

GIANANDREA VITTORIO MESSA
Curriculum Vitae

PERSONAL INFORMATION

Date of birth 06-07-1984
Nationality Italian
Home address Strada delle Ginestre 37/A
Carimate (CO) – Italia
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WORK EXPERIENCE

November 2018 - Present

Temporary researcher (RTDB) at the Department of Civil and Environmental Engineering of Politecnico di Milano (Scientific Disciplinary Sector: ICAR/01), Milano, Italy.

July 2015 – November 2018

Temporary researcher (RTDA) at the Department of Civil and Environmental Engineering of Politecnico di Milano (Scientific Disciplinary Sector: ICAR/01), Milano, Italy.

May 2013 - July 2015

Research fellow at the Department of Civil and Environmental Engineering of Politecnico di Milano, Milano, Italy.

EDUCATION AND TRAINING

January 2010 - March 2013

PhD in Environmental and Infrastructure Engineering (*cum laude*)
Area 03 – “Environmental and Hydraulic Engineering and Geomatics”
Politecnico di Milano, Milano, Italy.
Title of PhD thesis: “Two-fluid model for solid-liquid flows in pipeline systems”
URL: <https://www.politesi.polimi.it/handle/10589/74528>

My PhD fellowship was financed by Breda Energia S.p.A.

In 2013, I received the GII award for the best PhD thesis in Water Engineering by the Italian Group of Hydraulic Engineers.

March 2007 – December 2009

Master of Science in Civil Engineering (*cum laude*)
Track: “Hydraulics”
Politecnico di Milano, Milano, Italy
Title of thesis: “Numerical investigation of the flow through orifices and perforated plates”

September 2003 – March 2007

Master of Science in Civil Engineering (*cum laude*)
Politecnico di Milano, Milano, Italy
Title of thesis: “Applicazioni numeriche del modello ADEK per la propagazione di soluti nei corsi d’acqua”
(Numerical applications of the ADEK model for the propagation of pollutants in rivers, in Italian).

TEACHING ACTIVITIES

Since 2010, I've been involved in teaching activities, both in Italian and in English, as detailed below.

2015 – present

Teacher of the following courses at Politecnico di Milano:

2019-present	Meccanica dei Fluidi (7 credits) – B.Sc. in Mechanical Eng.
2018-2019	Idraulica 2 (10 credits) – M.Sc. in Civil Eng.
2018-2019	Meccanica dei Fluidi (7 credits) – B.Sc. in Mechanical Eng.
2017-2018	Meccanica dei Fluidi (7 credits) – B.Sc. in Mechanical Eng.
2016-2017	Meccanica dei Fluidi (7 credits) – B.Sc. in Mechanical Eng.
2015-2016	Meccanica dei Fluidi (7 credits) – B.Sc. in Mechanical Eng.

2018 – present Courses at Politecnico di Milano within the program “Passion in Action”

2018-present	Laboratorio di Meccanica dei Fluidi: il caso studio della Green Valve (2 credits)
2018-2019	Laboratorio di Meccanica dei Fluidi: il caso studio della Green Valve (2 credits)

2018 – 2019 Workshops within the program “Erasmus + Staff Mobility for Teaching”.

2019	Introduction to Computational Fluid Dynamics – Czech Technical University in Prague
2018	Numerical modelling of particle-laden flows – Czech Technical University in Prague

2016 – 2018 PhD Courses at Politecnico di Milano

Co-teacher (together with Prof. Stefano Malavasi) of the following PhD courses at Politecnico di Milano:

2017-2018	Lifetime Analysis and Critical Working Conditions of Hydraulic Devices (5 credits) PhD in Environmental and Infrastructure Engineering
2016-2017	Lifetime Analysis and Critical Working Conditions of Hydraulic Devices (5 credits) PhD in Environmental and Infrastructure Engineering

2010 – 2015

Teaching support assistant for about several B.Sc. and M.Sc. courses at Politecnico di Milano.

Supervisor of M.Sc. Theses

2018	Davide La Rosa	M.Sc. in Civil Eng., Politecnico di Milano
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University tutor for B.Sc. internships and supervisor of B.Sc. theses

2019	Chiara Frati	B.Sc. in Mechanical Eng., Politecnico di Milano
2019	Leonardo Fontana	B.Sc. in Mechanical Eng., Politecnico di Milano
2019	Lorenzo Cenotti	B.Sc. in Mechanical Eng., Politecnico di Milano
2019	Raffaele Marchetti	B.Sc. in Mechanical Eng., Politecnico di Milano
2018	Matteo Bergamaschi	B.Sc. in Mechanical Eng., Politecnico di Milano
2018	Daniele Nicosia	B.Sc. in Mechanical Eng., Politecnico di Milano
2018	Cataldo Spataro	B.Sc. in Mechanical Eng., Politecnico di Milano
2017	Giuseppe Schiavi	B.Sc. in Mechanical Eng., Politecnico di Milano
2017	Lorenzo Iannelli	B.Sc. in Mechanical Eng., Politecnico di Milano

Co-supervisor of M.Sc. Theses

2018	Tommaso Piazza	M.Sc. in Civil Eng., Politecnico di Milano
2017	Luigi Piani	M.Sc. in Civil Eng., Politecnico di Milano
2016	Yongbo Wang	M.Sc. in Energy Eng., Politecnico di Milano
2016	Fabio Novati	M.Sc. in Civil Eng., Politecnico di Milano
2015	Ivan Lopez Galiano	M.Sc. in Mechanical Eng., Politecnico di Milano
2015	Paolo Vicario	M.Sc. in Environmental Eng., Politecnico di Milano
2014	Irene Ingrosso	M.Sc. in Mathematical Eng., Politecnico di Milano
2014	Arnaldo Righini	M.Sc. in Civil Eng., Politecnico di Milano
2013	Elisa Papalina	M.Sc. in Civil Eng., Politecnico di Milano

Evaluator of M.Sc. and PhD Theses

2019	Bruno Rota	M.Sc. in Energy Eng., Politecnico di Milano
2019	Sebastian Leguizamon	Ph.D. in Energy, EPFL, Switzerland
2019	Annagiulia Bernardi	M.Sc. in Civil Eng., Politecnico di Milano
2018	Paolo Lurati	M.Sc. in Civil Eng., Politecnico di Milano
2018	Renan De Lima Branco	M.Sc. in Civil Eng., University of Campinas, Brazil
2017	Matteo Sacchi	M.Sc. in Civil Eng., Politecnico di Milano

COMPETITIVE RESEARCH PROJECTS, INDUSTRIAL CONTRACTS, AND AGREEMENTS

- **2019-present.** Research project “Distance learning post-graduate course: particle-laden flows, theory and engineering applications”, financed by the T.I.M.E. association (15 k€). Partners: PoliMI, CVUT (Czech Republic), UNICAMP (Brazil), Xi’an Jaotong University (China), Xi’an Shiyou University (China). The project is aimed at arranging an online course on the topic of particle-laden flows, based on a combination of theoretical lessons and case studies provided by the partners and other academic and industrial contributors. Role: contact person and coordinator.
- **2017-2019.** Research project “*Smart Water*” supported by Regione Lombardia in actuation of the regional law 26/2015 “Manifattura diffusa, creativa e tecnologica 4.0” (partners: Agatos Energia s.r.l., Aerfrigor s.r.l., and Politecnico di Milano), focused on the improvement of the energetic efficiency of water distribution systems through the development of the Green Valve, a device for flow control and energy harvesting patented by Politecnico di Milano. Role: member of the research team, in charge of the modelling of the control system of the device.
- **2017.** Research project “*Erosion Tests on MMC specimens and bends*” financed by ENI S.p.A (55 k€), aimed at the erosion characterization of different coating materials through abrasive jet impingements tests and slurry tests on pipe bends using two experimental setups installed in the Hydraulic Laboratory at Politecnico di Milano. Role: scientific co-responsibility together with Prof. Stefano Malavasi.
- **2016-2018.** Agreement between Politecnico di Milano (responsible: Prof. Stefano Malavasi) and Valcom S.r.l., for the free use of laboratory instruments, manufactured by Valcom S.r.l., in experiments performed at the Hydraulic Laboratory of Politecnico di Milano, in which they were exposed to particularly harsh testing conditions. Role: contribution to the preparation of the contracts and involvement in the experimental activities.
- **2015-2017.** Research project “*DRINK-ABLE - DRINKing wAter resilient management comBining process anaLyses, CFD and innovative sEnsor monitoring*”, financed by Cariplo Foundation (scientific responsible: Prof. Manuela Antonelli; partners: Politecnico di Milano and Università di Milano), aimed at defining an integrated approach for the retrofitting of existing disinfection tanks combining process analysis, modeling, CFD (Computational Fluid Dynamics) simulations with innovative and miniaturized sensors, connected in a network able to provide on-line monitoring and real-time feedback for the optimization of the disinfection processes. Role: as a member of the research team, I contributed to the setup of a pilot contact basin and gave support to the CFD simulations.
- **2016.** Research project “*Numerical analysis of the most significant dimensioning parameters of a Constant Volume Degasser*”, financed by Geolog S.r.l. (scientific responsible: Prof. Stefano Malavasi). Role: as a member of the research team, I contributed first-hand to the development of the numerical model and to the execution of the numerical simulations, illustrating the obtained results in a final report and in a meeting held at Geolog S.r.l. at the end of the project.
- **2015-2016** Research project “*Erosion prediction of XTree in brown fields*”, financed by ENI S.p.A (scientific responsible: Prof. Stefano Malavasi), aimed at the development of models for estimating the useful lifetime of valves used in oil field with sand production. Role: as member of the research team, I contributed to the following tasks (i) design and supervision to the constructions of two experimental setups installed at the Hydraulic Laboratory at Politecnico di Milano; (ii) planning and supervision of the experimental tests; (iii) development and implementation of an in-house code for the erosion prediction in complex geometries; (iv) development of models for the estimation of the useful lifetime of valves subjected to impact erosion starting from the numerical/experimental data previously obtained.

- **2010-2014** Agreement between Politecnico di Milano (scientific responsible: Prof. Stefano Malavasi) and Lasertec S.r.l., regarding the use of the CFD code PHOENICS for research and teaching activities. Role: accomplishment of activities foreseen by the agreement, namely (i) teaching support assistance for the course of “Meccanica dei Fluidi [2]” (M.Sc. Mathematical and Civil Engineering), in which use was made of PHOENICS; (ii) co-supervision of M.Sc. theses involving the use of PHOENICS; (iii) development and implementation in PHOENICS of models for the simulation of multiphase flows during my PhD.
- **2012-2014** CILEA-LISA grant DICRE “Dispositivi Idraulici per il Controllo e il Recupero di Energia” (scientific responsible: Prof. Stefano Malavasi), consisting of 140.000 cpu-hours on the supercomputing facilities at CILEA. Role: member of the research team and use of the cpu-hours for executing numerical simulations.
- **2011-2013** Research project PRIN “Simulazione della risposta dinamica di sistemi strutturali soggetti ad azioni ambientali” co-financed by MIUR (Scientific coordinator: prof. Fabrizio Vestroni; scientific responsible: prof. Federico Perotti; research units: Università di Roma La Sapienza, Università di Genova, Università degli studi di Messina, Politecnico di Milano, Università degli studi de L’Aquila). Role: member of the research unit from Politecnico di Milano.
- **2010-2012** CILEA-LISA grant MONUMAS “Modellazione numerica multifase attraverso singolarità (scientific responsible: Prof. Stefano Malavasi), consisting of 140.000 cpu-hours on the supercomputing facilities at CILEA. Role: member of the research team and use of the cpu-hours for executing numerical simulations.

PUBLICATIONS

Research papers on ISI journals

Messa G.V., Matoušek V., 2019, “Analysis and discussion of two fluid modelling of pipe flow of fully suspended slurry”, Powder Technology. In press.

Messa G.V., Wang Y., Malavasi S., 2019, “A discussion of the test procedures of the API 6AV1 standard based on wear prediction simulations”, Wear, Vol. 426-427, pp. 1416-1429.

Messa, G.V., Mandelli S., Malavasi S., 2019, “Hydro-abrasive erosion in Pelton turbine injectors: A numerical study”, Renewable Energy, Vol. 130, pp. 474-488.

Messa G.V., Malavasi S., 2018, “A CFD-based method for slurry erosion prediction”, Wear, Vol. 398-399, pp. 127-145.

Messa G.V., Branco R.D.L., Dalfré Filho J.G., Malavasi S., 2018, “A combined CFD-experimental method for abrasive erosion testing of concrete”, Journal of Hydrology and Hydromechanics, Vol. 66, pp. 121-128.

Messa G.V., Malavasi S., 2017, “The effect of sub-models and parameterizations in the simulation of abrasive jet impingement tests”, Wear, Vol. 370-371, pp. 59-72.

Messa G.V., Ferrarese G., Malavasi S., 2015, “A mixed Euler-Euler/Euler-Lagrange approach to erosion prediction”, Wear, Vol. 342-343, pp. 138-153.

Ferrarese G., **Messa G.V.**, Rossi M.M.A., Malavasi S., 2015, “New method for predicting the incipient cavitation index by means of single-phase computational fluid dynamics model”, Advances in Mechanical Engineering, Vol. 7, 11 pages.

Malavasi S., **Messa G.V.**, Fratino U., Pagano A., 2015, “On cavitation occurrence in perforated plates”, Flow Measurement and Instrumentation, Vol. 41, pp. 129-139.

Messa G.V., Malavasi S., 2015, “Improvements in the numerical prediction of fully-suspended slurry flows in horizontal pipes”, Powder Technology, Vol. 270, pp. 358-367.

Messa G.V., Malavasi S., 2014, “Numerical prediction of dispersed turbulent liquid–solid flows in vertical pipes”, *Journal of Hydraulic Research*, Vol. 52, No. 5, pp. 684-692.

Messa G.V., Malavasi S., 2014, “Numerical prediction of particle distribution of solid-liquid slurries in straight pipes and bends”, *Engineering Applications of Computational Fluid Mechanics*, Vol. 8, No. 3, pp. 356-372.

Messa G.V., Malavasi S., 2014, “Computational investigation of liquid-solid slurry flow through an expansion in a rectangular duct”, *Journal of Hydrology and Hydromechanics*, Vol. 62, No. 3, pp. 234-240.

Messa G.V., Malin M., Malavasi S., 2014, “Numerical prediction of fully-suspended slurry flow in horizontal pipes”, *Powder Technology*, Vol. 256, pp. 61-70.

Messa G.V., Malavasi S., 2013, “Numerical investigation of solid-liquid slurry flow through an upward-facing step”, *Journal of Hydrology and Hydromechanics*, Vol. 61, No. 2, pp. 126-133.

Malavasi S., **Messa G.V.**, Fratino U., Pagano A., 2012, “On the pressure losses through perforated plates”. *Flow Measurement and Instrumentation*, Vol. 28, pp. 57-66.

Malavasi S., **Messa G.V.**, 2011, “Dissipation and cavitation characteristics of single-hole orifices”, *ASME Journal of Fluids Engineering*, Vol. 133, 051302 (8 pages).

Papers in proceedings of international conferences

Messa G.V., Malavasi S., Zhang J., Shirazi, S.A., 2019, “Numerical prediction of the impact erosion produced by dense slurry jets”. *Proceedings of the 19th International Conference on Transport and Sedimentation of Solid Particles T&S 2019*.

Messa G.V., Matoušek V., Malavasi S., 2018, “Computational investigation of fine glass-bead slurry flow in horizontal pipe”. *Proceedings of the 9th International Conference on Conveying and Handling of Particulate Solids CHoPS2018*.

Malavasi S., **Messa G.V.**, Negri M., 2018, “Prediction of erosion damage in a choke valve working in severe slurry conditions”, *Proceedings of the ASME Pressure Vessels and Piping Conference PVP2018*, paper No. PVP2018-84293.

Messa G.V., Wang Y., 2018, “Importance of accounting for finite particle-size in CFD-based erosion prediction”, *Proceedings of the ASME Pressure Vessels and Piping Conference PVP2018*, paper No. PVP2018-84248.

Fecarotta O., **Messa G.V.**, Pugliese F., Carravetta A., Malavasi S., Giugni M., 2018, “Preliminary development of a method for impact erosion prediction in Pumps running As Turbines”, *Proceedings of the 3rd International Conference on Efficient Water Systems EWaS*. To be published.

Gorini S., Maliardi A., Malavasi S., **Messa G.V.**, 2017, “Enhanced erosion prediction for Xtree valves”, *Proceedings of the Offshore Mediterranean Conference OMC2017*, paper No. OMC-2017-592.

Messa G.V., Malavasi S., Scaccabarozzi D., Saggin B., Tarabini M., Esposito F., Molfese C., 2016, “Preliminary design of the inlet duct of a dust analyzer for Mars”, *3rd IEEE International Workshop on Metrology for Aerospace*, paper No. PS30.

Messa G.V., Malavasi S., 2016, “A numerical strategy to account for the effect of self-induced geometry changes in wear estimation”, *Proceedings of the 9th International Conference on Multiphase Flow ICMF*, paper No. 133.

Messa G.V., Ingrosso I., Malavasi S., 2015, “A new methodology for erosion prediction using Eulerian-Eulerian CFD models”, *Proceedings of the ASME Pressure Vessels and Piping Conference PVP2015*, paper No. PVP2015-45608.

Rossi M.M.A., **Messa G.V.**, Ferrarese G., Malavasi S., 2015, “Improvements and validation of the numerical prediction of the incipient cavitation index”, Proceedings of the ASME Pressure Vessels and Piping Conference PVP 2015, paper No. PVP2015-45585.

Malavasi S., **Messa G.V.**, 2015, “New CFD-based method for erosion prediction in control valves”, Industrial Valve Summit.

Malavasi S., **Messa G.V.**, 2014, “CFD Modelling of a Choke Valve under Critical Working Conditions”, Proceedings of the ASME Pressure Vessels and Piping Conference PVP2014, paper No. PVP2014-28629.

Malavasi S., **Messa G.V.**, Ferrarese G., 2013, “Solid-Liquid Flow through a Wellhead Choke Valve”, Proceedings of the ASME Pressure Vessels and Piping Conference PVP 2013, paper No. PVP2013-97737.

Messa G.V., Malin M., Malavasi S., 2013, “Numerical Prediction of Pressure Gradient of Slurry Flows in Horizontal Pipes”, Proceedings of the ASME Pressure Vessels and Piping Conference PVP2013, paper No. PVP2013-97460.

Messa G.V., Malavasi S., 2013, “Solid-Liquid Slurry Flow through an Expansion in a Rectangular Duct”, Proceedings of the ASME Pressure Vessels and Piping Conference PVP2013, paper No. PVP2013-97247.

Malavasi S., Rossi M.M.A., **Messa G.V.**, Ferrarese G., 2013, “Numerical Method to Provide Cavitation Index for Control Valves”, Proceedings of the ASME Pressure Vessels and Piping Conference PVP2013, paper No. PVP2013-97150.

Fratino U., Pagano A., Malavasi S. and **Messa G.V.**, 2012, “Pressure Drop and Recovery Across Sharp-Edged Multi-Hole Orifices”, Proceedings of the 2nd IAHR Conference.

Papers in proceedings of national conferences

Messa G.V., Malavasi S., 2018, “Flussi slurry in condotte verticali con approccio Euleriano-Euleriano: effetto delle forze di lift e massa aggiunta” (Numerical simulation of slurry flows in vertical pipes with Eulerian-Eulerian approach: effect of lift and added mass forces, short paper in Italian). 4-pages paper included in the Proceedings of the XXXVI National Conference on Hydraulics and Hydraulic Constructions IDRA2018.

Branco R.D.L., **Messa G.V.**, Azevedo T.M.T., Dalfré Filho J.G., Malavasi S., 2017, “Experimentos preliminares sobre o comportamento de diferentes concretos à erosão por mistura água-sólido” (Preliminary experiments on the water-solid mixture erosion behavior of concrete materials, in Portuguese). Proceedings of the XXII Brazilian Symposium on water resources-SBRH.

Messa G.V., Negri M., Wang Y., Malavasi S., 2017, “Estimation of the useful lifetime of a gate valve subjected to impact erosion”, Proceedings of the XXII AIMETA Conference, Vol. 1, pp. 147-163.

Messa G.V., Malavasi S., 2016, “Simulazione numerica dell’erosione da impatto in un test a getto abrasivo” (Numerical simulation of impact erosion in an abrasive jet impingement test, short paper in Italian), Proceedings of the XXXV National Conference on Hydraulics and Hydraulic Constructions IDRA2016.

Malavasi S., **Messa G.V.**, Righini A., Dalfrè Filho J.G., 2013, “Desenvolvimento de um aparato experimental para o estudo de erosão causada por mistura água sólido” (Development of an experimental setup for testing the erosion caused by a water-solid mixture, in Portuguese), Proceedings of the XX Brazilian Symposium on water resources-SBRH.

Pagano A., **Messa G.V.**, Malavasi S., Fratino U., 2012, “Definizione sperimentale dell’efficienza dissipativa di diaframmi a foro multiplo con geometria variabile” (Experimental characterization of the dissipation efficiency of multi-hole orifice with variable geometry, in Italian), Proceedings of the XXXIII National Conference on Hydraulics and Hydraulic Constructions IDRA2012.

Messa G.V., Malavasi S., 2012, “Solid-liquid slurry flow through an upward-facing step”, Proceedings of the XXXIII National Conference on Hydraulics and Hydraulic Constructions IDRA2012.

Malavasi S., **Messa G.V.**, Macchi, S., 2010, “The pressure drop coefficient through sharp-edged perforated plates”, Proceedings of the XXXII National Conference on Hydraulics and Hydraulic Constructions IDRA2010.

CONFERENCE ACTIVITIES

- Member of the **scientific committee** of the 19th International Conference on Transport and Sedimentation of Solid Particles, 24-27 September 2019, Cape Town, South Africa.
- Invited as **co-chairman**, in conjunction with Majid Naderi, of session “Experimental methods and sensors I” at the 9th International Conference on Conveying and Handling of Particulate Solids CHoPS2018, 10-14 September 2018, London, UK.
- **Member of the organizing committee** and **chairman** of two sessions at the 4th ECCOMAS Young Investigator Conference, 13-15 September 2017, Milano, Italy.
- **Co-chairman**, in conjunction with Dr.ssa Cristiana Di Cristo, of session “Dinamica Acqua-Società: sviluppo sostenibile e gestione del territorio” (Water-society dynamics: sustainable development and land management) at the XXXV National Conference on Hydraulics and Hydraulic Constructions IDRA2016, 14-16 September 2016, Bologna, Italy.
- **Co-chairman**, in conjunction with Prof. Stefano Malavasi, of session “Idrodinamica I” (Hydrodynamics I) at the XXXIII National Conference on Hydraulics and Hydraulic Constructions IDRA2012, 10-12 September 2012, Brescia, Italy.
- **Oral presentation** at the 19nd International Conference on Transport and Sedimentation of Solid Particles T&S2019, 24-27 September 2019, Cape Town, South Africa. Title of presentation: “Numerical prediction of the impact erosion produced by dense slurry jets”.
- **Oral presentation** at the 22nd International Conference on Wear of Materials WOM2019, 14-18 April 2019, Miami, Florida, USA. Title of presentation: “A discussion of the test procedures of the API 6AV1 standard based on wear prediction simulations”.
- **Oral presentation** at the 9th International Conference on Conveying and Handling of Particulate Solids CHoPS2018, 10-14 September 2018, London, UK. Title of presentation: “Computational investigation of fine glass-bead slurry flow in horizontal pipe”.
- **Oral presentations** at the ASME Pressure Vessels and Piping Conference PVP2017, 15-20 July 2018, Prague, Czech Republic. Title of presentations: “Prediction of erosion damage in a choke valve working in severe slurry conditions” and “Importance of accounting for finite particle-size in CFD-based erosion prediction”.
- **Oral presentation** at the 4th ECCOMAS Young Investigator Conference, 13-15 September 2017, Milano, Italy. Title of presentation: “Numerical simulation of impact erosion in liquid-solid abrasive jet impingement tests”.
- **Oral presentations** at the XXII AIMETA Conference, 4-7 September 2017, Salerno, Italy. Title of presentations: “Estimation of the useful lifetime of a gate valve subjected to impact erosion” and “A numerical-experimental investigation of the impact erosion of Glass Reinforced Epoxies (GRE)”
- **Oral presentation** at the XXXV National Conference on Hydraulics and Hydraulic Constructions IDRA2016, 14-16 September 2016, Bologna, Italy. Title of presentation: “Simulazione numerica dell’erosione da impatto in un test a getto abrasivo” (Numerical simulation of impact erosion in an abrasive jet impingement test, short paper in Italian).

- **Oral presentation** at the Nace Milano Italia Section Conference & Expo, 29-31 May 2016, Genova, Italy. Title of presentation: “Modeling of the impact wear produced by dense liquid-solid slurries”.
- **Oral presentation** at the 9th International Conference on Multiphase Flows, 22-27 May 2016, Firenze, Italy. Title of presentation: “A numerical strategy to account for the effect of self-induced geometry changes in wear estimation”.
- **Oral presentation** at the 2nd International Conference of Numerical Methods for Multiphase Flows, 30 June – 2 July 2014, Darmstadt, Germany. Title of presentation: “Simulation of fully-suspended solid-liquid slurry flows in horizontal pipes in parabolic mode”.
- **Oral presentations** at the ASME Pressure Vessels and Piping Conference PVP2013, 14-18 July 2013, Paris, France. Title of presentations: “Numerical Prediction of Pressure Gradient of Slurry Flows in Horizontal Pipes”, “Solid-Liquid Slurry Flow through an Expansion in a Rectangular Duct”.
- **Oral presentation** at the XXXIII National Conference on Hydraulics and Hydraulic Constructions IDRA2012, 10-12 September 2012, Brescia, Italy. Title of presentation: “Solid-liquid slurry flow through an upward-facing step”.
- **Oral presentation** at the XXXII National Conference on Hydraulics and Hydraulic Constructions IDRA2010, 14-17 September 2010, Palermo, Italy. Title of presentation: “The pressure drop coefficient through sharp-edged perforated plates”.
- **Poster presentation** at the 21st International Conference on Wear of Materials, 26-30 March 2017, Long Beach, California, USA. Title of poster: “Lifetime prediction of valves subjected to impact erosion”.
- **Poster presentation** at the European Post-Graduate Fluid Dynamics Conference, 10-12 July 2012, London, UK. Title of poster “Flow of sand-water mixtures in horizontal pipes”.

SEMINAR PRESENTATIONS

- **Invited keynote** at the 20th International Conference on Hydrotransport, 3-5 May 2017, Melbourne, Australia. Title of keynote: “Slurry flows: modelling and management”.
- **Invited seminar** at the Institute of Hydrodynamics of the Czech Academy of Sciences, 22nd March 2018, Prague, Czech Republic. Title of seminar: “Numerical modelling of solid-liquid flow and of its impact on erosion wear of pipeline parts”.
- **Invited seminar** organized by the Scientific Committee of the Department of Civil and Environmental Engineering of Politecnico di Milano, 20th February 2018, Milano, Italy. Title of seminar: “Slurry flows in pipeline systems: modelling and management”.
- **Seminar** at the event “Sostenibilità e uso responsabile della risorsa idrica”, organized by the Department of Civil and Environmental Engineering of Politecnico di Milano on the occasion of the World Water Day, 22nd March 2017, Milano, Italy. Title of seminar: “Non solo acqua: l’idraulica per la sostenibilità dei processi produttivi” (Not only water: hydraulics for the sustainability of the production processes).

REVIEWER ACTIVITIES

For the following ISI/SCOPUS indexed journals (> 80 reviewed papers): *Applied Mathematical Modelling*, *Energy*, *Engineering Applications of Computational Fluid Mechanics*, *Engineering Failure Analysis*, *Heat Transfer Engineering*, *International Journal of Ambient Energy*, *International Journal of Hydrogen Energy*, *Jordan Journal of Mechanical Science and Technology*, *Journal of Fluids Engineering*, *Journal of Hydraulic*

Engineering, Journal of Hydraulic Research, Journal of Mechanical Science and Technology, Journal of Zhejiang University-SCIENCE A, Particulate Science and Technology, Powder Technology, Renewable Energy, Stochastic Environmental Research and Risk Assessment, Tribology International, Wear.

Reviewer for the Czech Science Foundation in 2015.

HONORS AND AWARDS

2017: recipient of the “Hydrotransport next generation award” with the following statement: “*in recognition of: significant scientific/engineering accomplishments and a contribution to the principles/applications underlying Hydrotransport technology before the age of 40 years*”.

2016: among the five finalists of the “Torricelli award” for young researchers in the field of hydraulic engineering, organized by the GII (Italian Group of Hydraulic Engineers).

2013: among the three Italian finalists of the “Da Vinci Competition”, organized by ERCOFTAC, open to young researchers in the field “Flow, Turbulence and Combustion”.

2013: recipient of the “GII award” for the best PhD thesis in Water Engineering by the Italian Group of Hydraulic Engineers.

OTHER INFORMATION

2018: Italian national scientific qualification (Abilitazione Scientifica Nazionale) as Associate Professor in Competition Sector 08/A1 “Hydraulics, Hydrology, Hydraulic and Maritime Construction”. Valid until 9th April 2024.

Autorizzo il trattamento dei miei dati personali presenti nel cv ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 “Codice in materia di protezione dei dati personali” e del GDPR (Regolamento UE 2016/679).