Curriculum vitæ

Personal data

Name and Surname	**Andrea Cimarelli**
Date and place of birth:	2 Marzo 1983, Fano (PU), Italia
E-mail:	andrea.cimarelli@unimore.it

Degrees

Nov. 2020	**National scientific qualification to full professor** in fluid dynamics.
Apr. 2017	**National scientific qualification to associate professor** in fluid dynamics.
May. 2011	**PhD degree** in fluid dynamics, University of Bologna. **Thesis title:** "Statistical analysis and simulation techniques in wall-bounded turbulence"
Jan. 2008	**National professional qualification in aerospace engineering**
Oct. 2007	**Master degree in Aerospace Engineering**, University of Bologna. Final marks: 110/110 with honors. **Thesis title** "Simulazione alle grandi scale in un flusso turbolento di parete."
Oct. 2005	**Batchelor degree in Aerospace Engineering**, University of Bologna. Final marks: 108/110. **Theis title:** "Progettazione e realizzazione di un modello in scala della galleria del vento ALTAIR."

Academic positions

Nov.2022 – today	**Associate Professor in fluid dynamics**, University of Modena and Reggio Emilia.
Oct.2019 – Oct.2022	**Researcher in fluid dynamics**, University of Modena and Reggio Emilia.
Sept.2018 – Oct.2019	**Research Associate in fluid mechanics**, Cardiff University.
Feb.2017 – Jul.2018	**Post Doc in fluid dynamics**, Università Politecnica delle Marche.
Feb.2016 – Jan.2017	**Post Doc in fluid dynamics**, University of Modena and Reggio Emilia
Jul.2014 – Dec.2015	**Post Doc in fluid dynamics**, University of Modena and Reggio Emilia
Jul.2013 – Jul.2014	**Post Doc in fluid dynamics**, University of Bologna
Apr.2012 – Apr.2013	**Post Doc in fluid dynamics**, University of Bologna
Dec.2011 – Jan.2012	**Research Fellowship** at the *Center of Smart Interfaces*, TU Darmstadt
Mar.2011 – Mar.2012	**Post Doc in fluid dynamics**, University of Bologna

Institutional roles

Dec.2024 – today	**Member of the research committee** of the department of engineering "Enzo Ferrari", University of Modena and Reggio Emilia.
Dec.2024 – today	**Teaching Tutor** for the Vehicle Engineering degree of the University of Modena and Reggio Emilia.
Jun.2024 – today	**Member of the equality and diversity committee** of the department of engineering "Enzo Ferrari", University of Modena and Reggio Emilia.
Nov.2021 – today	**PhD scientific secretariat** of the PhD school in mechanical and vehicle engineering, University of Modena and Reggio Emilia.
Dec.2019 – today	**Member of the scientific council of the library "Enzo Ferrari"**, University of Modena and Reggio Emilia.
Dec.2019 – today	**Mentor of the vehicle engineering degree**, University of Modena and Reggio Emilia.
Dec.2019 – today	**Academic advisor of the aerodynamic division of the Formula Student team**, University of Modena and Reggio Emilia.

Principal and co-Principal Investigator of funded research projects

Feb. 2025	**co-PI** of the project **ADMIRE - Advanced modeling of high-speed aerodynamics for Mars entry**, PRIN 2022, CUP MASTER n. B53C24006770006.
Dec. 2023	**PI** of the project **SEAPLANE - Simulation and modelling of interface fluxes in wind-wave flows for an improved climate science**, PRIN-PNRR 2022, CUP n. E53D23017010001.
Nov. 2023	**PI** of the computing grant **MINDS - Inner/outer interactions and MIxing in bouNDary layerS**, ISCRA B, CINECA.
Oct. 2022	**PI** of the computing grant **ESSPRO - Direct numerical simulation of Entrainment and Self-Sustaining PROcesses of turbulence in boundary layers**, ISCRA B, CINECA.
Sept. 2020	**PI** of the computing grant **SEPREA - high-order accurate direct numerical simulations of SEParating and REAttaching flow**, PRACE, n.2020225348.
Apr. 2020	**PI** of the computing grant **WWW - Turbulent Wind and Water Waves interaction: multiscale analysis and modelling**, ISCRA B, CINECA.
Sept. 2018	**co-PI** of the computing grant **P-TURB - Prandtl number effect on turbulent Rayleigh-Bénard convection**, PRACE, n.2018184426.
Jun. 2014	**co-PI** of the project **Flow Control under Constant Power Input**, DFG German Research Fundation.
Jul. 2011	**PI** of the project **Non-sinusoidal wall oscillation for flow control**, DAAD (Deutsher Akademisher Austausch Dienst).

Awards

Jul. 2016 **Research award** of the department of engineering DISMI, University of Modena and Reggio Emilia.

Oct. 2012 **da Vinci Competition** (ERCOFTAC, European Research Community On Flow Turbulence And Combustion). Finalist for the best 5 PhD thesis of 2011.

Membership in academies and associations of recognized prestige

Jan.2021 – today **ERCOFTAC corresponding membership** for the University of Modena and Reggio Emilia.

Feb.2020 – today **Member of the BARC organizing committee** (Benchmark on the Aerodynamics of a Rectangular 5:1 Cylinder).

Jan.2016 – Dec.2016 **Membership to the National Institute of High Mathematics "Francesco Severi"**.

Scientific acknowledgements

Dec. 2024 **Invited speaker at the "LMFL Fluid Mechanics Webinar"**, Laboratoire de Mécanique des Fluides de Lille University, France.

Jan. 2023 **Selected for the work "Multi-scale phenomena in turbulent flows with walls and interfaces"**, 13^{th} DLES ERCOFTAC workshop.

Jun. 2023 **Selected to partecipate to the "Fifth Multiflow Summer Workshop"** held in Universitad Politecnica de Madrid.

Jun. 2016 **Hosted by the *Institute of Fluid Mechanics*, Karlsruhe Institute of Technology (KIT)**, for research activity in drag reducing flows.

Jul. 2015 **Hosted by the *Institute of Fluid Mechanics*, Karlsruhe Institute of Technology (KIT)**, for research activity in drag reducing flows.

Jun. 2015 **Selected to partecipate to the "Second Multiflow Summer Workshop"** held in Universitad Politecnica de Madrid.

Jun. 2013 **Selected to partecipate to the "First Multiflow Summer Workshop"** held in Universitad Politecnica de Madrid.

Feb. 2012 **Hosted by the Linné FLOW Centre**, Stockholm, for research activity on wall turbulence.

May. 2011 **Hosted by the *Center of Smart Interfaces*, TU Darmstadt, Germania**, for research activity on drag reduction.

Apr. 2010 **Hosted by the *Nordic Institute for Theoretical Physics***, Stockholm, for the workshop on *Turbulent boundary layers at high Reynolds number.*

Organization of international conferences

Sept. 2014 — **iTi (Interdisciplinary Turbulence Initiative)**, member of the local organizing committee.

Sept. 2012 — **iTi (Interdisciplinary Turbulence Initiative)**, member of the local organizing committee.

Sept. 2010 — **iTi (Interdisciplinary Turbulence Initiative)**, member of the local organizing committee.

Reviewer for scientific journals

2014 – today

1. *Journal of Fluid Mechanics*
2. *Physics of Fluids*
3. *Phylosophical Transactions A*
4. *Physics Letters A*
5. *Physical Review Fluids*
6. *Meccanica*
7. *Computers and Fluids*
8. *Flow, Turbulence and Combustion*
9. *Fluid Engineering*
10. *European Journal of Mechanics - B/Fluids*
11. *Journal of Wind Engineering & Industrial Aerodynamics*
12. *Experimental Thermal and Fluid Science*

Teaching activity

2019/2020 – today — Courses at the University of Modena and Reggio Emilia:

1. **Turbulence**, 60 hours
2. **Simulation and Modelling in Fluid Dynamics**, 60 hours
3. **Aerodynamics**, 30 hours
4. **Aerodinamica e gestione termica del veicolo**, 30 hours
5. **Race Car Aerodynamics**, 10 hours

2018/2019 — **Adjunct professor** at the University of Modena and Reggio Emilia. **Thermodynamic and heat transfer**, 36 hours.

2018/2019 — **Adjunct professor** at the University of Bologna. **Simulation and Modelling in Fluid Dynamics LM**, 30 hours.

2017/2018 — **Adjunct professor** at the University of Modena and Reggio Emilia. **Thermodynamic and heat transfer**, 36 hours.

2017/2018 — **Adjunct professor** at the University of Bologna. **Simulation and Modelling in Fluid Dynamics LM**, 30 hours.

2016/2017 — **Adjunct professor** at the University of Bologna. **Simulation and Modelling in Fluid Dynamics LM**, 30 hours.

2015/2016	**Adjunct professor** at the University of Bologna. **Simulation and Modelling in Fluid Dynamics LM**, 30 hours.
2015/2016	**Academic tutor** at the University of Bologna. **Rational Mechanics**, 30 hours of exercitations and teaching support.
2014/2015	**Adjunct professor** at the University of Bologna. **Simulation and Modelling in Fluid Dynamics LM**, 30 hours.
2014/2015	**Academic tutor** at the University of Bologna. **Rational Mechanics**, 30 hours of exercitations and teaching support.
2013/2014	**Adjunct professor** at the University of Bologna. **Simulation and Modelling in Fluid Dynamics LM**, 30 hours.
2013/2014	**Academic tutor** at the University of Bologna. **Applied Mathematics**, 30 hours of exercitations and teaching support.
2012/2013	**Academic tutor** at the University of Bologna. **Rational Mechanics**, 30 hours of exercitations and teaching support.
2011/2012	**Adjunct professor** at the University of Bologna. **Fluidodinamica computazionale**, 30 hours.

PhD thesis supervisor

Nov.2023 – today	**Supervisor**, *Improved LES and RANS turbulence closures*, by Y. Tessier Hurrecha, University of Modena and Reggio Emilia.
Nov.2022 – today	**Supervisor**, *Turbulent heat and mass transfer in urban heat island*, by A. Pavan, University of Modena and Reggio Emilia.
Nov.2023 – today	**Co-Supervisor**, *Control of heat and momentum transfer in turbulent flows*, by F. Moroni, University of Modena and Reggio Emilia.
Nov.2021 – Nov.2024	**Supervisor**, *Multiscale phenomena in turbulent boundary layers*, by G. Boga, University of Modena and Reggio Emilia.
Nov.2019 – Nov.2022	**Co-Supervisor**, *Direct numerical simulation of wind-wave interactions*, by F. Romoli, University of Modena and Reggio Emilia.
Nov.2019 – Nov.2021	**Co-Supervisor**, *Direct numerical simulation of turbulence: the flow past an irregular grid and the aerodynamics of a rectangular cylinder*, by R. Corsini, University of Modena and Reggio Emilia.
Jan.2015 – Jan.2017	**Co-Supervisor**, *Turbulent flows around elongated bodies*, by A. Leonforte, University of Modena and Reggio Emilia.
Jan.2014 – Jan.2017	**Co-Supervisor**, *Statistical analysis and modelling aspects of thermally driven turbulence*, by R. Togni, University of Bologna.

Master thesis Supervisor

2017 – today Supervisor of around 40 Master and Batchelor degree thesis.

2008 – today Co-Supervisor of around 30 Master and Batchelor degree thesis.

Seminars and Scientific talks

1. "Decompositions in turbulence: from the turbulence theory to its modelling", invited seminar at the "LMFL Fluid Mechanics Webinar", Laboratoire de Mécanique des Fluides de Lille – France, 19 Dec. 2024.
2. "Scale-by-scale energy budget in turbulent wind-wave interactions", presentation at EFDC 1 (European Fluid Dynamics Conference), Aachen – Germany, 16-20 Sept. 2024.
3. "On the role of large-anisotropic and small-isotropic motions on turbulent entrainment and mixing", presentation at ETC 18 (European Turbulence Conference), Valencia – Spain, Sept. 2023.
4. "On the wave-induced Stokes sublayer and drag reduction in the turbulent wind", presentation at iTi (interdisciplinary Turbulence initiative), Bertinoro – Italia, Jul. 2023.
5. "Multi-scale properties of turbulence in flows with interfaces", presentation at DLES 13 (Direct and Large Eddy Simulation 13), Udine – Italy, Oct. 2022.
6. "Multi-scale phenomena in turbulent flows with walls and interfaces", presentation at ERCOFTAC Autumn Festival, Roma – Italy, Oct. 2021.
7. "Report activity of the EPSRC project: Multi-scale dynamics at the turbulent/non-turbulent interface of jets and plumes", presentation at EPSRC (Engineering and Physical Sciences Research Concil) workshop, Cardiff – United Kingdom, Jan. 2020.
8. "Research activity in wind engineering", presentation at First GIV (Giovani Ingegneri del Vento) meeting, Milano – Italy, Jan. 2020.
9. "On the energetics of separating and reattaching flows and their modeling", presentation at ETC 17 (European Turbulence Conference), Torino – Italy, Sept. 2019.
10. "Direct Numerical Simulation of wave-structure interactions", presentation at IDRA2018, Convegno nazionale di idraulica e costruzioni idrauliche, Ancona – Italy, Sept. 2018.
11. "Numerical investigation of the effects of the Reynolds number on the flow around an oscillating airfoil", presentation at 12th Euromech Fluid Mechanics Conference, Wien – Austria, Sept. 2018.
12. "Reduced description and modelling of small-scale turbulence by means of a tensorial turbulent viscosity", presentation at iTi (interdisciplinary Turbulence initiative), Bertinoro – Italy, Sept. 2018.
13. "A priori and a posteriori analysis of the flow around a rectangular cylinder", presentation at 35th UIT Heat Transfer Conference, Ancona – Italy, Jun. 2017.
14. "On the eddy viscosity associated with subgrid stresses", presentation at DLES 11 (Direct and Large Eddy Simulation 11), Pisa – Italy, May 2017.
15. "A priori analysis and benchmarking of the flow around a rectangular cylinder", presentation at DLES 11 (Direct and Large Eddy Simulation 11), Pisa – Italy, May. 2017.
16. "From basic research on turbulence to CFD applications", invited seminar at Politecnico di Milano – Italy, May. 2015.

17. “Backward energy transfer and subgrid modeling approaches in wall-turbulence”, presentation at iTi (interdisciplinary Turbulence initiative), Bertinoro – Italy, Sept. 2014.

18. “Production scales and spatial fluxes in turbulent Rayleigh-Benard convection”, presentation at THINS 2014, Modena – Italy, Jan. 2014.

19. “The attached reverse and detached forward cascades in wall-turbulent flows”, invited seminar at Universitad Politecnica de Madrid – Spain, Jun. 2013.

20. “Scale-energy paths and modeling approaches in wall-turbulence”, invited seminar at ICTP (International Center for Theoretical Physics), Trieste – Italy, Oct. 2012.

21. “Study of the outer-self regeneration of turbulence in wall flows”, presentation at iTi (interdisciplinary Turbulence initiative), Bertinoro – Italy, Sept. 2012.

22. “The paths of energy in wall-turbulence”, invited seminar at Linné FLOW Centre, Stockholm – Sweden, Feb. 2012.

23. “Assessment of the turbulent energy paths from the origin to dissipation in wall-turbulence”, presentation at ETC 13 (European Turbulence Conference), Varsaw – Poland, Sept. 2011.

24. “Scale-by-scale budgets in wall-turbulent flows for LES modelling”, invited seminario at CSI, TU Darmstadt – Germany, May 2011.

25. “Scale-energy fluxes in wall-turbulent flows”, presentation at iTi (interdisciplinary Turbulence initiative), Bertinoro – Italy, Sept. 2010.

26. “Anisotropic dynamics in filtered wall-turbulent flows”, presentation at DLES 8 (Direct and Large Eddy Simulation 8), Eindhoven – Netherlands, Jul. 2010.

27. “Analysis of the scale-energy fluxes in filtered wall-turbulence”, seminar at the NORDITA Programme on Turbulent Boundary Layers, Linné FLOW center, Stockholm – Sweden, Apr. 2010.

28. “Energy cascade and spatial fluxes of filtered wall-turbulent flows”, presentation at QLES II (Quality and Reliability of Large-Eddy Simulation II), Pisa – Italy, Sept. 2009.

Scientific publications

Journal papers

1. A. Cimarelli, A. Fenzi, D. Angeli, E. Stalio "Assessment of the Oberbeck–Boussinesq approximation for buoyancy-driven turbulence in air", *International Journal of Heat and Mass Transfer*, **243**:126851 (2025).

2. L. Puggioni, G. Boga, A. Cimarelli, M.C. Esposito, S. MUsacchio, E. Stalio, G. Boffetta "Transition to the buoyancy-dominated regime in a planar temporal forced plume", *Journal of Fluid Mechanics*, **1002**:A43 (2025).

3. A. Cimarelli, G. Boga, A. Pavan, P. Costa, E. Stalio, "Spatially evolving cascades in wall turbulence with and without interface", *Journal of Fluid Mechanics*, **987**:A4 (2024).

4. A. Cimarelli, R. Corsini, E. Stalio, "Reynolds number effects in separating and reattaching flows with passive scalar transport", *Journal of Fluid Mechanics*, **984**:A20 (2024).

5. D. Fenton, A. Cimarelli, J.P. Mollicone, M. van Reeuwijk, E. De Angelis, "Countergradient turbulent transport in a plume with a crossflow", *Environmental Fluid Mechanics* (2024).

6. A. Cimarelli, G. Boga, A. Pavan, P. Costa, E. Stalio, "Energy cascade phenomena in temporal boundary layers", *Flow, Turbulence and Combustion*, **112**: 129-145 (2024).

7. A. Cimarelli, F. Romoli, E. Stalio, "On wind-wave interaction phenomena at low Reynolds numbers", *Journal of Fluid Mechanics*, **956**:A13 (2023).

8. A. Chiarini, D. Gatti, A. Cimarelli, M. Quadrio, "Structure of turbulence in the flow around a rectangular cylinder", *Journal of Fluid Mechanics*, **946**:A35 (2022).

9. A. Cimarelli, A. Fregni, J.P. Mollicone, M. van Reeuwijk, E. De Angelis, "Structure of turbulence in temporal planar jets", *Physics of Fluids*, **34**:045109 (2022).

10. A. Abbà, A. Cimarelli, M. Germano, "Dynamic tensorial eddy viscosity model: Effects of compressibility and of complex geometry", *Physics of Fluids*, **34**:025109 (2022).

11. A. Fregni, D. Angeli, A. Cimarelli, E. Stalio "Direct Numerical Simulation of natural, mixed and forced convection in liquid metals: selected results", *Nuclear Engineering and Design*, **389**:111597 (2022).

12. R. Corsini, D. Aneli, E. Stalio, S. Chibbaro, A. Cimarelli, "Flow solutions around rectangular cylinders: the question of spatial discretization", *Wind and Structures*, **34**:151-159 (2022).

13. A. Crivellini, A. Nigro, A. Colombo, A. Ghidoni, G. Noventa, A. Cimarelli, R. Corsini, "Implicit Large Eddy Simulations of a rectangular 5:1 cylinder with a high-order discontinuous Galerkin method", *Wind and Structures*, **34**:59-72 (2022).

14. A. Cimarelli, G. Boga, "Numerical experiments on turbulent entrainment and mixing of scalars", *Journal of Fluid Mechanics*, **927**:A34 (2021).

15. P. Cingi, A. Cimarelli, D. Angeli, "Direct numerical simulation of transition in a differentially heated vertical channel", *International Communications in Heat and Mass Transfer*, **126**:105392 (2021).

16. A. Cimarelli, J.P. Mollicone, M. van Reeuwijk, E. De Angelis, "Spatially evolving cascades in temporal planar jets", *Journal of Fluid Mechanics*, **910**:A19 (2021).

17. A. Cimarelli, M. Franciolini, A. Crivellini, "On the kinematics and dynamics parameters governing the flow in oscillating foils", *Journal of Fluid and Structures*, **101**:103220 (2021).

18. A. Cimarelli, M. Franciolini, A. Crivellini, "Numerical experiments in separating and reattaching flows", *Physics of Fluids*, **32**:095119 (2020).

19. D. Gatti, A. Chiarini, A. Cimarelli, M. Quadrio, "Structure function tensor equations in inhomogeneous turbulence", *Journal of Fluid Mechanics*, **898**:A5 (2020).

20. S. Corvaro, A. Crivellini, F. Marini, A. Cimarelli, L. Capitanelli, A. Mancinelli, "Experimental and numerical analysis of the hydrodynamics around a vertical cylinder in waves", *Journal of Marine Science and Engineering*, **7**(12):453, (2019).

21. A. Cimarelli, A. Leonforte, E. De Angelis, A. Crivellini, D. Angeli, "Resolved dynamics and subgrid stresses in separating and reattaching flows", *Physics of Fluids*, **31**:095101 (2019).

22. A. Fregni, D. Angeli, A. Cimarelli, E. Stalio "Direct numerical simulation of a buoyant triple jet at low-Prandtl number", *International Journal of Heat and Mass Transfer*, **143**:118466 (2019).

23. D. Gatti, A. Remigi, A. Chiarini, A. Cimarelli, M. Quadrio, "An efficient numerical method for the generalised Kolmogorov equation", *Journal of Turbulence*, **20**:457-480 (2019).

24. A. Cimarelli, A. Abbà, M. Germano, "General formalism for a reduced description and modelling of momentum and energy transfer in turbulence", *Journal of Fluid Mechanics*, **866**:865-896, (2019).

25. R. Togni, A. Cimarelli, E. De Angelis, "Resolved and subgrid dynamics of Rayleigh-Bénard convection", *Journal of Fluid Mechanics*, **867**:906-933, (2019).

26. A. Cimarelli, A. Leonforte, E. De Angelis, A. Crivellini, D. Angeli, "On negative turbulence production phenomena in the shear layer of separating and reattaching flows", *Physics Letters A*, **383**:1019-1026, (2019).

27. A. Cimarelli, A. Leonforte, D. Angeli, "On the structure of the self-sustaining cycle in separating and reattaching flows", *Journal of Fluid Mechanics*, **857**:907-936, (2018).

28. D. Gatti, A. Cimarelli, Y. Hasegawa, B. Frohnapfel, M. Quadrio, "Global energy fluxes in turbulent channels with flow control", *Journal of Fluid Mechanics*, **857**:345-373, (2018).

29. A. Cimarelli, A. Leonforte, D. Angeli, "Direct numerical simulation of the flow around a rectangular cylinder at a moderately high Reynolds number", *Journal of Wind Engineering and Industrial Aerodynamics*, **174**:39-49, (2018).

30. A. Cimarelli, D. Angeli, "Routes to chaos of natural convection flows in vertical channels", *International Communications in Heat and Mass Transfer*, **81**:201-209, (2017).

31. A. Cimarelli, M. Madonia, D. Angeli, A. Dumas, "Aerodynamic study of advanced airship shapes", *Journal of Aerospace Engineering*, **30**, 3, (2017).

32. A. Cimarelli, E. De Angelis, J. Jimenez, C.M. Casciola, "Cascades and wall-normal fluxes in turbulent channel flows", *Journal of Fluid Mechanics*, **796**:417-436, (2016).

33. A. Cimarelli, G. Cocconi, B. Frohnapfel, E. De Angelis, "Spectral enstrophy budget in a shear-less flow with turbulent/non-turbulent interface", *Physics of Fluids*, **27**: 125106, (2015).

34. R. Togni, A. Cimarelli, E. De Angelis, "Physical and scale-by-scale analysis of Rayleigh-Bénard convection", *Journal of Fluid Mechanics*, **782**:380-404, (2015).

35. A. Cimarelli, E. De Angelis, P. Schlatter, G. Brethouwer, A. Talamelli, C.M. Casciola, "Sources and fluxes of scale energy in the overlap layer of wall turbulence", *Journal of Fluid Mechanics*, **771**:407-423, (2015).

36. R. Orlu, F. Malizia, A. Cimarelli, P. Schlatter, A. Talamelli "The influence of temperature fluctuations on hot-wire measurements in wall-bounded turbulence", *Experiment in Fluids*, **55**:1781, (2014).

37. A. Cimarelli, E. De Angelis, "The physics of energy transfer toward improved subgrid-scale models", *Physics of Fluids*, **26**:055103, (2014).

38. A. Cimarelli, B. Frohnapfel, Y. Hasegawa, E. De Angelis, M. Quadrio, "Prediction of turbulence control for arbitrary periodic spanwise wall movement", *Physics of Fluids*, **25**:075102, (2013).

39. A. Cimarelli, E. De Angelis, C.M. Casciola, "Paths of energy in turbulent channel flows", *Journal of Fluid Mechanics*, **715**:436-451, (2013).

40. A. Cimarelli, E. De Angelis, "Anisotropic dynamics and sub-grid energy transfer in wall-turbulence", *Physics of Fluids*, **24**:015102, (2012).

41. A. Cimarelli, E. De Angelis, "Analysis of the Kolmogorov equation for filtered wall-turbulent flows", *Journal of Fluid Mechanics*, **676**:376-395, (2011).

42. A. Segalini, A. Cimarelli, J.D. Ruedi, E. De Angelis, A. Talamelli, "Effect of the spatial filtering and alignment error of hot-wire probes in a wall-bounded turbulent flow", *Measurements Science and Technology*, **22**:105408, (2011).

Conference papers

1. G. Boga, A. Giancola, A. Cimarelli "Numerical experiments on scalar transport and mixing in turbulent boundary layers", Journal of Physics: Conference Series **2753**, 012003 (2024).

2. A. Cimarelli, F. Romoli, E. Stalio, "On the Wave-Induced Stokes Sublayer and Drag Reduction in the Turbulent Wind", Progress in turbulence X, Springer Proceedings in Physics, **404**, 257-262 (2024).

3. D. Fenton, A. Cimarelli, J.P. Mollicone, M. van Reeuwijk, E. De Angelis, "A Turbulent Plume in Crossflow", ERCOFATC Series, **31**, 356-361, Direct and Large-Eddy Simulation XIII, (2023).

4. R. Corsini, A. Cimarelli, E. Stalio, "DNS of the Flow About a 5: 1 Rectangular Body with Sharp Corners", ERCOFATC Series, **31**, 9-16, Direct and Large-Eddy Simulation XIII, (2023).

5. A. Abbà, M.H. Aliyoldashi, A. Cimarelli, M. Germano, "Effect of Variable Density on Subgrid Scales", ERCOFATC Series, **31**, 49-54, Direct and Large-Eddy Simulation XIII, (2023).

6. M. Germano, A. Abbà, A. Cimarelli, A. Ferrero, F. Grinstein, M. Klein, F. Larocca, J.A. Saenz, G. Scovazzi, "The filtering approach as a tool for modeling and analyzing turbulence", Progress in turbulence IX, Springer Proceedings in Physics, **267**, 66-77 (2021).

7. A. Abbà, A. Cimarelli, M. Germano, "Dynamic tensorial eddy viscosity and turbulent stresses", Progress in turbulence IX, Springer Proceedings in Physics, **267**, 85-90 (2021).

8. A. Cimarelli, M. Franciolini, A. Crivellini "High-order DG solutions of separating and reattaching flows", 7th European Conference on Computational Fluid Dynamics (ECFD7), International Centre for Numerical Methods in Engineering, CIMNE, 4171-4182 (2020).

9. A. Cimarelli, A. Crivellini, A. Abbà, M. Germano, "Reduced Description and Modelling of Small-Scale Turbulence by Means of a Tensorial Turbulent Viscosity", Progress in turbulence VIII, Springer Proceedings in Physics, **226**, 21-26, (2019).

10. D. Gatti, A. Chiarini, A. Cimarelli, B. Frohnapfel, M. Quadrio, "Production, Transport and Dissipation of Turbulent Stresses Across Scales and Space", Progress in turbulence VIII, Springer Proceedings in Physics, **226**, 119-124, (2019).

11. A. Cimarelli, A. Abbà, M. Germano, "On the Eddy Viscosity Associated with the Subgrid Stresses", ERCOFATC Series, **25**, 101-106, Direct and Large-Eddy Simulation XI, (2019).

12. A. Cimarelli, A. Leonforte, D. Angeli, "A Priori Analysis and Benchmarking of the Flow Around a Rectangular Cylinder", ERCOFATC Series, **25**, 419-425, Direct and Large-Eddy Simulation XI, (2019).

13. D. Angeli, A. Cimarelli, A. Fregni, E. Stalio, A. Shams, F. Roelofs "Numerical simulation of mixing buoyant jets: Preliminary studies", 17th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH), (2017).

14. A. Cimarelli, A. Leonforte, M. Franciolini, E. De Angelis, D. Angeli, A. Crivellini "A priori and a posteriori study of the flow around a rectangular cylinder", Journal of Physics: Conference Series **923**, (2017).

15. D. Gatti, M. Quadrio, A. Cimarelli, Y. Hasegawa, B. Frohnapfel, "Study of energetics in drag-reduced turbulent channel flows", Progress in turbulence VII, Springer Proceedings in Physics, **196**, 219-225, (2017).

16. R. Togni, A. Cimarelli, E. De Angelis, "Towards an Improved Subgrid-Scale Model for Thermally Driven Flows", Progress in turbulence VII, Springer Proceedings in Physics, **196**, 141-145, (2017).

17. A. Leonforte, A. Cimarelli, D. Angeli, "Structure of Turbulence in a Flow Around a Rectangular Cylinder", Progress in turbulence VII, Springer Proceedings in Physics, **196**, 233-238, (2017).

18. R. Togni, A. Cimarelli, A. Lozano-Duran, E. De Angelis, "Space and time behaviour of the temperature second-order structure function in Rayleigh-Benard convection", Journal of Physics: Conference Series **708**, (2016).

19. A. Cimarelli, E. De Angelis, "Backward energy transfer and subgrid modeling approaches in wall-turbulence", Progress in turbulence VI, Springer Proceedings in Physics, **165**, 75-78, (2016).

20. L. Patruno, M. Ricci, A. Cimarelli, S. de Miranda, A. Talamelli, F. Ubertini, "Large Eddy Simulation of Turbulent Flows: Benchmarking on a Rectangular Prism", Progress in turbulence VI, Springer Proceedings in Physics, **165**, 305-309, (2016).

21. T. Fiorini, G. Bellani, A. Cimarelli, A. Talamelli, "Experimental Study on Hot-Wire Spatial Resolution in Turbulent Round Jet", Progress in turbulence VI, Springer Proceedings in Physics, **165**, 249-252, (2016).

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