

Personal information

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Keywords: Large-Eddy Simulation · Turbulence · Heat Transfer · Stochastic Models · OpenFOAM

Research Experiences

- nov 2017 – feb 2019 **Postdoctoral researcher at University of Bologna (Italy)**
 Dept of Physics and Astronomy, via Irnerio 46, 40126 Bologna (Italy)
Project: development of a suitable module to capture subgrid processes to improve the prediction of wind flow and temperature using large eddy simulation techniques, advisor Prof. Silvana Di Sabatino.
- nov 2017 – feb 2019 **Postdoctoral researcher at INRIA Rennes, Bretagne Atlantique (France)**
 Fluminance group, Campus de Beaulieu, 35042 Rennes Cedex (France)
Project: stochastic modelling of turbulent flows, advisor Dr Etienne Mémin.
- jun 2017 – oct 2017 **Researcher at IEFLUIDS s.r.l. (Italy)**
 Spin-off of the University of Trieste, piazzale Europa 1, 34127 - Trieste (Italy).
Project: numerical study of buoyancy jet in cross-flow using large-eddy simulations.
- apr 2016 – apr 2017 **Postdoctoral researcher at University of Trieste (Italy)**
 Dept of Engineering and Architecture. Advisor Prof. Vincenzo Armenio.
Project: numerical investigation of flow separation around bluff bodies at high Reynolds numbers using detached-eddy simulation methodology.
- feb 2012 – apr 2016 **Ph.D. in Environmental and Industrial Fluid Mechanics**
 University of Trieste (Italy). Supervisors: Prof. Vincenzo Armenio, Dr Andrea Petronio. Thesis: *Large-eddy simulations of conjugate heat transfer with evaporation-condensation and thermal radiation*. Additional label *Doctor Europaeus* obtained, graduate with distinction.
- sep 2015 – dec 2015 **Visiting Ph.D. student at Chalmers University, Gothenburg (Sweden)**
 Collaboration with Prof. Håkan Nilsson, Dept Applied Mechanics.
Project: implementation and validation of the P_1 thermal radiation model for participating media and conductive solid boundaries.
- nov 2011 – jan 2012 **Internship at Enel Green Power**
 Company: Enel Green Power, Lungarno Colombo 54 - 50136 Firenze (Italy)
Main tasks: performance analysis of wind farms; development of a new statistical software for monitoring energetic production from renewable sources.

Education

sep 2008 – apr 2011	Master Degree (M.Sc.) in Mathematics University of Florence, thesis: <i>Semiclassical expansion of quantum diffusive equations using Fermi and Bose statistics</i> . Supervisor: Dr Luigi Barletti, subject of mathematics-physics. Final mark 110/110 cum laude.
sep 2009 – jun 2010	LLP/Erasmus at UPMC Paris Visiting graduate student at <i>Université Pierre et Marie Curie - Paris 6</i> (France).
sep 2005 – oct 2008	Bachelor Degree (B.Sc.) in Mathematics University of Florence, thesis: <i>The equations of motion of the Foucault Pendulum</i> . Supervisor: Prof. Paolo Maurenzig, subject of physics-numerical simulation.

Teaching experience and certificates

jan 2013 – jul 2013	Teaching licence for high school (TFA) Licence to teach Mathematics (A26) in Italian high schools, obtained after the course “Tirocinio Formativo Attivo” provided by the University of Pisa (Italy).
2012 and 2014	University Teaching Assistant Lecturer for students of Mathematics and Physics at the University of Trieste. Course <i>Geometria I</i> , delivered by Prof. B. Zimmermann.
2017 2013 2011	High School Teacher (summer courses) Teacher of Mathematics and Physics, two weeks courses in public high schools. School: Liceo Scientifico “N. Copernico” via Borgovalsugana 63, Prato (Italy). School: Liceo Scientifico “N. Copernico” via Borgovalsugana 63, Prato (Italy). School: I.T.C.S. “Filippo Pacini” Corso Gramsci 43, Pistoia (Italy).
2008 – 2011	OpenLab Project Education program by the University of Florence aiming to promote mathematics in high schools. Activity: realisation of workshops and interactive classes focused on mathematics. Organiser: Associazione Culturale “Tethys” - via A. Volta 45, Firenze (Italy).

Languages

Italian	Mother tongue
English	Professional working proficiency
French	Intermediate working proficiency (DELF B2)

Computer skills

- Experience with both Windows and Linux Ubuntu operating systems
- **OpenFOAM**: Open-source CFD software (C++), source code knowledge and programming skills
- **Bash, Fortran**: Development of customised post-processing tools for CFD simulations
- **Matlab, Octave**: Data analysis and programming skills

Publications

- [1] C. CINTOLESI AND E. MÉMIN, *Stochastic modelling of turbulent flows for numerical simulations*, Submitted to Theoretical and Computational Fluid Dynamics (02/2019).
- [2] C. CINTOLESI AND E. MÉMIN, *Pseudo-stochastic simulation of turbulent channel flows with near-wall modelling*, Submitted to Journal of Computational Physics (01/2019).
- [3] C. CINTOLESI AND E. MÉMIN, *A pseudo-stochastic model for numerical simulation of turbulent flow*, Conference paper: 12th International ERCOFTAC Symposium ETMM12 - Montpellier (France) (09/2018).
- [4] C. CINTOLESI, A. PETRONIO, V. ARMENIO, *Turbulent structures of buoyant jet in cross-flow studied through large-eddy simulation*, Environmental Fluid Mechanics (2018).
- [5] A. FAKARI, C. CINTOLESI, A. PETRONIO, F. ROMAN, V. ARMENIO, *Numerical simulation of hot smoke plumes from funnels*, Proceedings of NAV 2018: 19th International Conference on Ship and Maritime Research - Trieste, Italy (06/2018).
- [6] C. CINTOLESI, A. PETRONIO, V. ARMENIO, *Large-eddy simulation of thin film evaporation and condensation from a hot plate in enclosure: Second order statistics*, Int. J. of Heat and Mass Transfer, 115 (2017) 410–423.
- [7] C. CINTOLESI, H. NILSSON, A. PETRONIO, V. ARMENIO, *Numerical simulation of conjugate heat transfer and surface radiative heat transfer using the P_1 thermal radiation model: parametric study in benchmark cases*, Int. J. of Heat and Mass Transfer, 107 (2017) 956–971.
- [8] C. CINTOLESI, A. PETRONIO, V. ARMENIO, *Large-eddy simulation of drying process of hot plate in cold enclosure*, Conference paper: 11th International ERCOFTAC Symposium ETMM11 - Palermo, Italy (09/2016).
- [9] C. CINTOLESI, H. NILSSON, A. PETRONIO, V. ARMENIO, *Implementation and validation of conjugate heat transfer and surface heat transfer, using P_1 thermal radiation model*, Conference paper: 11th OpenFOAM Workshop - Guimarães, Portugal (06/2016).
- [10] C. CINTOLESI, A. PETRONIO, V. ARMENIO, *Large-eddy simulation of thin film evaporation and condensation from a hot plate in enclosure: First order statistics*, Int. J. of Heat and Mass Transfer, 101 (2016) 1123–1137.
- [11] C. CINTOLESI, A. PETRONIO, V. ARMENIO, *Large eddy simulation of turbulent buoyant flow in a confined cavity with conjugate heat transfer*, Physics of Fluids, 27 (2015).
- [12] L. BARLETTI, C. CINTOLESI, *Derivation of isothermal quantum fluid equations with Fermi-Dirac and bose-einstein statistics*, Journal of Statistical Physics, 27 (2012).

Conferences and Workshops

- The 12th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements - Montpellier (France), 25-27 September 2018. Talk: *A pseudo-stochastic model for numerical simulation of turbulent flow*
- The 11th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements - Palermo (Italy), 21-23 September 2016. Talk: *Large-eddy simulation of drying process of hot plate in cold enclosure*
- 11th OpenFOAM Whorkshop - Guimarães (Portugal), 26-30 June 2016. Talk: *Implementation and validation of conjugate heat transfer and surface radiative heat transfer using P_1 thermal radiation model*
- Gothenburg Region OpenFOAM User Group Meeting - Gothenburg (Sweden), 11 November 2015.
- Workshop HPC enabling of OpenFOAM for CFD applications, CINECA - Bologna (Italy), 25-27 March 2015. Talk: *Simulation of turbulent buoyant flow with boundaries heat exchange.*
- Workshop Nazionale Dottorandi su ricerche inerenti le tematiche ERCOFTAC - Roma (Italy), 9 December 2014. Talk: *Simulazione di moti convettivi turbolenti con accoppiamento termico.*
- Turbulent Mixing and Beyond Workshop, mixing in rapidly changing environments - International Center for Theoretical Mathematics, Trieste (Italy), 04-09 August 2014.
- Hands-On Research in Complex Systems School - International Center for Theoretical Physics, Trieste (Italy), 29 June - 11 July 2014.
- Workshop on Fluid Mechanics - University of Trento (Italy), 18-22 June 2012.