Sreenivasan, K.R. “A comparison of turbulent thermal convection between conditions of constant temperature and constant heat flux” *J. of Fluid Mech.*, **595**, 203–219, (2008).
51. Kunnen, R.P.J., Clercx, H.J.H., Geurts, B.J., van Bokhoven, L.J.A., Akkermans, R.A. and Verzicco, R. “A numerical and experimental investigation of structure function scaling in turbulent Rayleigh–Bénard convection” *Physical Review E*, **77**, 016302, (2008).

52. Sbrizzai, F., Verzicco, R. and Soldati, A. "Particle dispersion and preferential distribution in a sudden cylindrical pipe expansion" *Flows Turb. & Comb.*, **82**,1–23, (2009).
53. Benzi, R., and Verzicco, R. "Numerical simulation of flow reversal in Rayleigh–Bénard convection" *Europhysics Letters*, **81**(6),64008, (2008).
54. Sameen, A., Verzicco, R. and Sreenivasan, K.R. "Non-Boussinesq convection at moderate Rayleigh numbers in low temperature gaseous helium" *Physica Scripta T*, **132**, 014053, (2008).
55. Smirnov, A.S., Pacheco, R.J. and Verzicco, R., "Laboratory–numerical studies of stratified spin–up flows" *Env. Fluid Mech.*, **8**(5), 535–541, (2008). doi:10.1007/s10652-008-9087-2
56. de Tullio, M., Cristallo, A., Balaras, E. and Verzicco, R., "Direct numerical simulation of the pulsatile flow through an aortic bileaflet mechanical heart valve" *J. of Fluid Mech.*, **622**, 259–290, (2009).
57. Cantone, L., Crescentini, E., Verzicco, R. and Vullo, V., "A numerical model for the analysis of unsteady train braking and releasing manoeuvres" *J. of Rail and Rapid Transit*, **223**(3), 305–317, (2009).
58. Zhong, J.Q., Stevens, R.J.A.M., Clercx, H.J.H., Verzicco, R., Lohse, D. and Ahlers, G. "Prandtl-, Rayleigh-, and Rossby-number dependence of heat transport in turbulent rotating Rayleigh–Bénard convection" *Phys. Review Letters*, **102**(4), 044502, (2009). DOI: 10.1103/PhysRevLett.102.044502
59. Lavezzo, V., Verzicco, R. and Soldati, A. "Ekman pumping and intermittent particle re-suspension in a stirred tank reactor" *Chem. Eng. Res. and Design*, **87**, 557–564, (2009)
60. Sameen, A., Verzicco, R. and Sreenivasan, K.R. "Specific roles of fluid properties in non-Boussinesq thermal convection at the rayleigh number of  $2 \times 10^8$ " *Europhysics Letters*, **86**(1), 14006, (2009). doi:10.1209/0295-5075/86/14006
61. Oresta, P., Verzicco, R., Lohse, D. and Prosperetti, A. "Heat transfer mechanisms in bubbly Rayleigh–Bénard convection" *Phys. Review E* (2009), **80** 026304. doi:10.1103/PhysRevE.80.026304
62. Stevens, R.J.A.M., Verzicco, R. and Lohse, D. "Radial boundary layer structure and Nusselt number in Rayleigh–Bénard convection" *J. of Fluid Mech.*, **643**, pp. 495–507.(2010)
63. Smirnov, S., Pacheco, R. and Verzicco, R. "3D vortex visualization in stratified spin-up" *J. of Visualization*, **13**(2), (2010).
64. Silano, G. Sreenivasan, K.R. and Verzicco, R., "Numerical Simulations of Rayleigh–Bnard convection for Prandtl numbers between  $10^{-1}$  and  $10^4$  and Rayleigh numbers between  $10^5$  and  $10^9$ ", *J. of Fluid Mech.*, **662**, pp. 409–446, (2010) (doi.10.1017/S002212010003290)
65. Smirnov, S., Pacheco, R. and Verzicco, R. "Numerical simulations of nonlinear stratified spin-up in a circular cylinder" *Phys. of Fluids*, **22**, 116602 (2010); doi:10.1063/1.3505025
66. Cecere, D., Giacomazzi, E., Picchia, E.R., Arcidiacono, N., Donato, F. and Verzicco, R., "A non-adiabatic flamelet progress-variable approach for LES of turbulent premixed flames" *Flows, Turb. & Comb.*, **86**, 667–688, (2011).
67. Posa, A., Lippolis, A. Verzicco, R. & Balaras E. "Large-eddy simulations in mixed-flow pumps using an immersed boundary method", *Computers & Fluids*, **47**(1), 33–43, (2011). doi:10.1016/j.compfluid.2011.02.004



68. de Tullio, M., Afferrante, L., Demelio, G. Pascazio, G., & Verzicco, R. "Fluid–structure interaction of deformable aortic prostheses with a bileaflet mechanical valve", *J. of Biomech.*, **44**(9), 1684–1690, (2011) doi:10.1016/j.jbiomech.2011.03.036
69. de Tullio, M.D., Afferrante, L., Napolitano, M., Pascazio, G. & Verzicco, R. "Fluid Mechanics in Aortic Prostheses after a Bentall Procedure" *Comput. Fluid Dyn.*, 371–376, (2011), doi:10.1007/978 – 3 – 642 – 17884 – 946
70. Schmidt, L.E., Oresta, P., Toschi, F., Verzicco, R., Lohse, D. & Prosperetti, A., "Modification of turbulence in RayleighBenard convection by phase change" *New J. of Phys.*, **13**, 025002, (2011). doi:10.1088/1367-2630/13/2/025002
71. de Tullio, M.D., Pedrizzetti, G. & Verzicco, R., "On the effect of aortic root geometry on the coronary entry-flow after a bileaflet mechanical heart valve implant: a numerical study", *Acta Mechanica*, **216**, 147–163, (2011), DOI: 10.1007/s00707-010-0361-2
72. de Tullio, M.D., Pascazio, G., Weltert, L. De Paulis, R. & Verzicco, R. "Evaluation of prosthetic-valved devices by means of numerical simulations" *Phil. Trans. R. Soc. A*, **369**(1945), 2502-2509, (2011), doi:10.1098/rsta.2010.0365
73. Pacheco, R., Ruiz–Angulo, A., Zenit, R. and Verzicco, R. "Fluid velocity fluctuations in a collision of a sphere with a wall" *Phys. of Fluids*, **23**(6), 063301 (2011).
74. R. J.A.M. Stevens, D. Lohse, and R. Verzicco "Prandtl and Rayleigh number dependence of heat transport in high Rayleigh number thermal convection" *J. of Fluid Mech.*, **688**, 31–43, (2011).
75. L.E. Schmidt, P. Oresta, F. Toschi, R. Verzicco, D. Lohse, and A. Prosperetti "Modification of turbulence in Rayleigh–Bénard convection by phase change" *New J. of Phys.*, **13**, 025002, (2011).
76. R. Lakkaraju, L.E. Schmidt, P. Oresta, F. Toschi, R. Verzicco, D. Lohse, and A. Prosperetti "Effect of vapor bubbles on velocity fluctuations and dissipation rates in bubbly Rayleigh-Benard convection" *Phys. Rev. E*, **84**(3), 036312, (2011).
77. Schmidt, L.E., Calzavarini, E., Lohse, D., Toschi, F. & Verzicco, R. "Axially homogeneous Rayleigh-Bnard convection in a cylindrical cell" *J. of Fluid Mech.*, **691**, 52–68, (2012).
78. Stevens, R.J.A.M., Zhou, Q., Grossmann, S., Verzicco, R., Xia, K.-Q., Lohse, D. "Thermal boundary layer profiles in turbulent Rayleigh-Bnard convection in a cylindrical sample" *Phys. Rev. E*, **85**(2), 027301, (2012).
79. de Tullio, M.D., Nam, J., Pascazio, G., Balaras, E., Verzicco, R. "Computational prediction of mechanical hemolysis in aortic valved prostheses" *Eur. J. of Mech. B/fluids*, in Press, (2012).
80. Pacheco, J.R., Verzicco, R. "Formation of columnar baroclinic vortices in thermally stratified nonlinear spin-up" *J. Fluid Mech.*, **702**, 265–285, (2012).
81. Manna, M., Vacca, A., Verzicco, R. "Pulsating pipe flow with large-amplitude oscillations in the very high frequency regime. Part 1. Time-averaged analysis" *J. Fluid Mech.*, **700**, 246–282, (2012).
82. Nettis, L., De Bellis, F., Catalano, L.A., Verzicco, R. "Unsteady Conjugate Heat Transfer Analysis of an Immersed Particle Innovative Heat Exchanger" *J. Thermal Sci. and Eng. Appl.*, **4**(1), 011004, (2012).
83. Verzicco, R. "Boundary layer structure in confined turbulent thermal convection" *J. Fluid Mech.*, **706**, 1–4, (2012).

84. Ahlers, G., Bodenschatz, E., Funfshilling, 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).
85. Lakkaraju, R., Stevens, R.J.A.M., Verzicco, R., Grossmann, S., Prosperetti, A., Sun, C., Lohse, D. "Spatial distribution of heat flux and fluctuations in turbulent Rayleigh-Bénard convection" *Phys. Rev. E*, **86**(5), 056315, (2012).
86. Muscari, R., Di Mascio, A., Verzicco, R. "Modeling of vortex dynamics in the wake of a marine propeller" *Computers & Fluids*, **63**, 65–79, (2013).
87. R. Lakkaraju, R.J.A.M. Stevens, P. Oresta, R. Verzicco, D. Lohse, and A. Prosperetti "Heat transport in bubbling turbulent convection" *Proc. Nat. Acad. of Sci.*, **110**(23), 9237, (2013).
88. Ostilla-Monico, R., Stevens, R.J.A.M., Grossmann, S., Verzicco, R. & Lohse, D. "Optimal Taylor–Couette flow: Direct numerical simulations" *J. of Fluid Mech.*, **719**, 14–46, (2013).
89. Weltert, L., de Tullio, M.D., Afferrante, L., Salica, A., Scaffa, R., Maselli, D., Verzicco, R. & De Paulis, R. "Annular dilatation and loss of sino–tubular junction in aneurismatic aorta: implications on leaflet quality and time of surgery. A finite element study. *Interactive Cardiovascular and Thoracic Surgery*, **17**(1), 8, (2013).
90. Stevens, R.J.A.M., Lohse, D. & Verzicco, R. "Sidewall effects in Rayleigh–Bénard convection" *J. of Fluid Mech.*, **741**, 1–27, (2014).
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