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PART A. SHORT CURRICULUM VITÆ  
CRISTIAN MARCHIOLI

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• **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

• **Current Academic Position and Qualification**

2017: National Scientific Qualification (Abilitazione Scientifica Nazionale) to Full Professor  
of Fluid Mechanics in Italian Universities  
2016 - present: 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
- ★ 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)
- ★ 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 11 PhD Theses (5 “En Co-tutelle”), PhD in *Environmental and Energy Engineering Sciences*, University of Udine
- ★ ADVISOR or CO-ADVISOR (1999 - present) of 80+ B.S./M.S. Theses in Fluid Mechanics (Mechanical & Management Engineering), University of Udine
- ★ CHAIRMAN, *13th ERCOFTAC Workshop on Direct and Large-Eddy Simulation*, Udine, 26-29.10.22
- ★ CHAIRMAN, *Euromech Colloquium on Advances in LES of Turbulent Multiphase Flows*, Udine, 22-24.06.22
- ★ 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 (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, CISM
- ★ COORDINATOR of 5 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-pres. : Numerical methods for transport equations (in English), PhD in Energy & Environmental Engineering Science
- 2013-pres. : Fluidodinamica, B.S. Mechanical & Industrial Engineering
- 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 - present)
- ★ REVIEW EDITOR of *Frontiers in Physics - Fluid Dynamics* (2023 - present)
- ★ MEMBER of the Editorial Advisory Board of *Acta Mechanica* (October 2014 - March 2017), and *Flow, Turbulence & Combustion* (April 2019 - Present)
- ★ MEMBER of the 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 area Udine 2 - Città di Udine e Centro
- ★ AUTHOR of the textbook *Fluidodinamica* (A. Soldati, C. Marchioli), Bononia University Press, 2021
- ★ REVIEWER for Scientific Journals (see extended CV for a detailed list of journals)
- ★ REVIEWER for Governmental Bodies and Non-Profit Organizations (ANR, NSERC-CRSNG, SERI,

UEFISCDI, FWO, ETAg, NCN, CINECA, Leverhulme Trust, HAGRC)

★ OPPONENT of PhD/Licentiate Theses in Austria (1), France (7), Italy (7), Norway (1), Sweden (1)

## ● Specific Experience in Competitive Projects

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 190.000 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 09/03/2023)	Source: Scopus	★	WoS	‡
Results found:	81	★	72	
Number of journal publications:	55	★	52	
Sum of the times cited:	2377	★	2171	
H-index:	26	★	26	

See the extended CV for the full list of publications.

## • Invited Talks and Seminars

- 2023: ★ Invited speaker, IUTAM Symposium on *Turbulent structure and particles-turbulence interaction* Lanzhou, 7-10.07.23
- 2021: ★ Invited speaker, *Australasian Fluid Mechanics Society* webinar series, 22.09.21  
★ Invited speaker, *Laboratoire de Mécanique des Fluides de Lille* webinar series, Lille, 08.04.21
- 2019: ★ Invited seminar, *Inst. Aerodynamics, RWTH Aachen University*, Aachen, 05.02.19
- 2018: ★ Invited speaker, BIRS-CMO Workshop N. 18w5139 *New Frontiers in Multiphase CFD for the 21<sup>st</sup> 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
- 2015: ★ Invited seminar, *Observatoire de la Côte d'Azur*, Nice, 02.11.15  
★ Invited speaker, *ERCOFTAC Autumn Festival 2015*, Vinci, 15-16.10.15
- 2014: ★ Keynote speaker, *13th Int. Conf. Multiphase Flows in Industrial Plants*, Sestri Levante, 17-19.09.14  
★ Invited speaker, *Nordita Conf. Dynamics of Particles in Flows*, Stockholm, 11-13.06.14
- 2012: ★ Invited speaker, *50th European Two-Phase Flow Group Meeting*, Udine, 16-18.05.14
- 2011: ★ Keynote speaker, *XX AIMETA Conference*, Bologna, 12-15.09.11
- 2009: ★ Invited speaker, *5th European-Japanese Two-Phase Flow Group Meeting*, Spoleto, 20-25.09.09

## • Grants and Awards

- 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

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## PART B. EXTENDED CURRICULUM VITÆ

### CRISTIAN MARCHIOLI

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#### • 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  
2016 - present: 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

2023: Invited speaker, IUTAM Symposium on *Turbulent structure and particles-turbulence interaction* Lanzhou, 7-10.07.23  
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, Lille (FR), 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 IS CRA B/IS CRA 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

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 190.000 EUR from the following partners:

- 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

AUTHOR of the textbook *Fluidodinamica* (A. Soldati, C. Marchioli), Bononia University Press, 2021.

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)

GUEST EDITOR of *Acta Mechanica Sinica* for the Special Issue "Dispersed multiphase flows: advances in measuring, simulation and modeling" (Vol. 38, Issue 8, 2022)

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 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
- *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 the International Center of Mechanical Sciences (CISM)

COORDINATOR of:



- *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:

- Scientific Committee Member of the *5th Int. Conf. on Numerical Methods in Multiphase Flows*, Iceland, 26-28 June, 2024
- Chairman of the *2nd BICTAM-CISM Symposium on Dispersed Multiphase Flows: From measuring to modeling*, Beijing (CHN), May 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
- Chairman of the *1st BICTAM-CISM Symposium on Dispersed Multiphase Flows: From measuring to modeling*, Beijing, 4-6 March 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)*, EN-SEEIHT 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

- *Particle-induced modulation and dispersion of inertial particles in turbulent wall flows* (Defendant: T. Zahtila; Advisors: Jim Philip, Andrew Ooi, Date: expected 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 Fedé, Olivier Simonin, Date: 12/11/2020, INP Toulouse, FR)
- *Large-eddy simulation of coupled dispersed phase-flows: a statistically-consistent framework* (Defendant: David Mercier, Advisors: Aymeric Viè, Marc Massot, Date: 18/06/2020, Université 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: Le-Hong Duc, Advisors: Pascal Fedé, Eric Climent, Date: 04/06/18, 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

- *Interaction of thermal and solutal stratification with turbulence in wall-bounded flows* (Defendant: Pejman Hadi Sichani, Advisor: Alfredo Soldati, Date: 03/05/2022, University of Udine, IT & TU Wien, AT)
- *Orientation and rotation rates of non-axisymmetric fibers in turbulent channel flow* (Defendant: Mobin 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: Mattia 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: Salvatore Lovecchio, Advisor: A. Soldati, Date: 10/05/2015, University of 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 Mécanique des Fluides de Toulouse (France)
- 2019 - present: Guest Professor, Institute of Fluid Mechanics and Heat Transfer, Technische Universität 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-pres. : 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-pres. : 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-pres. : Numerical methods for transport equations (in English), PhD in Energy & Environmental Engineering Science
- 2013-pres. : Fluid mechanics (Fluidodinamica), B.S. Mechanical & Industrial Engineering
- 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 80 B.S./M.S. Theses in Fluid Mechanics (Mechanical and Management Eng.), 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 11 PhD students (cycle XXXI: Diego Dotto, Harshit Bhatia; cycle XXXII: Giovanni Soligo<sup>‡</sup>; cycle XXXIII: Arash Hajisharifi, Mobin Alipour<sup>‡</sup>; cycle XXXIV: Pejman Hadi Sichani<sup>‡</sup>; cycle XXXV: Kevin Miranda S. Cruz, Davide di Giusto<sup>‡</sup>; cycle XXXVI: Georgios Giamagas<sup>‡</sup>; cycle XXXVII: Diego Perissutti; cycle XXXVIII: Hamood Ur Rahman), PhD in Energy and Environmental Engineering Science, University of Udine, Italy

<sup>‡</sup> : Phd in co-tutelle

## • Scientific Production

Citation report (as of 09/03/2023)	Source: Scopus	★	WoS	<sup>‡</sup>
Results found:	81	★	72	
Number of journal publications:	55	★	52	
Sum of the times cited:	2377	★	2171	
Without self-citations:	2098	★	1909	
H-index:	26	★	26	

Median citation percentile: 80<sup>th</sup> (Source: Author Impact Beamplot)

### REFERRED JOURNAL PUBLICATIONS (PUBLISHED)

- 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.
- J13 **Marchioli, C.**, Salvetti, M.V., Soldati, A. (2008) Some issues concerning Large-Eddy Simulation of inertial particle dispersion in turbulent bounded flows, *Phys. Fluids*, **20**, 040603.
- J12 **Marchioli, C.**, Soldati, A., Kuerten, J.G.M., Arcen, B., Taniere, A., Goldensoph, G., Squires, K.D., Cargnelutti, M.F., Portela, L.M. (2008) Statistics of particle dispersion in direct numerical simulations of wall-bounded turbulence: results of an international collaborative benchmark test, *Int. J. Multiphase Flow*, **34**, 879-893 (highly cited paper: 170+ citations).
- J11 Zonta, F., **Marchioli, C.**, Soldati, A. (2008) Direct numerical simulation of turbulent heat transfer modulation in micro-dispersed channel flow, *Acta Mech.*, **195**, 305-326.
- J10 **Marchioli, C.**, Fantoni, M., Soldati, A. (2007) Influence of added mass on anomalous high rise velocity of light particles in cellular flow field. A note on the paper of Maxey (1987), *Phys. Fluids*, **19**, 098101.

- J9 **Marchioli, C.**, Armenio, V., Soldati, A. (2007) A simple and accurate scheme for fluid velocity interpolation on 3D curvilinear grids, *Comput. Fluids*, **36**, 1187-1198.
- J8 **Marchioli, C.**, Picciotto, M., Soldati, A. (2007) Influence of gravity and lift on particle velocity statistics and transfer rates in turbulent vertical channel flow, *Int. J. Multiphase Flow*, **33**, 227-251 (highly cited paper: 100+ citations).
- J7 **Marchioli, C.**, Picciotto, M., Soldati, A. (2006) Particle dispersion and wall-dependent fluid scales in turbulent bounded flow: implications for local equilibrium models, *J. Turbul.*, **7**(60), 1-12.
- J6 **Marchioli, C.**, Armenio, V., Salvetti, M.V., Soldati. (2006) Mechanisms for deposition and resuspension of heavy particles in turbulent flow over wavy interfaces, *Phys. Fluids*, **18**, 025102.
- J5 Picciotto, M. **Marchioli, C.**, Soldati, A. (2005) Characterization of near-wall accumulation regions for inertial particles in turbulent boundary layers, *Phys. Fluids*, **17**, 098101.
- J4 Picciotto, M. **Marchioli, C.**, Reeks, M.W., Soldati, A. (2005) Statistics of velocity and preferential accumulation of microparticles in boundary layer turbulence, *Nucl. Eng. Des.*, **235**, 1239-1249.
- J3 Picciotto, M., **Marchioli, C.**, Soldati, A. (2004) Remarks on the distribution of inertial particles in the wall region of a turbulent boundary layer. *Multiphase Science and Technology*, **16**, 281-293.
- J2 **Marchioli, C.**, Giusti, A., Salvetti, M.V., Soldati, A. (2003) Direct numerical simulation of particle wall transfer and deposition in upward turbulent pipe flow, *Int. J. Multiphase Flow*, **29**, 1017-1038.
- J1 **Marchioli, C.**, Soldati, A. (2002) Mechanisms for particle transfer and segregation in turbulent boundary layer, *J. Fluid Mech*, **468**, 283-315 (highly cited paper: 340+ citations).

#### PUBLISHED BOOKS

- B1 *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)

#### REFERRED BOOK CONTRIBUTIONS

- 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.)
- BC12 **Marchioli, C.** (2016) Inertial particle deposition and re-suspension in wall-bounded turbulence. *Particles in wall-bounded turbulent flows: deposition, re-suspension and agglomeration* (Minier, J.P. and Pozorski, J., Eds.), CISM Courses and Lectures, Springer-Verlag, Wien, vol. 415, pp. 119-160.
- BC11 **Marchioli, C.**, and Soldati, A. (2013) Rotation statistics of rigid fibers in turbulent channel flow *11th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM)* (Simos, T., Psihoyios, G., Tsitouras, C., Eds.) Book Series: AIP Conference Proceedings, vol. 1558, pp. 1103-1106.
- BC10 **Marchioli, C.**, Salvetti, M.V. and Soldati, A. (2010) Inertial particle segregation and deposition in large-eddy simulation of turbulent wall-bounded flows. *Quality and Reliability of Large-Eddy Simulations II*, (Salvetti, M.V., Ed.) ERCOFTAC Series, Springer-Verlag, Wien, vol. 16, pp. 191-200.
- BC9 Salvetti, M.V., **Marchioli, C.** and Soldati, A. (2010) Particle dispersion in large-eddy simulations: influence of Reynolds number and of sub-grid velocity deconvolution. *Turbulence and Interactions, Proceedings of the TI 2009 Conference* (Deville, M., Le, T.H. and Sagaut, P., Eds.), Notes on Numerical Fluid Mechanics and Multidisciplinary Design, Springer, vol. 110, pp. 311-318.
- BC8 Soldati, A., Zonta, F. and **Marchioli, C.** (2010) Heat transfer modulation by microparticles in turbulent channel flow. *Progress in Turbulence III*, (Peinke, J., Oberlack, M., Talamelli, A., Eds.), Springer Proceedings in Physics, vol. 131, pp. 159-162.



- BC7 **Marchioli, C.** and Soldati, A. (2008) Eulerian-Lagrangian point-particle DNS and LES. Chapter contribution to *Best Practice Guidelines for Computational Fluid Dynamics of Dispersed Multiphase Flows* (Sommerfeld, M., van Wachem, B. and Oliemans, R., Eds.), ERCOFTAC, 2008.
- BC6 Salvetti, M.V., **Marchioli, C.** and Soldati, A. (2008) Lagrangian tracking of heavy particles in large-eddy simulation of turbulent channel flow. *Quality and Reliability of Large-Eddy Simulations* (Meyers, J., Geurts, B. and Sagaut, P., Eds.), ERCOFTAC Series, Springer-Verlag, vol. 12, 355-366.
- BC5 **Marchioli, C.** and Soldati, A. (2007) Reynolds number scaling of particle preferential concentration in turbulent channel flow. *Advances in Turbulence XI, Proc. 11th EUROMECH European Turbulence* (Palma, J.M.L.M. and Silva Lopes, A., Eds.), Springer Proceedings in Physics, vol. 117, pp. 298-300.
- BC4 Picciotto, M., Giusti, A., **Marchioli, C.** and Soldati, A. (2006) Turbulence modulation by micro-particles 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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- C125 De Paoli, M., Perissutti, D., **Marchioli, C.**, Soldati, A. (2022) Experimental assessment of mixing layer scaling laws in Rayleigh-Taylor instability. *75<sup>th</sup> APS-DFD Annual Meeting*, Indianapolis (USA), November 20-22, 2022.
- C124 **Marchioli, C.**, Miranda S. Cruz, K., Hajisharifi, A., Soldati, A. (2022) Particle capture and trapping by large deformable drops in turbulent channel flow. *75<sup>th</sup> APS-DFD Annual Meeting*, Indianapolis (USA), November 20-22, 2022.
- C123 Di Giusto, D., Perissutti, D., **Marchioli, C.** (2022) Turbulence modulation by slender fibers in a channel flow. *75<sup>th</sup> APS-DFD Annual Meeting*, Indianapolis (USA), November 20-22, 2022.
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- C111 Miranda S. Cruz, F.K., Hajisharifi, A., **Marchioli, C.**, Soldati, A. (2021) Particle capture by big drops in turbulent channel flow. *74<sup>th</sup> APS-DFD Annual Meeting*, Phoenix (USA), Nov. 21-23, 2021.
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- C103 Hajisharifi, A., **Marchioli, C.**, Soldati, A. (2019) Particle-droplet interaction in turbulent channel flow. *72<sup>nd</sup> APS-DFD Annual Meeting*, Seattle (USA), November 23-26, 2019.
- C102 **Marchioli, C.**<sup>†</sup>, Lovecchio, S., Zonta, F., Soldati, A. (2019) Surfacing of gyrotactic micro-swimmers in thermally-stratified free-surface turbulence. *4th Symposium on Two-phase modeling for sediment dynamics in geophysical flows (THESIS-2019)*, Newark (DE, USA), September 17-19, 2019.
- C101 Dotto, D., **Marchioli, C.**<sup>†</sup> (2019) Dynamics of small flexible fibers in turbulent channel flow. *4th Polish Congress of Mechanics and 23rd International Conference on Computer Methods in Mechanics (PCM-CMM 2019)*, Kraków (PL), September 8-12, 2019.

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- C98 Bhatia, H., **Marchioli, C.**, Soldati, A. (2019) Surfacing and clustering of gyrotactic micro-swimmers in free-surface turbulence. *17th European Turbulence Conference (ETC 2019)*, Torino (IT), September 3-6, 2019.
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- C94 Dotto, D., **Marchioli, C.**<sup>†</sup> (2019) Flexible fibers in turbulent channel flow. *90<sup>th</sup> Annual GAMM Conference*, Vienna (AT), February 18-22, 2019.
- C93 Bhatia, H., **Marchioli, C.**<sup>†</sup>, Soldati, A. (2018) Surfacing of gyrotactic micro swimmers in free surface turbulence. *71<sup>st</sup> APS-DFD Annual Meeting*, Atlanta (GE, USA), November 18-20, 2018.
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- C86 **Marchioli, C.**<sup>†</sup> (2018) Large-Eddy Simulation of turbulent dispersed flow: Modelling subgrid effects on particle dispersion. *5<sup>th</sup> Int. Conf. on Turbulence and Interactions (T&I2018)*, Martinique (FR), June 25-29, 2018.
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- C63 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. (2013) Breakup of small aggregates in bounded and unbounded turbulent flows. *14<sup>th</sup> European Turbulence Conference*, 1-4 September 2013, Lyon, France.
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- C60 **Marchioli, C.<sup>†</sup>**, Soldati, A. (2013) On the relative translational and rotational motion between rigid fibers and fluid in wall shear turbulence. *Particles in Turbulence 2013, International Conference on Fundamentals, Experiments, Numerics and Applications*, 1-5 July 2013, Eindhoven (Ned.)
- C59 **Marchioli, C.<sup>†</sup>**, Chibbaro, S., Salvetti, M.V., Soldati, A. (2013) Modeling intrinsic filtering errors in Lagrangian particle tracking in LES flow fields. *8<sup>th</sup> International Conference on Multiphase Flow 2013 (ICMF-2013)*, Jeju Island (South Korea), May, 26-31, 2013.
- C58 Tesone, M., Salvetti, M.V., **Marchioli, C.<sup>†</sup>**, Chibbaro, S., Soldati, A. (2012) Particle tracking in LES flow fields: Lagrangian conditional statistics of filtering error. *65<sup>th</sup> APS-DFD Annual Meeting*, San Diego (CA, USA), November 18-20, 2012.
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- C53 Pecile, E., **Marchioli, C.<sup>†</sup>**, Soldati, A., Biferale, L., Toschi, F. (2012) Break-up of aggregates in turbulent channel flow. *13<sup>th</sup> Workshop on Two-Phase Flow Predictions*, Halle (Saale), Germany, September 17-20, 2012.
- C52 Pecile, E., **Marchioli, C.**, Soldati, A., Biferale, L., Toschi, F. (2012) Break-up of aggregates in turbulent channel flow. *6<sup>th</sup> European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012)*, Vienna (Aut), September 10-14, 2012.
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- C50 Salvetti, M.V., Chibbaro, S., Tesone, M., **Marchioli, C.**, Soldati, A. (2012) Probability distribution of intrinsic filtering errors in Lagrangian particle tracking in LES flow fields. *3<sup>rd</sup> International Conference on Turbulence and Interactions*, La Saline-les-Bains, Réunion Island, June 11-14, 2012.

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- C48 **Marchioli, C.**<sup>†</sup>, Bianco, F., Chibbaro, S., Salvetti, M.V., Soldati, A. (2011) Intrinsic filtering errors of Lagrangian particle tracking in LES flow fields. *64<sup>th</sup> APS-DFD Annual Meeting*, Baltimore (MD, USA), November 20-22, 2011.
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- C44 **Marchioli, C.**<sup>†</sup>, Soldati, A. (2011) Orientation, distribution and deposition of inertial fibers in turbulent channel flow. *EUROMECH Colloquium 513 Dynamics of Non-Spherical Particles in Turbulence*, Udine (Italy), April 21-23, 2011.
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- C33 **Marchioli, C.**<sup>†</sup>, Zonta, F., Soldati, A. (2009) Turbulent dispersion of inertial particles in swirled flow. *5th European-Japanese two-phase flow group meeting*, Spoleto (Italy), September 20-25, 2009.
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<sup>†</sup> Speaker.

#### 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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##### Past:

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, Aberdeen, 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.