Part A. Short Curriculum Vitæ

Cristian Marchioli

• General Information

Date and place of birth:	July 12, 1973; Udine (Italy);
Phone:	(office) +39 (0)432 558006; (cell.) +39 339 8575391;
E-mail:	marchioli@uniud.it
Homepage:	158.110.32.35/cris.html

• Education

2003: Ph.D., Mechanical Engineering, University of Udine, Italy
1999: BS - MS, Industrial Engineering, University of Udine, Italy

• Academic Position and Qualification

10/2023 - present: Full Professor of Fluid Mechanics, DPIA, University of Udine
2016 - 09/2023: Associate Professor of Fluid Mechanics, DPIA, University of Udine

• Institutional Activities

Intramural

⋆ Coordinator (2021 - pres.), Vice-Coordinator (2016 - 2021), and Board Member (2014 - pres.) of the PhD Program *Environmental and Energy Engineering Sciences*, University of Udine
⋆ Member (2021 - present) of the Commissione AQ, course: *Ingegneria Industriale per la Sostenibilità Ambientale*, University of Udine
⋆ Departmental coordinator of 5 Erasmus+ Agreements (current: Aix-Marseille University, RWTH Aachen University, TU Wien; past: University of Aberdeen, Czestochowa University of Technology)
⋆ Member (2014 - present) of the Final Evaluation Committee for 16 Phd Theses, PhD Program *Environmental and Energy Engineering Sciences*, University of Udine
⋆ Advisor or Co-Advisor (2015 - present) of 16 PhD Theses (7 "En Co-tutelle"), PhD in *Environmental and Energy Engineering Sciences*, University of Udine
⋆ Advisor or Co-Advisor (1999 - present) of 100+ B.S./M.S. Theses in Fluid Mechanics (Mechanical & Management Engineering, Environmental Sustaonability), University of Udine
⋆ Co-Chairman (with Prof. R. van Hout, Technion), *Euromech Colloquium on Non-Spherical Particles in Turbulence*, Udine, 16-18.07.25
⋆ Co-Chairman (with Prof. S. Zaleski, Univ. Sorbonne), Thematic Session *Bubbles, Drops and Interfaces*, ICTAM 2024, Daegu (KR), 25-30 August, 2024
⋆ Co-Chairman (with Prof. G. He, Chinese Acad. Sci.), *2nd BICTAM-CISM Symposium on Dispersed Multiphase Flows: From measuring to modeling*, Beijing (CHN), 21-23 August 2024
⋆ Chairman, *13th ERCOFTAC Workshop on Direct and Large-Eddy Simulation*, Udine, 26-29.10.22
⋆ Co-Chairman, *4th Int. Conf. Numerical Methods in Multiphase Flow*, Venice 28-30.09.22
⋆ Chairman, *Euromech Colloquium on Advances in LES of Turbulent Multiphase Flows*, Udine, 22-24.06.22
⋆ Co-Chairman, *6th Int. Conf. Turbulence and Interactions*, Isola d'Elba, 15-20.05.22
⋆ Co-Chairman, *1st BICTAM-CISM Symposium on Dispersed Multiphase Flows*, online, 2-5.03.21
⋆ Chairman, *IUTAM Symposium on Motile cells in complex environments*, Udine, 15-18.05.18

Extramural

⋆ Member of GEV (Gruppo Esperto di Valutatori) panel, ANVUR Area 09 Ingegneria industriale e della informazione, VQR 2015-2019

⋆ Member of the Hiring Committee for Assistant Professor of Fluid Dynamics (ING/IND/06) at Università di Padova (2024), Università di Roma La Sapienza (2023), Università di Modena e Reggio Emilia (2023)

⋆ Member of the Hiring Committee for Associate Professor of Fluid Dynamics (ING/IND/06) at Università di Pisa (2025)

⋆ Director of the Department of Fluid Dynamics, International Center of Mechanical Sciences (CISM)

⋆ Member of the Scientific Council, Academic Council and Board of Directors, CISM

⋆ Coordinator of 6 Summer Schools at CISM (see extended CV for a detailed list)

⋆ Organizer (2013 - present) of scientific workshops, symposia and fora (see extended CV for details)

• Teaching Activities

Intramural

2020-2021 : Turbolenza: fenomenologia, modellazione e calcolo ad alte prestazioni, Scuola Superiore

2018-2019 : Fenomeni di trasporto: Introduzione alla modellazione matematica e simulazione numerica, Scuola Superiore

2017-2019 : Environmental transport phenomena (in English), M.S. Environmental & Energy Engineering

2017-2019 : Modelling of turbulent flows (in English), M.S. Mechanical Engineering

2017-2023 : Numerical methods for transport equations (in English), PhD in Energy & Environmental Engineering Science

2013-pres. : Fluidodinamica, B.S. Mechanical & Industrial Engineering, Environmental Sustainability

2012-2013 : Metodi numerici per le equazioni di trasporto, Scuola Superiore

2009-2011 : Adjoint Professor, Computational Fluid Mechanics, Math. Phys. & Nat. Sci.

2002-2012 : Adjoint Professor of Fluid Mechanics (Fluidodinamica), Mechanical Engineering, CEPO

Extramural

⋆ Guest Professor:

2019-2021 : Gas dynamics and Aerodynamics (Institute of Fluid Mechanics & Heat Transfer, TU Wien)

⋆ Invited Lecturer:

2018 : *Fluids Symposium: Fluid Dynamics Modelling for Real World Application* (Coord.: P. Jimack, June 20, 2018, University of Leeds, UK)

2015 : CISM Summer School on *Particles in wall-bounded turbulent flows: Deposition, re-suspension and agglomeration* (Coordinators: J.P. Minier, J. Pozorski, September 14-18, 2015, CISM, Udine)

2015 : COST Training School on *Regular and irregular non-spherical particles in laminar and turbulent flow* (Coordinator: M. Sommerfeld, May 27-29, 2015, Martin-Luther Universitat, Halle)

2013 : XIII UIT Summer School *Thermo-fluid dynamics of two-phase systems* (Certosa di Pontignano, September 9-14, 2013)

• Professional Activities

⋆ Editor of *Acta Mechanica* (April 2017 - present)

⋆ Review Editor of *Frontiers in Chemical and Process Engineering* (2016 - 2024)

⋆ Review Editor of *Frontiers in Physics - Fluid Dynamics* (2023 - present)

⋆ Editor of *Direct and Large Eddy Simulation XIII*, Proceedings of DLES13, ERCOFTAC Series (2024) and *Direct and Large Eddy Simulation XIV*, Proceedings of DLES14, ERCOFTAC Series (2025)

⋆ Member of the Editorial Advisory Board of *Acta Mechanica* (October 2014 - March 2017), and *Flow,*

Turbulence & Combustion (April 2019 - Present)

⋆ Special Issue Guest Editor of *Advances in Direct and Large-Eddy Simulations*, Flow, Turbulence & Combustion, **112**, 1–2 (2024)

⋆ Member of the ERCOFTAC SIG42 *Fiber Suspension Flow* Steering Committee

⋆ Corresponding Member for Italy of the Japanese Society of Multiphase Flow

⋆ Member of UIT, ASME, APS, EUROMECH

⋆ Member of the Jury Commission, Tender for the concession of the natural gas distribution service in the area Udine 2 - Città di Udine e Centro

⋆ Co-Author (with A. Soldati) of the textbooks *Fluidodinamica*, Bononia University Press (2021) and *Fluid Mechanics for Mechanical Engineers*, Springer Nature (2024).

⋆ Reviewer for Scientific Journals (see extended CV for a detailed list of journals)

⋆ Reviewer for Governmental Bodies and Non-Profit Organizations (ANR, ARRS, NSERC-CRSNG, SERI, UEFISCDI, FWO, ETAg, NCN, CINECA, Leverhulme Trust, HAGRC)

⋆ Opponent of PhD Theses in AUS (1), AUT (1), FRA (11), IND (2), ITA (10), NOR (1), SUE (1)

• Specific Experience in Competitive Projects

2023 - 2025: Sub-PI, PRIN 2022 Project 20229WJBPS *Next-generation multiscale modelling of dense emulsions for enhanced multiphase flow processes* (Budget: 296.816 EUR)

2018 - 2022: Principal Investigator, MSCA-EID-ITN Project *Next-generation computational methods for enhanced multiphase flow processes* (Proposal N. 813948 - Budget: 753.185 EUR)

2011 - 2015: Chairman, COST Project FP1005 *Fibre suspension flow modelling - A key for innovation and competitiveness in the pulp and paper industry* (Budget: 435.700 EUR)

• Research Funds

Public funding

⋆ CLEANSTONE *Recovery and upgrading of stone processing waste for ecological sustainability* (11/2019 - 10/2021) - Call: 2014 - 2020 INTERREG V-A Italy - Austria - Project Budget 862.419 EUR (RU Budget: 245.000 EUR) - Role: Member of RU

⋆ UBE *Underwater Blue Efficiency* (05/2014 - 10/2016) - Call PAR FSC 2007-2013, Azione "Distretti tecnologici" - Project Budget 499.700 EUR (RU Budget: 60.000 EUR) - Role: Member of RU

⋆ Nugenia+ (Grant *FP7-EURATOM-FISSION*) *Simulation of two-phase flow patterns with a new approach based on Smoothed Particle Hydrodynamics* (03/2015 - 09/2016) - Call FP7-Fission-2013 - Project Budget: 180.000 EUR (RU Budget: 70.000 EUR) - Role: Member of RU

⋆ FSE - Misura D4 (Grant Funds 2003-2004) *Dispersion mechanisms in the gulf of Trieste: Interaction between turbulence and biological processes* - Budget: 24.000 EUR

Private funding

⋆ Private funding is obtained from contract research grants (contratti conto terzi) by industrial partners. The total funding received since 2007 is about 230.000 EUR (see extended CV for details)

• Research Activities

Guest or Visiting Professor

03/2023 : Institut de Mécanique des Fluides de Toulouse, Toulouse, France

2019 - 2021: Institute of Fluid Mechanics and Heat Transfer, TU Wien, Austria

08/2017-09/2017: Dept. Engineering Mechanics, School of Aerospace, Tsinghua University, China

Visiting Grants

04-05/2014, 07-08/2012: COST visitor, Dept. Mechanical Engineering, NTNU Trondheim (Norway)
09/2006-10/2006: HPC-Europa visitor, Dept. Mechanical Engineering, TU Delft (Netherlands)
01/2006-03/2006: HPC-Europa visitor, Dept. Mechanical Engineering, TU Eindhoven (Netherlands)
09/2001-06/2002: Visiting scholar, Dept. Mechanical Engineering, Johns Hopkins University (USA)

Research Topics

⋆ Turbulent dispersion of particles, aerosols, drops and bubbles: Fundamentals and applications
⋆ Numerical simulation (DNS, LES) of two-phase and three-phase turbulent flows
⋆ Analysis and control of turbulent transfer mechanisms of mass, momentum and heat
⋆ Eulerian-Lagrangian methods, sub-grid modeling for particles

• Scientific Production

Citation report (as of 03/09/2025)	Source: Scopus	⋆	WoS
Results found:	98	⋆	99
Number of journal publications:	62	⋆	62
Sum of the times cited:	3033	⋆	2793
H-index:	28	⋆	28

• Invited Talks and Seminars (Last 10 years)

2025: ⋆ Invited speaker (IS), *DokForsch Seminar Series*, TU Wien (AT), 09.10.25
2025: ⋆ IS, *IMFTF Keynote Meeting* (online), 05.09.25
2024: ⋆ IS, Thematic Session *Multiphase and particle-laden flows*, ICTAM 2024, Daegu (KR), 25-30.08.24
⋆ IS, KAUST Turbulence Workshop "Outstanding challenges in wall turbulence and lessons to be learned from pipes", KAUST, 26-28.02.2024
2023: ⋆ IS, IUTAM Symp. *Turbulent structure and particles-turbulence interaction*, Lanzhou (CN), 7-10.07.23
2021: ⋆ IS, *Australasian Fluid Mechanics Society* webinar series, 22.09.21
⋆ IS, *Laboratoire de Mecanique des Fluides de Lille* webinar series, Lille, 08.04.21
2019: ⋆ Invited seminar, *Inst. Aerodynamics, RWTH Aachen University*, Aachen, 05.02.19
2018: ⋆ IS, BIRS-CMO Workshop N. 18w5139 *New Frontiers in Multiphase CFD for the 21st Century Energy Mix*, Oaxaca, 19-24.08.18
⋆ Keynote speaker, *5th Int. Conf. Turbulence and Interactions*, Martinique (FR), 25-29.06.18
⋆ Invited seminar, *Linne Flow Centre, KTH*, Stockholm, 26.04.18
2017: ⋆ Guest lecturer, *Flowing Matter* (COST-CISM Advanced Course), Udine, 25-29.09.17
⋆ Invited seminar, *Institute of Mechanics, Beijing International Center for Theoretical and Applied Mechanics (BICTAM), Chinese Academy of Sciences*, Beijing, 07.09.17
⋆ Keynote speaker, *3rd Int. Conf. Numerical Methods in Multiphase Flow*, Tokio, 26-29.06.17
2016: ⋆ Invited seminar, *Institute of Fluid Mechanics and Heat Transfer*, TU Wien, Vienna, 29.09.16

• Grants and Awards

2025: Journal of Fluid Mechanics' Outstanding Reviewers 2024 (top 1%)
2017: Fiorino d'Argento, awarded by the City of Florence (IT)
2015: Erasmus Teaching Mobility Grant (Course taught: *Subgrid-scale modeling for particle simulations in LES*), Université Pierre et Marie Curie (Paris VI), 03-05 March 2015
2011 - present: PI of ISCRA B/ISCRA C/CASPUR Grants (5 millions standard hours on Marconi 100)
2010: Recipient of the Young scientist 2008 best paper prize awarded by the University of Udine
2005: Recipient of the 2003-2004 UIT (Unione Italiana di Termofluidodinamica) best PhD thesis award

Part B. Extended Curriculum Vitæ

Cristian Marchioli

• General Information

Date and place of birth:	July 12, 1973; Udine (Italy);
Citizenship:	Italian;
Phone:	(office) +39 (0)432 558006; (cell.) +39 339 8575391;
E-mail:	marchioli@uniud.it
Homepage:	158.110.32.35/cris.html
Marital status:	married (2 daughters)

• Education

2003: Ph.D., Mechanical Engineering, University of Udine, Italy
1999: BS - MS, Industrial Engineering, University of Udine, Italy

• Academic Positions and Qualifications

2019 - present: Guest Professor, Institute of Fluid Mechanics and Heat Transfer, TU Wien (Aut)
Course: Gas dynamics and Aerodynamics (322.075)
2017: National Scientific Qualification (Abilitazione Scientifica Nazionale) to Full Professor of Fluid Mechanics in Italian Universities
2023 - present: Full Professor of Fluid Mechanics, DPIA, University of Udine
2016 - 2023: Associate Professor of Fluid Mechanics, DPIA, University of Udine
2013: National Scientific Qualification (Abilitazione Scientifica Nazionale) to Associate Professor of Fluid Mechanics in Italian Universities
2010-2016: Senior Scientist & Assistant Professor of Fluid Mechanics, DIEG, University of Udine
2006: Guest Scientist, Dept. Multiscale Physics, Technische Universiteit, Delft (Ned)
2006: Guest Scientist, Dept. Mechanical Eng., Technische Universiteit, Eindhoven (Ned)
2004-2010: Adjoint Professor of Fluid Mechanics, Dept. Energy Technologies, University of Udine
2003-2009: Post-Doctoral Fellow, Dept. Energy Technologies, University of Udine

• Honors, Grants and Awards

2025: Invited speaker, *DokForsch Seminar Series*, TU Wien (AT), 09.10.25
2025: Journal of Fluid Mechanics' Outstanding Reviewers 2024 (top 1%)
2025: Invited speaker, *IMFTF Keynote Meeting* (online), 05.09.25
2024: Invited speaker, Thematic Session on *Multiphase and particle-laden flows*, 26th Int. Congress of Theoretical and Applied Mechanics (ICTAM 2024), Daegu, Aug. 25-30, 2024
2024: Invited speaker, Invited speaker, KAUST Turbulence Workshop "Outstanding challenges in wall turbulence and lessons to be learned from pipes", KAUST, 26-28.02.2024
2023: Invited speaker, IUTAM Symposium on *Turbulent structure and particles-turbulence interaction* Lanzhou, July 7-10, 2023
2021: Invited speaker, *Australasian Fluid Mechanics Society* webinar series, Sep. 22, 2021
2021: Invited speaker at *Laboratoire de Mecanique des Fluides de Lille* webinar series, Apr. 8, 2021
2019: Invited seminar at *Inst. Aerodynamics, RWTH Aachen University*, Aachen (DE), Feb. 5, 2019
2018: Invited speaker at the BIRS-CMO Workshop N. 18w5139 *New Frontiers in Multiphase CFD for*

the 21st Century Energy Mix, Oaxaca (MX), August 19-24, 2018

2018: Keynote speaker at *5th Int. Conf. Turbulence and Interactions (TI2018)*, La Martinique (FR), June 25-29, 2018

2018: Guest lecturer at *Symposium on Fluid Dynamics Modelling for Real World Applications* (EPSRC Centre for Doctoral Training in Fluid Dynamics, Director: Prof. P. Jimack), University of Leeds, Leeds (UK), June 20, 2018

2018: Invited seminar at *Linne Flow Centre, KTH*, Stockholm (SE), April 26, 2018

2017: Guest lecturer at *Flowing Matter* (COST-CISM Advanced Course, coordinated by B. Dollet & B. Mehlig), CISM, Udine (IT), September 25-29, 2017

2017: Invited seminar at *Institute of Mechanics, Beijing International Center for Theoretical and Applied Mechanics (BICTAM), Chinese Academy of Sciences*, Beijing (CHN), September 7, 2017

2017: Keynote speaker at *3rd Int. Conf. Numerical Methods in Multiphase Flow (ICNMMF-III)*, Tokio (JAP), June 26-29, 2017

2017: Fiorino d'Argento, awarded by the City of Florence (IT),

2016: Invited seminar at *Institute of Fluid Mechanics and Heat Transfer*, TUWien, Wien (AT), September 29, 2016

2015: Invited seminar at *Observatoire de la Cote d'Azur*, Nice (FR), November 2, 2015

2015: Invited speaker at *ERCOFTAC Autumn Festival 2015*, Vinci (IT), October 15-16

2015: Erasmus Teaching Mobility Grant (Course taught: *Subgrid-scale modeling for particle simulations in LES*), Université Pierre et Marie Curie (Paris VI), 03-05 March 2015

2014: Keynote speaker at *13th Int. Conf. Multiphase Flows in Industrial Plants (MFIP13)*, Sestri Levante (IT), September 17-19

2014: Invited speaker at *Nordita Conf. Dynamics of Particles in Flows*, Stockholm (SE), June 11-13

2012: Invited speaker at *50th European Two-Phase Flow Group Meeting*, Udine (IT), May 16-18

2011: Keynote speaker at *XX AIMETA Conference*, Bologna (IT), September 12-15

2011 - present: PI of ISCRA B/ISCRA C Grants (total standard hours granted: 5 millions on Marconi 100)

2011: Standard HPC Tenders Grant CASPUR

2010: Recipient of the Young scientist 2008 best paper prize awarded by the University of Udine

2009: Invited speaker at *5th European-Japanese Two-Phase Flow Group Meeting*, Spoleto (IT), September 20-25

2005: Recipient of the 2003-2004 UIT (Unione Italiana di Termofluidodinamica) award for the best PhD thesis on Thermofluidynamics

• Specific Experience in Competitive Projects

2023 - 2025: Sub-PI, PRIN 2022 Project 20229WJBPS *Next-generation multiscale modelling of dense emulsions for enhanced multiphase flow processes* (Budget: 296.816 EUR)

2018 - 2022: Principal Investigator of MSCA-EID-ITN Project *Next-generation computational methods for enhanced multiphase flow processes* (Proposal N. 813948 - Budget: 753.185 EUR)

2011 - 2015: Chairman of COST Project *Fibre suspension flow modelling - a key for innovation and competitiveness in the pulp and paper industry* (Budget: 435.700 EUR)

• Research Funds

Public funding - Public funding is hierarchically obtained from all sources ranging from the local regional authority, to specific national research programmes and to specific competitive projects:

- CLEANSTONE *Recovery and upgrading of stone processing waste for ecological sustainability* (11/2019 - 10/2021) - Call: 2014 - 2020 INTERREG V-A Italy - Austria - Project Budget 862.419 EUR (RU Budget: 245.000 EUR) - Role: RU Member

- UBE *Underwater Blue Efficiency* (05/2014 - 10/2016) - Call: PAR FSC 2007-2013, Linea d'Azione 3.1.2 "Miglioramento dell'offerta di ricerca, innovazione e trasferimento tecnologico", Azione 3.1.2.2 "Distretti tecnologici" - Project Budget 499.700 EUR (RU Budget: 60.000 EUR) - Role: RU Member
- Nugenia + (Grant *FP7-EURATOM-FISSION*) *Simulation of two-phase flow patterns with a new approach based on Smoothed Particle Hydrodynamics* (03/2015 - 09/2016) - Call: FP7-Fission-2013 - Project Budget: 180.000 EUR (RU Budget: 70.000 EUR) - Role: RU Member
- COST Project *Fibre suspension flow modelling - a key for innovation and competitiveness in the pulp and paper industry* (05/2011 - 06/2015) - Project Budget: 435.700 EUR - Role: Coordinator
- Fondo Sociale Europeo - Misura D4 (Grant Funds 2003-2004) *Dispersion Mechanisms in the Gulf of Trieste: Interaction between Turbulence and Biological Processes* - Budget: 24.000 EUR

Private funding - Private funding is obtained from contract research (contratti conto terzi) with industrial partners. Total funding is about 250.000 EUR from the following partners:

- Rockwool (2025) *Fluid dynamics modelling and simulation of stone wool fibers formed in a cascade spinning process.*
- Cenedese S.p.A. (2024) *Modellizzazione dell'effetto indotto dal passaggio di un treno sulla ventilazione all'interno di una galleria ferroviaria.*
- Cenedese S.p.A. (2024) *Analisi fluidodinamica del processo di stratificazione di una miscela metano-idrogeno.*
- Philip Morris Int. (2024) *Validation of aerosol transport in AeroSolved: Eulerian vs Lagrangian model.*
- Auril & Gold srl, Steelform srl (2023) *Modellizzazione ed analisi del comportamento fluidodinamico di un dispositivo di trasferimento di leghe di alluminio fuso.*
- Labiotest srl (2022) *Analisi aeraulica di un dispositivo stand-alone per filtrazione e sanificazione dell'aria in ambienti chiusi.*
- Energaid srl (2021) *Modellizzazione ed analisi di dispositivi di isolamento termico mediante energie rinnovabili.*
- Euro & Promos SpA (2021) *Analisi fluidodinamica dell'efficienza e della rispondenza ai criteri ambientali minimi di atomizzatori elettrostatici per applicazioni sanitarie.*
- MBF SpA (2019) *Analisi dell'impianto per l'imbottigliamento di vini frizzanti: identificazione di criticità e possibilità di miglioramento.*
- Ardea srl (2017) *Analisi di sistemi per il contenimento delle emissioni di polveri da tramogge.*
- Meccanotecnica Veneta srl (2014) *Computational characterization of the lubro-refrigeration process of circular saw blades.*
- Boer Group srl (2011) *Analisi fluidodinamica di impianti di disoleazione esistenti e identificazione di linee-guida per l'ottimizzazione di progetto.*
- Aria srl (2007) *Analisi fluidodinamica per sistema di pulizia e igienizzazione delle canalizzazioni: studio della dinamica di un flusso d'aria in uscita da ugello destinato alla bonifica delle condotte.*

Miscellaneous funding

- 2016: Research grant for hosting young researchers within the *Young Investigator Training Programme* funded by ACRI (4.000 EUR).

- **Professional Activity**

MEMBER of ERCOFTAC SIG42 *Fiber Suspension Flow* Steering Committee

CORRESPONDING MEMBER for Italy of the Japanese Society of Multiphase Flow

MEMBER of UIT (Unione Italiana di Termofluidodinamica), ASME (American Society of Mechanical Engineers), APS (American Physical Society), EUROMECH (European Mechanics Society)

MEMBER of the Jury Commission, Tender for the concession of the natural gas distribution service in the Udine 2 - Città di Udine e Centro area

CO-AUTHOR (with A. Soldati) of the textbooks *Fluidodinamica*, Bononia University Press (2021) and *Fluid Mechanics for Mechanical Engineers*, Springer Nature (2024).

EDITOR of *Acta Mechanica* (April 2017 - present)

MEMBER of the Editorial Advisory Board of *Acta Mechanica* (October 2014 - March 2017), *Flow, Turbulence & Combustion* (April 2019 - Present)

REVIEW EDITOR of *Frontiers in Chemical and Process Engineering* (2016 - present) and *Frontiers in Physics - Fluid Dynamics* (2023 - present)

EDITOR of *Direct and Large Eddy Simulation XIII*, Proceedings of DLES13, ERCOFTAC Series (2024)

GUEST EDITOR of *Acta Mechanica Sinica* for the Special Issue "Dispersed multiphase flows: advances in measuring, simulation and modeling" (Vol. 38, 2022)

GUEST EDITOR of *Flow, Turbulence & Combustion* for the Special Issue "Advances in Direct and Large-Eddy Simulations" (Vol. 112, 2024)

REFERENCE PERSON for production and management of the following DATA REPOSITORIES:

- COST FP1005 - test case WG3: DNS of fiber-laden channel flow
- COST P20 - test case WG3: LES of particle-laden channel flow
- Picciotto, M., Marchioli, C. & Soldati, A. (2006) Database of particles dispersed in turbulent channel flow CFD database, CINECA, Italy (http://cfd.cineca.it/cfd)
- Marchioli, C., Picciotto, M. & Soldati, A. (2005) Velocity statistics in particle-laden turbulent vertical channel flow with and without lift. CFD database, CINECA, Italy (http://cfd.cineca.it/cfd)

REVIEWER for Scientific Journals:

- *Acta Mechanica*, *AIAA Journal*, *Advances in Colloid and Interface Science*, *Advances in Water Resources*, *Atmospheric Environment*, *Canadian Journal of Chemical Engineering*, *Chemical Engineering Science*, *Communications in Computational Physics*, *Computational Geosciences*, *Computers & Fluids*, *Computer Methods in Applied Mechanics & Engineering*, *European Journal of Mechanics B/Fluids*, *Experiments in Fluids*, *Flow, Turbulence & Combustion*, *Fluid Dynamics Research*, *Frontiers in Physics - Fluid Dynamics*, *International Journal of Heat & Fluid Flow*, *International Journal of Heat & Mass Transfer*, *International Journal of Heat & Technology*, *International Journal of Modern Mathematics*, *International Journal of Multiphase Flows*, *International Journal for Numerical Methods in Fluids*, *International Journal of Spray and Combustion Dynamics*, *International Journal of Thermal Sciences*, *Journal of Aerosol Science*, *Journal of Computational & Applied Mathematics*, *Journal of Computational Physics*, *Journal of Fluid Mechanics*, *Journal of Fluids Engineering*, *Journal of Fluids & Structures*, *Journal of Hazardous Materials*, *Journal of Non-Newtonian Fluid Mechanics*, *Journal of Physics A - Math. Gen.*, *Journal of Physics D - Applied Physics*, *Journal of Turbulence*, *Journal of Zhejiang University Science*, *Meccanica*, *Multiphase Science & Technology*, *Nature Geoscience*, *New Journal of Physics*, *Nuclear Engineering and Design*, *Numerical Heat*

Transfer B, *Particulate Science & Technology*, *Physical Review E*, *Physical Review Fluids*, *Physical Review Letters*, *Physics of Fluids*, *Physics Letters A*, *Plasma Science & Technology*, *Powder Technology*, *Progress in Energy & Combustion Science*, *Water*

Reviewer for Governmental Bodies and Non-Profit Organizations:

- *French National Research Agency* (FR), Call: JCJC - SIMI 9
- *Slovenian Research Agency* (SL) Call: ARRS Call 2022
- *Natural Sciences & Engineering Research Council of Canada* (CA) Call: NSERC Discovery Grant
- *State Secretariat for Education, Research & Innovation* (CH), Call: COST Proposal C10.0073
- *Executive Agency for Higher Education, Research, Development and Innovation Funding* (RO), Call: Research within Priority Sectors Program - RO14
- *Flanders Research Foundation* (BE)
- *Estonian Research Council* (EE), Call: Norwegian-Estonian Research Cooperation Program
- *Polish National Science Centre* (PO), Call: OPUS Funding scheme
- *CINECA* Call: Italian SuperComputing Resource Allocation - ISCRA
- *The Leverhulme Trust* (UK) Calls: RPG-2019, RPG-2020
- *Helmholtz Association of German Research Centers* (DE) Call: The Coronavirus Pandemic: Insight, Coping, and Prevention

- **Institutional Activity**

Member of GEV (Gruppo Esperto di Valutatori) panel, ANVUR Area 09 - Ingegneria industriale e della informazione, VQR 2015-2019

Member of the Hiring Committee for Assistant Professor of Fluid Dynamics (RTD-A, ING/IND/06) at Università di Roma La Sapienza (2023) and Università di Modena e Reggio Emilia (2023)

Director of the Department of Fluid Dynamics, International Center of Mechanical Sciences (CISM)

Member of the scientific council, academic council and board of directors of CISM

Coordinator of:

- *Non-spherical particles in turbulence* (CISM Summer School, July 21-25, 2025, CISM, Udine, Italy)
- *Advanced numerical approaches for simulation of turbulent multiphase flows* (CISM-COMETE Summer School, September 7-11, 2020, CISM, Udine, Italy)
- *Anisotropic particles in viscous and turbulent flows* (CISM-AIMETA Summer School, July 1-5, 2019, CISM, Udine, Italy)
- *Fluid dynamics effects on particle formation in crystallization processes* (EFCE-Euromech Summer School, July 2-6, 2018, CISM, Udine, Italy)
- *Collective Dynamics of particles: from viscous to turbulent flows* (COST-ERCOFTAC Training School, May 26-30, 2014, CISM, Udine, Italy)
- *Non-spherical particles and aggregates in fluid flows* (COST-ERCOFTAC Training School, June 17-21, 2013, CISM, Udine, Italy)

Invited Lecturer at:

- *Fluids Symposium: Fluid Dynamics Modelling for Real World Application* (Coordinator: P. Jimack, June 20, 2018, University of Leeds, UK)
- *Particles in wall-bounded turbulent flows: deposition, re-suspension and agglomeration* (Coordinators: J.P. Minier, J. Pozorski, September 14-18, 2015, CISM, Udine)
- COST Training School on *Regular and irregular non-spherical particles in laminar and turbulent flow* (Martin-Luther Universitat, Halle-Wittenberg, May 27-29, 2015)

- XIII UIT Summer School on *Thermo-fluid dynamics of two-phase systems* (Certosa di Pontignano, September 9-14, 2013)

ORGANIZER of scientific workshops, symposia and fora:

- Co-Chairman (with Prof. R. van Hout, Technion) of the EUROMECH Colloquium 652 on *Non-Spherical Particles in Turbulence*, Udine (IT), 16-18 July, 2025
- Co-Chairman (with Prof. S. Zaleski, Univ. Sorbonne) of the Thematic Session *Bubbles, Drops and Interfaces*, ICTAM 2024, Daegu (KR), 25-30 August, 2024
- Co-Chairman (with Prof. G. He) of the *2nd BICTAM-CISM Symposium on Dispersed Multiphase Flows: From measuring to modeling*, Beijing (CHN), 21-23 August 2024
- Scientific Committee Member of the *5th Int. Conf. on Numerical Methods in Multiphase Flows*, Iceland, 26-28 June, 2024
- Scientific Committee Member of the IUTAM Symposium on *Turbulent structure and particles-turbulence interaction*, Lanzhou, China, 7-10 July 2023
- Chairman of the *13th ERCOFTAC Workshop on Direct and Large-Eddy Simulation (DLES13)*, Udine (IT), 26-29 October 2022
- Co-Chairman (with Prof. F. Picano, Univ. Padova) of the *4th Int. Conf. on Numerical Methods in Multiphase Flows*, Venice (IT), 28-30 September, 2022
- Co-Chairman (with Prof. J. Sesterhenn, Univ. Bayreuth) of the EUROMECH Colloquium 625 on *Advances in LES of Turbulent Multiphase Flows*, Udine (IT), 22-24 June, 2022
- Co-Chairman (with Prof. A. Soldati, TU Wien) of the *6th Int. Conf. Turbulence and Interactions (TI2021)*, Isola d'Elba (IT), 15-20 May, 2022
- Scientific Committee Member of the SHF workshop on *Dispersed two-phase flows 2021*, Online, October 12-14, 2021.
- Co-Chairman (with Prof. J. Li, Chinese Academy of Sciences) of the *1st BICTAM-CISM Symposium on Dispersed Multiphase Flows: From measuring to modeling*, online, 2-5 March 2021
- Scientific Committee Member of the *5th African Conf. on Computational Mechanics (AFRICOMP2020)*, Cape Town, 30 Nov. - 2 Dec. 2020
- Scientific Committee Member of the *2nd Dispersed Two-Phase Flows Workshop (DTPF 2018)*, ENS Lyon, 21-23 September 2020
- Mini-Symposium on *Modelling and Simulation of Multiphase Flows* (co-organized with J. Pozorski, M. Marek), 4th Polish Congress of Mechanics (PCM-CMM), 8-12 September 2019, Kraków, Poland
- Scientific Committee Member of the *12th ERCOFTAC Workshop on Direct and Large-Eddy Simulation (DLES12)*, Madrid, 5-7 June 2019
- Scientific Committee Member of the *10th International Conference on Multiphase Flow (ICMF 2019)*, Rio de Janeiro, 19-24 May 2019
- Scientific Committee Member of the *1st Dispersed Two-Phase Flows Workshop (DTPF 2018)*, ENSEEIHT Toulouse, 17-19 September 2018
- IUTAM Symposium on *Motile cells in complex environments*, May 15-18, 2018, Udine, Italy
- Special Symposium on *Modelling and Experimentation of Fibre Suspensions in Process Engineering* World Congress of Chemical Engineering (WCCE 10), 1-5 October 2017, Barcelona, Spain
- Scientific Committee Member of the *11th ERCOFTAC Workshop on Direct and Large-Eddy Simulation (DLES11)*, Pisa, 29-31 May 2017
- Scientific Secretary, Organizing Committee Member and Poster Competition Chair of the *9th International Conference on Multiphase Flow (ICMF 2016)*, 22-27 May 2016
- COST Action FP1005 Final Conference *Fiber Suspension Flow Modelling*, 9-11 June 2015, NTNU, Trondheim, Norway

- Section on *Interfacial Flows* at GAMM 86th Annual Scientific Conference, 23-25 March 2015, Grand Hotel Tiziano, Lecce, Italy
- Open forum on *Fluid-Particle Interactions in Turbulence* 4th Joint US-European Fluids Engineering Summer Meeting (FEDSM 2014), 3-7 August 2014
- Open forum on *Fluid Dynamic Behavior of Complex Particles* 4th Joint US-European Fluids Engineering Summer Meeting (FEDSM 2014), 3-7 August 2014
- 19th ERCOFTAC Alpe Danube Adria Pilot-Center Meeting 23 May 2014, CISM, Udine, Italy
- 6th Joint ERCOFTAC-COST Meeting on *Fiber suspension flow modelling*, 23-25 October 2013, University of Udine, Udine, Italy
- 1st Symposium on *Dispersed two-phase flows: Dispersion, deposition and agglomeration*, 11th Int. Conf. Numerical Analysis and Applied Mathematics, 21-27 September 2013, Rodos, Greece

Coordinator (2021 - present) and Board Member (2014 - present) of the PhD Program *Environmental and Energy Engineering Sciences*, University of Udine.

Member (2021 - present) of the Commissione AQ, course: *Ingegneria Industriale per la Sostenibilità Ambientale*, University of Udine.

Member (2021 - present) of the Commissione Internazionalizzazione, courses: *Ingegneria Meccanica*, *Ingegneria Gestionale*, University of Udine

Departmental coordinator of 5 Erasmus+ Agreements (current: Aix-Marseille University, RWTH Aachen University, TU Wien; past: University of Aberdeen, Czestochowa University of Technology)

Opponent of PhD Theses:

Extramural

- *Flexible fibers transport in homogeneous and isotropic turbulent flow* (Defendant: Hugo Poncelet; Advisor: Gautier Verhille, Date: 11/2025, IRPHE Marseille)
- *Low-Reynolds-number aerodynamic effects in unsteady flow environments* (Defendant: J.M. Catalan Gomez; Advisors: Oscar Flores, Manuel Garcia Villalba, Date: 09/2024, Univ. Carlos III Madrid)
- *Chute en régime inertiel de cylindres isolés ou en groupes dans une cellule mince* (Defendant: Dylan Letessier; Advisor: Veronique Roig, Date: 03/2024, IMFT Toulouse)
- *Simulation numérique des interactions particule-particule et particule-paroi dans les écoulements turbulents chargés en particules non-sphériques* (Defendant: Karan Anand; Advisors: Olivier Simonin, Pascal Fede, Date: 03/2024, IMFT Toulouse)
- *Numerical simulation of particle transport and deposition on ground-mounted photovoltaic arrays* (Defendant: Cheikhna Talebmoustaph; Advisor: Pascal Fede, Date: 03/2024, IMFT Toulouse)
- *Particle-induced modulation and dispersion of inertial particles in turbulent wall flows* (Defendant: Toni Zahtila; Advisors: Jim Philip, Andrew Ooi, Date: 06/2023, University of Melbourne)
- *Advances in two and three-phase bubble columns modeling: Large eddy simulation and population balance* (Defendant: F. Maniscalco; Advisors: Antonio Buffo, Marco Vanni, Date: 05/2022, Polito)
- *Reduced-order modeling and simulation of turbulent disperse two-phase flow: New theoretical and modeling approaches for reproducing intermittency, segregation and two-way coupling* (Defendant: Roxane Letournel, Advisors: Aymeric Viè, M. Massot, Date: 17/02/2022, Univ. Paris-Saclay, FR)
- *CFD study of the bottling process with carbonated soft drinks* (Defendant: G. Tronci; Advisors: Daniele Marchisio, Antonio Buffo, Marco Vanni, Date: 14/05/2021, Politecnico di Torino)
- *Numerical simulation and physical analysis of the dispersion of charged inertial particles transported by a stationary homogeneous isotropic turbulence* (Defendant: Athanasios Boutsikakis, Advisors: Pascal Fede, Olivier Simonin, Date: 12/11/2020, INP Toulouse, FR)

- *Large-eddy simulation of coupled dispersed phase-flows: a statistically-consistent framework* (Defendant: D. Mercier, Advisors: Aymeric Viè, Marc Massot, Date: 06/20, Univ. Paris-Saclay, FR)
- *Développement d'un solveur 3D massivement parallèle pour la prédiction d'écoulements granulaires réactifs en géométrie complexe* (Defendant: Yann Dufresne, Advisor: Vincent Moureau, Date: 29/11/2019, CORIA, Rouen, FR)
- *Path and wake of cylinders falling in a liquid at rest or in a bubble swarm* (Defendant: Clement Toupoint, Advisors: Patricia Ern, Veronique Roig, Date: 29/11/2018, IMFT, Toulouse, FR)
- *Modélisation d'un jet chargé en nanoparticules à partir d'une fuite de canalisation de transport* (Defendant: L.-H. Duc, Advisors: Pascal Fede, Eric Climent, Date: 06/18, IMFT, Toulouse, FR)
- *Development of a volume-penalty method for the simulation of bubbly flows* (Defendant: Antoine Morente, Advisor: Dominique Legendre, Date: 31/10/2017, IMFT, Toulouse, FR)
- *Particle accumulation structures in boundary-driven flows* (Defendant: Francesco Romanó, Advisor: Hendrik Kuhlmann, Date: 27/09/2016, TUWien, Wien, AT)
- *Doctorate in Chemical Engineering, Advanced Process Design and Modelling* (Defendants: G. Boccardo, M. Curti, M.M. Coletto, A. Pezzin, T. Zelenkova; Date: 30/01/2015, Politecnico di Torino)
- *Study of dilute suspension of non-spherical particles in turbulent flow* (Defendant: Afshin Abbasi Hoseini, Advisor: Helge Andersson, Date: 17/06/2014, NTNU, Trondheim, NO)

Intramural

- *Morphodynamics of melting ice over turbulent warm water streams* (Defendant: Diego Perissutti, Advisor: Alfredo Soldati, Date: 17/03/2025, University of Udine, IT)
- *Direct numerical simulation of capillary waves forced by hydrodynamic turbulence* (Defendant: Georgios Giamagas, Advisor: C. Marchioli, Date: 13/03/2024, University of Udine, IT)
- *Dynamics of fibres in viscous and turbulent flows: An experimental and numerical study* (Defendant: Davide Di Giusto, Advisor: C. Marchioli, Date: 20/04/2023, University of Udine, IT)
- *Interaction of thermal and solutal stratification with turbulence in wall-bounded flows* (Defendant: P. Hadi Sichani, Advisor: Alfredo Soldati, Date: 03/05/2022, Univ. Udine, IT & TU Wien, AT)
- *Orientation and rotation rates of non-axisymmetric fibers in turbulent channel flow* (Defendant: M. Alipour, Advisor: Alfredo Soldati, Date: 16/09/2021, University of Udine, IT & TU Wien, AT)
- *Numerical simulations of breakage, coalescence and droplet size distribution* (Defendant: Giovanni Soligo, Advisor: Alfredo Soldati, Date: 13/02/2020, University of Udine, IT & TU Wien, AT)
- *Analysis of the drag reduction in turbulent viscosity-stratified flows* (Defendant: Somayeh Ahmadi, Advisor: Alfredo Soldati, Date: 12/03/2018, University of Udine, IT)
- *Direct Numerical Simulation of turbulence-interface interactions* (Defendant: Alessio Roccon, Advisor: Alfredo Soldati, Date: 12/03/2018, University of Udine, IT)
- *Convection in porous media* (Defendant: Marco De Paoli, Advisor: Alfredo Soldati, Date: 02/03/2017, University of Udine, IT)
- *Experimental investigation on the aerodynamic behavior of cooling channels for the leading edge of gas turbine blades* (Defendant: Luca Furlani, Advisor: Luca Casarsa, Date: 02/03/2017, Univ. Udine, IT)
- *Caratterizzazione ed ottimizzazione energetica di impianti per l'industria farmaceutica* (Defendant: Federico Olimpi, Advisor: Alfredo Soldati, Date: 02/03/2017, Univ. Udine, IT)
- *Heat transfer in gaseous micro-flows: conjugate heat transfer, rarefaction and compressibility effects* (Defendant: Michele Coppola, Advisor: Giulio Croce, Date: 30/03/2016, University of Udine, IT)
- *Analisi e sviluppo di modelli per la valutazione della dispersione di odori in contesti antropizzati* (Defendant: Nicola Pettarin, Advisor: Alfredo Soldati, Date: 30/03/2016, University of Udine, IT)
- *Experimental evaluation of biopolymer and synthetic polymer drag reduction in industrial scale facilities* (Defendant: M. Simeoni, Advisor: Alfredo Soldati, Date: 30/03/2016, Univ. Udine, IT)

- *Dynamics of passive and active particles at the surface of a stratified/unstratified turbulent open channel flow* (Defendant: S. Lovecchio, Advisor: A. Soldati, Date: 10/05/2015, Univ. Udine, IT)
- *The tracer method and conductance probes to study stratified-dispersed flows in near horizontal pipes* (Defendant: Enrico Pitton, Advisor: Alfredo Soldati, Date: 10/05/2015, University of Udine, IT)
- *Development of hybrid continuum-kinetic solver for micro gas flow simulation* (Defendant: Olga Rovenskaya, Advisor: Giulio Croce, Date: 10/05/2015, University of Udine, IT)
- *Aerothermal numerical predictions of trailing edge and leading edge cooling channels* (Defendant: Matteo Pascotto, Advisor: Luca Casarsa, Date: 12/05/2014, University of Udine, IT)
- *Turbulence modulation by large deformable droplets* (Defendant: Luca Scarbolo, Advisor: Alfredo Soldati, Date: 12/05/2014, University of Udine, IT)

Opponent of Licentiate Theses:

- *Stability analysis of channel flow laden with small particles* (Defendant: Joy Klinkenberg, Advisors: Luca Brandt, Rick De Lange, Date: 07/10/2011, KTH, Stockholm, SE)

• Research

Research Activity

03/2023:	Visiting Professor, Institut de Méchanique des Fluides de Toulouse (France)
2019 - present:	Guest Professor, Institute of Fluid Mechanics and Heat Transfer, Technische Universitat Wien (Austria)
08/2017-09/2017:	Visiting Professor, Department of Engineering Mechanics, School of Aerospace, Tsinghua University, Beijing (China)
04/2014-05/2014:	COST visitor at Department of Mechanical Engineering, Norwegian University of Science and Technology (NTNU), Trondheim (Norway)
07/2012-08/2012:	COST visitor at Department of Mechanical Engineering, Norwegian University of Science and Technology (NTNU), Trondheim (Norway)
09/2006-10/2006:	HPC-Europa visitor at Department of Mechanical Engineering, Technische Universiteit (TUd), Delft (Netherlands)
01/2006-03/2006:	HPC-Europa visitor at Department of Mechanical Engineering, Technische Universiteit (TUe), Eindhoven (Netherlands)
09/2001-06/2002:	Visiting scholar at Department of Mechanical Engineering, The Johns Hopkins University, Baltimore (USA)

Research Topics

- Turbulent dispersion of particles, aerosols, drops and bubbles: Fundamentals and applications
- Numerical simulation (DNS, LES) of two-phase and three-phase turbulent flows
- Analysis and control of turbulent transfer mechanisms of mass, momentum and heat
- Eulerian-Lagrangian methods, sub-grid modeling for particles

• Teaching

Note: Unless otherwise indicated, all courses listed below were delivered at the University of Udine

2020-2021 :	Turbulence: Phenomenology, modelling and high-performance computing (Turbolenza: fenomenologia, modellazione e calcolo ad alte prestazioni), Scuola Superiore
2019-2021 :	Gas dynamics and Aerodynamics (Institute of Fluid Mechanics & Heat Transfer, TU Wien)
2018-2019 :	Transport phenomena: An introduction to mathematical modelling and numerical solutions (Fenomeni di trasporto: Introduzione alla modellazione matematica e simulazione numerica), Scuola Superiore

2017-2019 : Environmental transport phenomena (in English), M.S. Environmental & Energy Engineering
2017-2019 : Modelling of turbulent flows (Modellistica dei flussi turbolenti), M.S. Mechanical Engineering
2017-2023 : Numerical methods for transport equations (in English), PhD in Energy & Environmental Engineering Science
2013-pres. : Fluid mechanics (Fluidodinamica), B.S. Mechanical & Industrial Engineering, Environmental Sustainabil
2012-2013 : Numerical methods for transport equations (Metodi numerici per le equazioni di trasporto), Scuola Superiore
2009-2011 : Adjoint Professor of Computational Fluid Mechanics (Fluidodinamica computazionale), Math. Phys. & Nat. Sci.
2002-2012 : Adjoint Professor of Fluid Mechanics (Fluidodinamica), Mechanical Engineering, CEPO

• Batchelor/Master/PhD Theses Supervised

A.A. 1999-present : Co-Advisor of more than 60 B.S./M.S. Theses in Fluid Mechanics (Mechanical and Management Eng., Environmental Sustainability), University of Udine, Italy

A.A. 2003-present : Advisor of more than 40 B.S. Theses in Fluid Mechanics (Mechanical Engineering) Centro Polifunzionale di Pordenone, University of Udine, Italy

A.A. 2015-present : Advisor/Co-Advisor of 16 PhD students (cycle XXXI: Diego Dotto, Harshit Bhatia; cycle XXXII: Giovanni Soligo‡; cycle XXXIII: Arash Hajisharifi, Mobin Alipour‡; cycle XXXIV: Pejman Hadi Sichani‡; cycle XXXV: Kevin Miranda S. Cruz, Davide di Giusto‡; cycle XXXVI: Georgios Giamagas‡; cycle XXXVII: Diego Perissutti; cycle XXXVIII: Hamoood Ur Rahman); cycle XLI: Harishankar Muppirala, PhD in Energy and Environmental Engineering Science, University of Udine, Italy

‡ : Phd in co-tutelle

• Scientific Production

Citation report (as of 03/09/2025)	Source: Scopus ⋆	WoS ‡
Results found:	98 ⋆	99
Number of journal publications:	62 ⋆	62
Sum of the times cited:	3033 ⋆	2793
H-index:	28 ⋆	28

Median citation percentile: 77^{th} (Source: Author Impact Beamplot)

Referred Journal Publications (Published)

J66 **Marchioli**, **C.**, Rosti, M.E., Verhille, G. (2026) *Flexible fibers in turbulence*, *Annu. Rev. Fluid Mech.*, **58**, 167-192.

J65 Perissutti, D., **Marchioli**, **C.**, Soldati, A. (2025) Time and length scales of ice morphodynamics driven by subsurface shear turbulence, *J. Fluid Mech.*, **1019**, A34.

J64 **Marchioli**, **C.**, Bourgoin, M., Coletti, F. . . . Balachandar, S. (2025) Particle-laden flows. *Int. J. Multiphase Flow*, **152**, 105291.

J63 D'Alessandro, G., Hantsis, Z., **Marchioli**, **C.**, Piomelli, U. (2025) Large-eddy simulation of the flow over a realistic riverine geometry. *J. Fluid Mech*, **1010**, A35.

J62 Dhas, D.J., **Marchioli**, **C.** (2025) Orientational dynamics of long flexible fibers in wall-bounded turbulence. *J. Fluids Eng.*, 1-29.

J61 Pallares, J., Fabregat, A., ... **Marchioli**, **C.**, Cito, S. (2025) Computational fluid dynamics challenge on indoor dispersion of pathogen-laden aerosols. *Phys. Fluids*, **37**, 025226.

J60 Perissutti, D., **Marchioli**, **C.** and Soldati, A. (2024) Morphodynamics of melting ice over turbulent warm water streams, *Int. J. Multiphase Flow*, **181**, 105007.

J59 Pallares, J., Lavrinenko, A., **Marchioli**, **C.**, Cito, S., Fabregat, A. (2024) Particle dispersion produced by a turbulent free convection flow in a room-sized cubical cavity. *J Phys: Conf. Series*, **2766**(1), 012029.

J58 Di Giusto, D., Bergougnoux, L., **Marchioli**, **C.**, Guazzelli, E. (2024) 'Influence of small inertia on Jeffery orbits, *J. Fluid Mech.*, **979**, A42.

J57 Miranda, F.K., Rioboo, R., Mohaupt, M., **Marchioli**, **C.** (2024) Experimental study on the detection of frozen diffused ammonia blockage in the inactive section of a variable conductance heat pipe. *Appl. Therm. Eng.*, **236**, 121742.

J56 Caltagirone, J.-P., **Marchioli**, **C.**, Vincent, S. (2023) Conservation of acceleration and dynamic entanglement in mechanics. *Acta Mech.*, **234**, 5511-5541.

J55 Pallares, J., Fabregat, A., ... **Marchioli**, **C.**, Cito, S. (2023) Numerical simulations of the flow and aerosol dispersion in a violent expiratory event: Outcomes of the 2022 International Computational Fluid Dynamics Challenge on violent expiratory events. *Phys. Fluids*, **35**, 045106.

J54 Saccone, D., De Marchis, M., Milici, B., **Marchioli**, **C.** (2023) Transport of inertial ellipsoidal particles in turbulent flow over rough walls. *Phys. Rev. Fluids*, **8**, 084303.

J53 **Marchioli**, **C.**, Zhao, L. (2022) Dispersed multiphase flows: advances in measuring, simulation and modeling. *Acta Mech. Sin.*, **38**, 722900.

J52 Qiu, J., **Marchioli**, **C.**, Zhao, L. (2022) A review on gyrotactic swimmers in turbulent flows. *Acta Mech. Sin.*, **38**, 722323.

J51 De Paoli, M., Perissutti, D., **Marchioli**, **C.**, Soldati, A. (2022) Experimental assessment of mixing layer scaling laws in Rayleigh-Taylor instability, *Phys Rev Fluids*, **7** 093503

J50 Di Giusto D, **Marchioli**, **C.** (2022) Turbulence modulation by slender fibers, *Fluids*, **7**, 255

J49 Saccone, D., **Marchioli**, **C.**, De Marchis, M. (2022) Effects of roughness on elongated particles in turbulent channel flows, *Int. J. Multiphase Flow*, **152**, Article N. 104065.

J48 Hajisharifi, A., **Marchioli**, **C.**, Soldati, A. (2022) Interface topology and evolution of particle patterns on deformable drops in turbulence, *J. Fluid Mech.*, **933**, Article N. A41.

J47 D'Alessandro, G., Hantsis, Z., **Marchioli**, **C.**, Piomelli, U. (2021) Evaluation of bed load transport models from simulations of different accuracy, *Int. J. Multiphase Flow*, **141** Article N. 103676.

J46 Campolo, M., **Marchioli**, **C.** (2021) Drag reduction in turbulent flows by polymer and fiber additives, *KONA Powder Part. J.*, **38**, 64-81 (solicited paper).

J45 Hajisharifi, A., **Marchioli**, **C.**, Soldati, A. (2021) Particle capture by drops in turbulent flow, *Phys. Rev. Fluids*, **6**, 024303.

J44 Hadi Sichani, P., **Marchioli**, **C.**, Zonta, F., Soldati, A. (2020) Shear effects on scalar transport in double diffusive convection, *J. Fluids Eng.*, **142**, FE-19-1794.

J43 Dotto, D., Soldati, A., **Marchioli**, **C.** (2020) Deformation of flexible fibers in turbulent channel flow. *Meccanica*, **55**, 343-356.

J42 Qiu, J., **Marchioli**, **C.**, Andersson, H.I., Zhao, L. (2019) Settling tracer spheroids in vertical turbulent channel flows, *Int. J. Multiphase Flow*, **118**, 173-182.

J41 **Marchioli**, **C.**, Vincent, S. (2019) Special issue on finite-size particles, drops and bubbles in fluid flows: advances in modelling and simulations. *Acta Mech.*, **230**, 381-386.

J40 Dotto, D., **Marchioli**, **C.** (2019) On the dynamics of flexible fibers in turbulent channel flow. *Acta Mech.*, **230**, 597-621.

J39 **Marchioli**, **C.**, Bhatia, H., Sardina, G., Brandt, L., Soldati, A. (2019) Role of large-scale advection and small-scale turbulence on the vertical migration of gyrotactic swimmers. *Phys. Rev. Fluids*, **4**, 124304.

J38 Mashayekpour, M., Nemati Lay, E., Lovecchio, S., **Marchioli**, **C.**, Soldati, A. (2019) Wind effect on gyrotactic micro-organism surfacing in free-surface turbulence. *Adv. Water Resour.*, **129**, 328-337.

J37 Ravnik, J., **Marchioli**, **C.**, Soldati, A. (2018) Assessing the application limits of the Jeffery formulation for hydrodynamic torques acting on elongated particles in fluid turbulence, *Acta Mech.*, **229**, 827-839.

J36 Lovecchio, S., Zonta, F., **Marchioli**, **C.**, Soldati, A. (2017) Thermal stratification hinders gyrotactic micro-organism rising in free-surface turbulence. *Phys. Fluids*, **29**, 053302.

J35 Soligo, G., Wu, W., **Marchioli**, **C.**, Soldati, A., Piomelli, U. (2017) Particle resuspension by a periodically-forced impinging jet, *J. Fluid Mech.*, **820**, 284-311.

J34 **Marchioli**, **C.** (2017) Large-eddy simulation of turbulent dispersed flow: A review of modelling approaches, *Acta Mech.*, **228**, 738-768 (solicited paper).

J33 Innocenti, A., **Marchioli**, **C.**, Chibbaro, S. (2016) Lagrangian filtered density function for LES-based stochastic modelling of turbulent dispersed flows, *Phys. Fluids*, **28**, 115106.

J32 **Marchioli**, **C.**, Zhao, L., Andersson, H.I. (2016) On the relative rotational motion between rigid fibers and fluid in turbulent channel flow, *Phys. Fluids*, **28**, 013301.

J31 **Marchioli**, **C.**, Soldati, A. (2015) Turbulent breakage of ductile aggregates, *Phys. Rev. E*, **91**, 053003.

J30 Babler, M.U., Biferale, L., Brandt, L., Feudel, U., Guseva, K., Lanotte, A.S., **Marchioli**, **C.**, Pecile, E., Picano, F., Sardina, G., Soldati, A., Toschi, F. (2015) Breakup of small aggregates in bounded and unbounded turbulent flows, *J. Fluid Mech.*, **766**, 104-128.

J29 Zhao, L., **Marchioli**, **C.**, Andersson, H.I. (2014) Slip velocity of rigid fibers in wall-bounded turbulence, *Phys. Fluids*, **26**, 063302.

J28 Chibbaro, S., **Marchioli**, **C.**, Salvetti, M.V., Soldati, A. (2014) Particle tracking in LES flow fields: Lagrangian conditional statistics of filtering error, *J. Turbul.*, **15**, Issue 1, 22-33.

J27 **Marchioli**, **C.**, Soldati, A. (2013) Rotation statistics of fibers in wall shear turbulence, *Acta Mech.*, **224**, 2311-2329.

J26 Zonta, F., **Marchioli**, **C.**, Soldati, A. (2013) Particle and droplet deposition in turbulent swirled pipe flow, *Int. J. Multiphase Flow*, **56**, 172-183.

J25 Lovecchio, S., **Marchioli**, **C.**, Soldati, A. (2013) Time persistence of floating-particle clusters in free-surface turbulence, *Phys. Rev. E*, **88**, 033003.

J24 **Marchioli**, **C.**, Soldati, A. (2012) Sediment transport in steady turbulent boundary layers: Potentials, limitations, and perspectives for Lagrangian tracking in DNS and LES, *Adv. Water Resour.*, **48**, 18-30.

J23 Pitton, E., **Marchioli**, **C.**, Lavezzo, V., Soldati, A., Toschi, F. (2012) Anisotropy in pair dispersion of inertial particles in turbulent channel flow, *Phys. Fluids*, **24**, 073305

J22 Bianco, F., Chibbaro, S., **Marchioli**, **C.**, Salvetti, M.V., Soldati, A. (2012) Intrinsic filtering errors of Lagrangian particle tracking in LES flow fields, *Phys. Fluids*, **24**, 045103.

J21 Molin D., **Marchioli**, **C.**, Soldati, A. (2012) Turbulence modulation and microbubble dynamics in vertical channel flow, *Int. J. Multiphase Flow*, **42**, 80-95.

J20 Zonta, F., **Marchioli**, **C.**, Soldati, A. (2012) Modulation of turbulence in forced convection by temperature-dependent viscosity, *J. Fluid Mech.*, **697**, 150-174.

J19 Zhao, L., **Marchioli**, **C.**, Andersson, H.I. (2012) Stokes number effects on particle slip velocity in wall-bounded turbulence and implications for dispersion models, *Phys. Fluids*, **24**, 021705.

J18 Bianco, F., Chibbaro, S., **Marchioli**, **C.**, Salvetti, M.V., Soldati, A. (2011) Statistical properties of an ideal subgrid-scale correction for Lagrangian particle tracking in turbulent channel flow, *J. Phys. Conference Series*, **333**, 1-16.

J17 Zonta, F., **Marchioli**, **C.**, Soldati, A. (2011) Time behavior of heat fluxes in thermally coupled turbulent dispersed particle flows, *Acta Mech.*, **218**, 367-373.

J16 **Marchioli**, **C.**, Fantoni, M., Soldati, A. (2010) Orientation, distribution and deposition of elongated, inertial fibers in turbulent channel flow, *Phys. Fluids*, **22**, 033301 (highly cited paper: 140+ citations).

J15 Soldati, A., **Marchioli**, **C.** (2009) Physics and modelling of turbulent particle deposition and entrainment: review of a systematic study, *Int. J. Multiphase Flow*, **35**, 827-839 (highly cited paper: 170+ citations).

J14 **Marchioli**, **C.**, Salvetti, M.V., Soldati, A. (2008) Appraisal of energy recovering sub-grid scale models for large-eddy simulation of turbulent dispersed flows, *Acta Mech.*, **201**, 277-296.

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B1 *Fluid Mechanics for Mechanical Engineers* (A. Soldati, C. Marchioli), Springer Nature (2024)

B2 *Fluidodinamica* (A. Soldati, C. Marchioli), Bononia University Press (2021)

B3 *Collective dynamics of particles: From viscous to turbulent flows* (C. Marchioli, Ed.), CISM Courses and Lectures, Vol. 576, Springer-Verlag, Wien (2017)

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BC13 **Marchioli**, **C.** (2021) Influence of particle anisotropy and motility on preferential concentration in turbulence, *Turbulence and Interactions* Proceedings of the TI 2018 Conference, June 25-29, 2018, Les Trois-Îlets, Martinique, France. Editors: Deville, M., Calvin, C., Couaillier, V., De La Llave Plata, M., Estivalézes, J.-L., Lê, T.H., Vincent, S. (Eds.)

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BC4 Picciotto, M., Giusti, A., **Marchioli**, **C.** and Soldati, A. (2006) Turbulence modulation by microparticles in boundary layers. *Fluid Mechanics and Its Applications*, Prosperetti, A. and Balachandar, S., Eds.) IUTAM Symposium on Computational Approaches to Multiphase Flow, Part I, Springer-Verlag, New York, vol. 81, pp. 53-62.

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BC1 Soldati, A. and **Marchioli**, **C.** (2001) Prospects for modulation of turbulent boundary layer by EHD flows. *Turbulence Modulation and Control* (Soldati, A. and Monti, R., Eds.), CISM Courses and Lectures, Springer-Verlag, Wien, vol. 415, pp. 119-160.

Note: The full list of conference contributions (150+) is omitted for brevity but is available upon request.

National/International Collaborations and Networking

Current:

1. Gaetano D'Avino, Dip. Ingegneria Chimica, dei Materiali e della Produzione industriale, Università di Napoli Federico II, Italy
   Collaboration on modelling and simulation of liquid-liquid systems
2. Alfredo Soldati, Institute of Fluid Mechanics and Heat Transfer, TU Wien, Austria
   Collaboration on modelling and simulation of three-phase flows
3. Mauro De Marchis, Kore University of Enna, Enna, Italy
   Collaboration on numerical modelling of flexible fibers in turbulent channel flow with rough walls
4. Jacek Pozorski, Institute of Fluid-Flow Machinery, Polish Academy of Sciences, Gdansk, Poland
   Collaboration on modelling of turbulent droplet flows
5. Elisabeth Guazzelli & Laurence Bergougnoux, IUSTI CNRS, University of Aix-Marseille, France
   Collaboration on fiber suspension flows
6. Ugo Piomelli, Faculty of Engineering and Applied Science, Queens University, Kingston, Canada
   Collaboration on turbulent particle resuspension
7. Lihao Zhao, Department of Engineering Mechanics, Tsinghua University, Beijing, China
   Collaboration on modelling and simulation of photo-gyrotactic swimmers in turbulence
8. Matteo Bernardini, Dept. Mechanical Engineering, University of Rome "La Sapienza", Rome, Italy
   Collaboration on wall-modeled LES of compressible/incompressible turbulence
9. Perry Johnson, Henry Samueli School of Engineering, University of California at Irvine, Irvine, USA
   Collaboration on LES of compressible/incompressible multiphase turbulence
10. Jean-Regis Angilella, University of Caen Normandie - ESIX, Cherbourg, FRA
    Collaboration on aerosol dynamics in inhalers
11. René Van Hout, Technion IIT, Haifa, ISL
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1. Daniele Marchisio & Marco Vanni, Dip. Scienza Applicata e Tecnologia, Politecnico di Torino, Italy
   Collaboration on modelling and simulation of liquid-liquid systems
2. Sergio Chibbaro, Institut Jean Le Rond D'Alembert, Pierre et Marie Curie University, Paris, France
   Collaboration on stochastic modelling of multiphase flow
3. Helge I. Andersson, Norwegian Institute of Science and Technology (NTNU), Trondheim, Norway
   Collaboration on fiber suspension flows
4. Federico Toschi, Department of Physics, TUE, Eindhoven, The Netherlands
   Collaboration on modelling and simulation of turbulent dispersed flows
5. Berend van Wachem, Institut für Verfahrenstechnik, Universität Magdeburg, Germany
   Collaboration on force model for simulation of non-spherical particles in turbulence
6. Jos Derksen, Department of Chemical Engineering, University of Aberdeen, Abderdeen, UK
   Collaboration on modelling and simulation of aggregates in turbulence

Il sottoscritto Cristian Marchioli dichiara che tutti i fatti e gli stati indicati nel presente curriculum vitae sono da ritenersi dichiarati ai sensi e per gli effetti degli articoli 46 e 47 del DPR 445/2000.