

Curriculum vitae

Michele Larcher

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I. PROFESSIONAL POSITION:

2023-present: Associate Professor in the scientific sector ICAR/01 (Hydraulics) at the Free University of Bozen-Bolzano, Faculty of Engineering.

2016-2023: Associate Professor in the scientific sector ICAR/01 (Hydraulics) at the Free University of Bozen-Bolzano, Faculty of Science and Technology.

2005-2016: Assistant Professor (“ricercatore confermato”) in the scientific sector ICAR/01 (Hydraulics) at the University of Trento, Department of Civil, Environmental and Mechanical Engineering.

2003-2005: Post-doc at CUDAM (University of Trento) and Professional Engineer.

II. EDUCATION:

Ph.D. in Hydraulic Engineering, University of Padova, Italy (2003).

Master in Environmental Engineering, summa cum laude, print dignity and honor mention for the career, University of Trento, Italy (1998).

III. HABILITATIONS:

National Scientific Habilitation (Abilitazione Scientifica Nazionale 2016-2018, I quadrimestre) as full professor in the scientific area 08/A1 (Hydraulics, Hydrology, Hydraulic and maritime constructions).

National Scientific Habilitation (Abilitazione Scientifica Nazionale 2012) as associate professor in the scientific area 08/A1 (Hydraulics, Hydrology, Hydraulic and maritime constructions).

Habilitation for the exercise of the engineering profession (1999).

IV. LANGUAGES:

Italian: first language

German: second language, fluent (level C1: Bilingualism certificate A of the Autonomous Province of Bolzano-Bozen)

English: foreign language, fluent (level C1 *IELTS* certificate: listening 7.0, reading 8.5, writing 7.0, speaking 7.0, overall band score 7.5)

V. VISITING APPOINTMENTS:

July-August 2016, Visiting Associate Professor, Department of Civil and Environmental Engineering, Cornell University, NY, USA.

March 2016, Visiting Scientist, Max Planck Institute for the Physics of Complex Systems (MPIPKS), Dresden, Germany.

October-November 2013, Visiting Scientist, Kavli Institute for Theoretical Physics, University of California at Santa Barbara, CA, USA.

July 2012 – January 2013: Visiting Scientist, Department of Civil and Environmental Engineering, Cornell University, NY, USA.

June - September 2007: Visiting Scientist, Department of Theoretical and Applied Mechanics, Cornell University, NY, USA.

June 2005: Visiting Scientist, National Taiwan University (Taipei) and National Chung-Hsing University (Taichung), Taiwan.

February - March 2001: Visiting Scientist, Public Works Research Institute, Tsukuba, Japan.

VI. INVITED SEMINARS AND LECTURES:

Debris flows, Lahars and Huaicos: modelling erosive flash floods – International conference on Discrete Simulation and Continuum Modeling of Granular Matter, Fasano, Italy, 21–26 May 2023, invited speaker.

Double-segregation in dense, inclined, dry granular flows, Symposium SegSed - Size Segregation in Sediment Transport Double-segregation in dense, inclined, dry granular flows, IRSTEA, Grenoble, 13 May 2019, invited speaker.

Segregation in dense, inclined, layered granular flows, IUTAM (International Union of Theoretical & Applied Mechanics) Symposium on the Dynamics of Complex Fluids and Interfaces, Indian Institute of Technology Kanpur, India, 17– 20 December, 2018, invited speaker.

A simple lecture on complex fluids: implications for engineering and everyday life, Taiwan-Italy Symposium, National Chung Hsing University, Taichung (Taiwan), 29 October – 2 November 2018, invited speaker.

Granular segregation in dense, layered, inclined flows of spheres, EGU General Assembly 2018, session GM1.5/HS11.17/NH1.22/SSP3.18 - The importance of granular processes and segregation in geophysical flows: implications for landscape evolution and hazard analysis, Vienna (Austria), 8-13 April 2018, invited speaker.

Schlitzsperrren zur hydrodynamischen Kontrolle der Sedimente, Fachtagung “Stand der Technik im Naturgefahren-Ingenieurwesen”, University of Natural Resources and Life Sciences (Boku), Vienna (Austria), 21-23 February 2018, invited speaker.

Tecniche di ingegneria idraulica per la protezione idrogeologica del territorio alpino, VI° Edizione dell’Incontro delle Commissioni di Ingegneria Geotecnica, Ingegneria Geotecnica: Monitoraggio, Pendii, Dighe, Bolzano, 30 November 2017, invited speaker.

La modellazione fisica e matematica come strumento progettuale per la difesa idrogeologica del territorio, Italia Sicura, Progettare l’Assetto Idrogeologico, Bolzano – NOI Techpark, 23 Novembre 2017, invited speaker.

Alpine experts @unibz, Alpine expert days, NOI-Techpark 13-14 novembre 2018, invited speaker.

52° Corso di Cultura in Ecologia - Debris flows in a changing environment: processes, controls, consequences, University of Padova, San Vito di Cadore, Italy, 6-8 June 2016, invited speaker.

Max Planck Institute for the Physics of Complex Systems (MPIPKS), Dresden, Germany, March 2016, invited speaker.

Alpine Convention, 2nd International Conference on Integrative Sciences and sustainable development of rivers, Lumière Lyon 2 University, France, 22 June 2015, invited presenter.

Kavli Institute for Theoretical Physics, University of California at Santa Barbara, CA, USA, October 2013, invited speaker.

Teaching professor of “Granular flows”, Doctoral Course Grasmec, Université catholique de Louvain, Belgium, 2011, invited lecturer.

University of Rennes I, France, January 2009, invited speaker.

Cornell University, Department of Theoretical and Applied Mechanics, Ithaca (NY), USA, June 2007, invited speaker.

International Conference on Hillslope Stabilization and Environmental Restoration, Taipei, Taiwan, June 2005, invited general lecture.

Isaac Newton Institute for Mathematical Sciences, Cambridge (UK) October 2003, invited speaker.

Public Works Research Institute, Tsukuba, Japan, February 2001, invited speaker.

VII. ACADEMIC TEACHING AT THE FREE UNIVERSITY OF BOZEN-BOLZANO:

Teaching professor of “Fluid Mechanics”, Bachelor in Industrial and Mechanical Engineering, A.Y. 2013/14 – ongoing, teaching language: German.

Teaching professor of “Physik I”, Bachelor in Industrial and Mechanical Engineering, A.Y. 2020/21 – ongoing, teaching language: German.

Teaching professor of “Advanced applications of fluid mechanics”, PhD Programme in Sustainable Energy and Technologies, A.Y. 2016/17 – ongoing, teaching language: English.

Teaching professor of “Applications of fluid mechanics to energy engineering”, Master in Energy Engineering, A.Y. 2016/17 - 2021/22, teaching language: English.

Teaching professor of “Progettazione degli interventi strutturali di mitigazione”, Second level master HyRMA: Gestione sostenibile del Rischio idro-geologico in Ambienti montani, A.Y. 2018/19 - ongoing, teaching language: Italian.

Teaching professor of “Valutazione del rischio idro-geologici”, Second level master HyRMA: Gestione sostenibile del Rischio idro-geologico in Ambienti montani, A.Y. 2018/19 - ongoing, teaching language: Italian.

VIII. INNOVATIVE ACADEMIC TEACHING:

Responsible for unibz of the ERC/MSCA Project *POSEIDON (imProve Offshore infraStructure rEsilience agaInst geohazarDs tOwards a chaNging climate)*, aimed at developing a training program for young researchers and PhD students offering interdisciplinary knowledge and skills across multiple functional and operational scales of the offshore critical infrastructures. The involved institutions within the network are Universiteit Twente (NL), Christian Albrechts Universität Kiel (DE), Universität Bremen (DE), Institut Français de Recherche pour l'Exploitation de la Mer (FR), Stiftelsen NorgesGeoteksnike Institutt (NO), Cathie Associates SA (UK), OPTUM Computational Engineering (DK), United Kingdom Research and Innovation (UK), DNV AS, State of the Art Engineering BV (NL), Université de Bretagne Occidentale (FR), OSLOMET Storby Universitetet (NO), The University of Warwick (UK), The University of Liverpool (UK), Norges Teknisk-Naturvitenskapelige Universitet NTNU (NO).

Responsible for unibz of the international H2020-MSCA-COFUND doctoral program *CLEAR-Doc* (H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions, Grant Agreement N°101034248) in cooperation with Université Gustave Eiffel (FR).

Responsible for unibz of the *EUREGIO Mobility Fund 2023* for the project EJCPi2023 – Euregio Joint Computational Physics Initiative funded by the Euroregion Trentino - South Tyrol – Tyrol. The project is

relevant to an innovative academic teaching initiative involving the interaction of professors, researchers and students of the Department of Physics of the University of Trento, of the Institut für Theoretische Physik of the University of Innsbruck and of the Faculty of Engineering of unibz within the Master in Energy Engineering and the PhD program in Sustainable Energy and Technologies, A.Y. 2023/2024.

Responsibile for unibz of the *EUREGIO Mobility Fund 2019* for the project EJCPI2020 – Euregio Joint Computational Physics Initiative funded by the Euroregion Trentino - South Tyrol – Tyrol. The project is relevant to an innovative academic teaching initiative involving the interaction of professors, researchers and students of the Department of Physics of the University of Trento, of the Institut für Theoretische Physik of the University of Innsbruck and of the Faculty of Science and Technology of unibz within the Master in Energy Engineering, A.Y. 2019/2020.

Responsibile for unibz of the *EUREGIO Mobility Fund 2018* for the project EJCPI – Euregio Joint Computational Physics Initiative funded by the Euroregion Trentino - South Tyrol – Tyrol. The project is relevant to an innovative academic teaching initiative involving the interaction of professors, researchers and students of the Department of Physics of the University of Trento, of the Institut für Theoretische Physik of the University of Innsbruck and of the Faculty of Science and Technology of unibz within the Master in Energy Engineering, A.Y. 2018/2019.

UNITEDBZ: Member of the *comitato di indirizzo* for the project Unitedbz (Integrazione di rifugiati e richiedenti asilo nella vita universitaria), in representation of the Faculty of Science and Technology of unibz, 2017 – 2023.

IX. ACADEMIC TEACHING AT THE UNIVERSITY OF TRENTO:

Teaching Professor of “Elements of hydraulics and hydraulic constructions”, Bachelor in Environmental Engineering and Bachelor in Civil Engineering, A.Y. 2013/14 - 2015/16.

Teaching Professor of the module of Hydraulics (equivalent to half course) within the course “Hydraulic constructions with notions of hydraulics”, University of Trento, Master course in Architecture and Building Engineering, A.Y. 2014/15.

Teaching Professor of “Design and management of irrigation plants”, Interfaculty Bachelor in Viticulture and Enology (University of Trento, University of Udine and Edmund Mach Foundation), A.Y. 2013/14 – 2014/15.

Teaching Professor of “Irrigation plants”, Bachelor in Industrial and Food Engineering, A.Y. 2007/08 to 2012/13.

Teaching Professor of the “Granular Flows” module within the “Fluid mechanics” Doctoral Course in Environmental Engineering, A.Y. 2010/11.

Teaching Professor of “Water/soil interaction and irrigation techniques”, Interfaculty Master Course (Padova-Udine-Verona) in Viticulture, Enology and Wine Markets, A.Y. 2006/07 to 2009/10.

Teaching Assistant of “Fluvial engineering”, Master Course in Environmental Engineering, A.Y. 2010/11 - 2015/16.

Teaching Assistant of “Fluvial engineering and river restoration”, Master Course in Environmental Engineering, A.Y. 2005/06 to 2009/10.

Teaching Assistant of “Project of fluvial engineering”, Master Course in Environmental Engineering, A.Y. 2005/06 to 2009/10.

Teaching Assistant of “River restoration”, Master Course in Environmental Engineering, A.Y. 2000/01 to 2004/05.

X. DIDACTIC ACTIVITY AT OTHER INSTITUTIONS:

Teaching professor of “Granular flows”, Doctoral Course *Grasmech*, Université catholique de Louvain, Belgium, 2011 (in English).

University of Rome “La Sapienza”, C.E.R.I., Valmontone (Rome), 2006 (8 hours of frontal lecture, in Italian).

Professional Association of Geologists at the Province of Vicenza, Vicenza, 2006 (8 hours of frontal lecture, in Italian).

Geobrugg Italy, Arona (Italy) and Illgraben (Switzerland), 2005 (2 hours of frontal lecture, in Italian).

CISM (International Centre for Mechanical Sciences), 2005 (2 hours of frontal lecture, in English).

THARMIT Master Course “Debris and mud flows: practical tools for hazard assessment, technical countermeasures and warning systems for the mitigation of risk”, 2003 (in English).

CODEMM, Association for the Protection of Mountain Ecosystem, Atessa (CH), A.A. 2003-04 (14 hours of frontal lecture, in Italian).

MODECI, Mathematical Modeling of Hydro-geological Disasters. University of Calabria, 2003 (10 hours of frontal lecture, in Italian).

SUPSI, Professional University School of the Italian Switzerland, Institute for Earth Sciences, Canobbio, Switzerland, 2003 (3 hours of frontal lecture, in English).

XI. SCIENTIFIC ACTIVITY:

The scientific activity of the candidate is focused on themes relevant to fluid mechanics. At present the candidate is mainly involved in the study of granular flows and non-Newtonian fluid rheology, with applications to environmental (e.g. geophysical flows) and industrial engineering (e.g. solid fuel conversion systems). His studies are theoretical and experimental and he also developed original and widely references imaging methods for the three-dimensional experimental analysis of granular flows, suitable for tracking the trajectories of the individual grains and reconstructing the velocity, velocity fluctuations (granular temperature) and concentration fields.

He studied debris flows, mudflows and snow avalanches dynamics, both from the point of view of base research and of applied research. The candidate participated to many support programs to territorial survey agencies, among the others finalized to hazard mitigation in the Campania Region (Italy) and in the state of Vargas (Venezuela) after the tremendous debris flow disasters that affected Sarno in 1998 and Vargas in 1999, and was requested in 2014 to develop a planning and design procedure for integral risk mitigation systems in the Province of Bolzano, Italy.

XII. PATENTS AND TECHNOLOGICAL TRANSFER:

Bianchini, P., Larcher, (2020) International patent presented at the World Intellectual Property Organisation (WIPO): “Sediment retention structure in rivers”. Patent number: [PCT/IB2020/058701](https://patentscope.wipo.int/search/en/patent.jspx?ref=pubno&no=2020/058701).

Bianchini, P., Larcher, (2019). National patent presented at the Ufficio Italiano Brevetti e Marchi: “Struttura di ritenuta dei sedimenti in corsi d'acqua”. Patent number: 102019000016637.

Scientific responsible for the elaboration of a set of procedures for integrated planning systems for the mitigation of flood risk in the Autonomous Province of Bolzano, 2014.

Scientific responsible for the design of two exhibits, one on granular flow dynamics and one on river restoration, at the Gallery “Environmental Risks and Civil Protection” of the Museum of Natural Sciences (MUSE) in Trento, 2013.

XIII. EDITORIAL ACTIVITIES AND CONFERENCES ORGANIZATION:

Guest editor of the special issue *Granular Flows Modeling and Simulation* on the journal *Water-Switzerland* (Q1 quartile)

Member of the Organizing Committee on the international congress *Salamina Grain Works 2024*, Fasano (Italy), 5 - 11 May 2024.

Member of the Organizing Committee on the international congress *Discrete Simulation and Continuum Modeling of Granular Matter*, Fasano (Italy), 21 – 26 May 2023.

Member of the Organizing Committee on the international congress *Discrete and Continuum Modeling of Natural Systems*, Fasano (Italy), 20 May – 3 June 2022.

Member of the Local Organizing Committee of the 5th *European IAHR Congress*, Trento, Italy, 12-14 June 2018.

Member of the Scientific Secretariat of the XXIX Italian Conference of Hydraulics and Hydraulic Constructions, Trento, 7-10 September 2004.

XIV. PARTICIPATION IN SCIENTIFIC COMMITTEES:

National Coordinator of the working group on Debris flow within the workgroup “[Hydraulic Compatibility of Bridges](#)” of GII (Gruppo Italiano di Idraulica – Italian Group of Hydraulics), 2022 - present.

Member of the Committee for Research and Innovation (*Consulta per la Ricerca e Innovazione prevista dalla Legge provinciale 14/06 della Provincia di Bolzano*), Autonomous Province of Bolzano-Bozen, 2014 - 2019.

Member of the Technical Committee (*Comitato tecnico previsto dalla Legge provinciale 14/06 della Provincia di Bolzano*) of the Autonomous Province of Bolzano-Bozen, 2014 – 2019 and 2019 – 2024.

Member of the international committee for the grant of the *Scientific Award of South Tyrol* and of the *South Tyrol's Research Award for young scientists*, Autonomous Province of Bolzano-Bozen, 2014.

Member of the international committee for the grant of the *Scientific Award of South Tyrol* and of the *South Tyrol's Research Award for young scientists*, Autonomous Province of Bolzano-Bozen, 2013.

XV. REVIEWER OF THE FOLLOWING SCIENTIFIC JOURNALS:

Advances in Water Resources; Bulletin of Engineering Geology and the Environment; Earth Surface Processes and Landforms; Ecological Engineering; Granular Matter; Journal of Geophysical Research: Earth Surface; Journal of Hydraulic Engineering (ASCE, American Society of Civil Engineers); Journal of Hydrologic Engineering; Journal of Hydraulic Research (IAHR, International Association for Hydro-Environment Engineering and Research); Journal of Fluid Mechanics; Journal of Mechanics of Materials and Structures; Journal of Mountain Science; Natural Hazards; Proceedings of the Institution of Civil Engineers - Water Management; Water; Water Management; Water Resources Research.

XVI. INSTITUTIONAL ACTIVITIES AT THE FREE UNIVERSITY OF BOZEN-BOLZANO:

Coordinator of the PhD programme *Sustainable Energy and Technologies (SET)*, 2023-present.

Member of the Faculty Council of the Faculty of Engineering, 2023-present.

Member of the Research Board of the Faculty of Engineering, 2023-present.

Member of the Teaching Board of the Faculty of Engineering, 2023-present.

Member of the Joint Committee (Commissione didattica paritetica) of the Faculty of Science and Technology, 2016-2023.

Member of the Committee of the PhD programme *Sustainable Energy and Technologies (SET)*, 2016-present.

Member of the Study Council of the Second Level Master HYRMA (Gestione sostenibile del Rischio idrogeologico in Ambienti montani), 2022-present.

Member of the Council of the Master in *Energy Engineering*, 2016-present.

Member of the Council of the Bachelor in *Industrial and Mechanical Engineering*, 2016-present

Member of The Faculty council of the Faculty of Science and Technology, 2016-2023.

Supervisor of RTDs and ARs and of Bachelor, Master and PhD students.

XVII. INSTITUTIONAL ACTIVITIES AT THE UNIVERSITY OF TRENTO:

Delegate for the *Students orientation* by the School of Civil and Environmental Engineering, 2005-2016.

Aggregate member of the *Commission for the habilitation to the engineering profession* in 2006, 2008, 2009, 2010, 2011, 2013.

Teaching professor and co-organizer of the *Summer school on granular flows and sediment transport*, Trento, 24-31 July 2013.

Teaching professor and co-organizer of the *Summer school on environmental granular flows*, Trento, 28 July-1 August 2014.

Teaching professor and co-organizer of the Winter school *Mechanics of sediment transport: theory and models*, Trento, 25-29 January 2016.

Member of the *Committee for Industrial and Food Engineering*, 2010-2012.

Member of the Committee of the Doctoral School in Civil, Environmental and Mechanical Engineering , 2013-2016.

Member of the Committee of the Doctoral School in Environmental Engineering, 2006-2013.

Member of the Didactic Council *of the School of Civil Engineering*, 2013-2016.

Member of the Didactic Council *of the School of Environmental Engineering*, 2005-2016.

Supervisor of Bachelor, Master and PhD students.

XVIII. FINANCED PROJECTS:

RETURN-PB – New approaches for the evaluation of hydraulic hazard in small river catchments. National coordinator of the “bando a cascata” of the PNRR project RETURN (Multi-Risk sciEnce for resilienT commUnities undeR a changiNg climate), 2023, 600000€, 24 months.

POSEIDON – imProve Offshore infraStructure rEsilience agaInst geohazarDs tOWards a chaNging climate. Principal Investigator. ERC/MSCA application, call HORIZON-MSCA-DN-2022, 2023 – 2028, 60 mesi.

QSeD Funes – Rehabilitation of the hydrometric station of San Pietro on the Rio Funes, Principal Investigator. Agency for Civil Protection of the Autonomous Province of Bolzano, 2023, 36750 €, 6 months.

EXTREME – EXTREme Events in Mountain Environments, Principal investigator. Bando RC 2022 della Libera Università di Bolzano, 2022, 120000 €, 36 months.

OnFoods – Research and Innovation Network on Food and Nutrition Sustainability, Safety and Security, Partenariato Esteso PNRR, Participant, 2022.

Innichen – Realization of two physical models in the laboratory (Innichen PM1), Co-investigator. Committente: Abteilung 26: Brand- und Zivilschutz (Autonome Provinz Bozen Südtirol), 88078 €, 16 months, 2021-2022.

GRASEG – Size and density segregation in granular flows, Principal investigator. CRC funds of the Free University of Bozen-Bolzano, 2020, 100000 €, 36 months.

GPP4Build – Green Public Procurement for buildings, Participant. INTERREG I-A 2014-2020, 2019, 85800 €, 24 months.

DFII – Debris Flow 2, Principal investigator. Maccaferri innovation Center, 28200 €, 20 months, 2018.

RIM-FluB - Refractive Index Matching analysis of FLUIDized Bed reactors. Principal investigator. Internal funds of the Free University of Bozen-Bolzano, 2017, 50000 €, 20 months.

THE_DYSCO - THERmo-fluid DYnamics of Solid fuels Conversion systems: Optimization strategies. Principal investigator. Internal funds of the Free University of Bozen-Bolzano, 2017, 100000 €, 36 months.

ACE - Advanced Computations and Experiments for anisotropic particle transport in turbulent flows. Co-investigator. PRIN 2017, 110000 €, 36 months.

MOIEREF - Methods for optimization and integration given energy prices and renewable resources forecasts. Participant. Internal funds of the Free University of Bozen-Bolzano, 2017, 182000 €, 36 months.

OPTIMUM_hydro – OPTIMUM dynamic optimization of programmable hydropower plants – hydrology. Participant. 3rd Call for Innovation of the Autonomous Province of Bozen-Bolzano, 2017, 24 months.

LTFD - Thermo Fluid Dynamics, infrastructures for applied research to business and industry in South Tyrol. Participant. First EFRE-FESR Call 2015, 849600 €, 36 months.

AI_ALPEN_laives - Agreement on cooperation for research activities relating to the analysis, the characterization of the performance and optimization of drinking water supply systems. Participant. Research frame agreement, Autonomous Province of Bozen/Bolzano, 36 months.

WATERWORKS 2014 COFUNDED CALL: responsible of WP4 (*Defence structures against sediments*), STEEP STREAMS - Solid Transport Evaluation and Efficiency in Prevention: Sustainable Techniques of Rational Engineering in Advanced MethodS, European Community, 2016. 449364€, 24 months, international.

CLIMAWARE: responsible of WP3, *Granular flow extremes: floods, sediment transport, debris flows and snow avalanches*, University of Trento, 2015. 200000 € (50000 € for WP3), 18 months, national.

E-LEARNING: principal responsible, Development of the e-learning module *The restoration of Alpine torrents*, Università della Calabria, 2014. 20130 €, 12 months, national.

SEDALP: co-responsible, Elaboration of a set of procedures for integrated planning systems for the mitigation of flood risk, Autonomous Province of Bolzano/Bozen, 2014. 8500€, 3 months, national.

MUSE: principal responsible, Design of the exhibits for the gallery “Environmental Risks and Civil Protection” for the Museum of Natural Sciences - MUSE (project reference CIG XB505C705B), Museo delle Scienze di Trento, 2013. 6000€, 12 months, national.

PARAMOUNT: principal responsible, Rheological characterization of snow avalanches (Alpine Space; Project reference: 2-2-2-AT - subcontractor), Autonomous Province of Trento, 2012. 10000€, 7 months, national.

GNFM 2008: responsible of the Research Unit of Trento, Young Researchers Project 2008: “Theoretica, numerical and experimental modelling of debris flows”, National Group for Mathematical Physics, 2008. 1000€, 1 year, national.

Short Term Mobility 2007: principal responsible, CNR, 2007. 2000€, 1 month, national.

PRIN 2005: Participant to the research program, Rheology of granular and pyroclastic flows: physical and numerical modelling (prot. 2005047032_004), MIUR, 2005. 100000€, 24 months, national.

IRASMOS: Participant to the research program, Integral Risk Management of Extremely Rapid Mass Movements (FP6; Project Reference: 018412), European Community, 2005. 319650€, Comunità Europea, 33 months, international.

IMPACT, Participant to the research program, Investigation of Extreme Flood Processes and Uncertainty (Project Reference: EVG1-CT-2001-00037), European Community, 2001. 67470€, 36 months, internazionale.

THARMIT, Participant to the research program, Torrent Hazard Control in the European Alps: Practical tools and methodologies for hazard assessment and risk mitigation (FP5; Project Reference: EVG1-CT-1999-00012), European Community, 2000.

XIX. LIST OF SELECTED PUBLICATIONS:

Peer-reviewed international journals:

- Jenkins, J.T., Larcher, M. (2023). “Dense, steady, fully-developed fluid-particle flows over inclined, erodible beds”. *Physical Review Fluids* 8(2), 024303.
- Jenkins, J.T., Larcher, M. (2023). “Granular Segregation in Gravity-Driven, Dense, Steady, Fluid-Particle Flows over Erodible Beds and Rigid, Bumpy Bases”. *Water* 15(14), 2629.
- Mendes, S.V., Aleixo, R., Larcher, M., Amaral, S., Ferreira, R.M.L. (2023). “Dataset of velocities of dry granular flows in a partially obstructed tilted chute”. *Data in Brief* 51, 109676.
- Wankhade, R., Pernigotto, G., Larcher, M. (2023). “A Literature Review on Methods and Metrics for the Analysis of Outdoor Air Displacement Conditions in the Urban Environment”. *Energies* 16(6), 2577.
- Dhawan, P., Dalla Torre, D., Zanfei, A., Menapace, A., Larcher, M., Righetti, M. (2023). Assessment of ERA5-Land Data in Medium-Term Drinking Water Demand Modelling with Deep Learning. *Water*, 15(8), 1495.
- Artoni, R., Richard, P., Larcher, M., Jenkins, J.T. (2022). “Self-diffusion in inhomogeneous granular shearing flows”, *Physical Review E* 106(3), L03290.
- Neveu, A., Larcher, M., Delannay, R., Jenkins, J.T., Valance, A. (2022). “Particle segregation in inclined high-speed granular flows”. *Journal of Fluid Mechanics* 935, A41.
- Artoni, R., Larcher, M., Jenkins, J.T., Richard, P. (2021). “Self-diffusion scalings in dense granular flows”. *Soft Matter*, 17(9), 2596-2602.
- Köhler, A., Guio-Pérez, D.C., Prati, A., Larcher, M., Pallares, D. (2021) “Rheological effects of a gas fluidized bed emulsion on falling and rising spheres”. *Powder Technology* 393, 510-518.
- Jenkins, J.T., Larcher, M. (2020). “Segregation in a dense, inclined, granular flow with basal layering”. *Granular Matter* 22(2), 35.
- Armanini, A., Rossi, G., Larcher, M. (2020). “Dynamic impact of a water and sediments surge against a rigid wall”. *Journal of Hydraulic Research* 58(2), 314-325. DOI: 10.1080/00221686.2019.1579113.
- Larcher, M., Jenkins, J.T. (2019). “The influence of granular segregation on gravity-driven particle-fluid flows”. *Advances in Water Resources* 129, 365-372. <http://dx.doi.org/10.1016/j.advwatres.2017.07.025>.
- Nucci, E., Armanini, A., Larcher, M. (2019). “Drag forces in statistically stationary and homogeneous

- submerged granular flows". *Physical Review E* 99(4), 042904.
- Pisaturo, G.R., Righetti, M., Castellana, C., Larcher, M., Menapace, A., Premstaller, G. (2019). "A procedure for human safety assessment during hydropeaking events". *Science of the Total Environment*, 661, 294-305.
- Matoušek, V. Zrostlík, Š., Fraccarollo, L., Prati, A., Larcher, M. (2019). "Internal structure of intense collisional bedload transport". *Earth Surface Processes and Landforms* 44, 2285–2296.
- Larcher, M., Fraccarollo, L., Prati, A. (2018). "Particle entrainment in unsteady-uniform granular avalanches". *Physical Review Fluids*, 3, 124302.
- Meninno, S., Armanini, A., Larcher, M. (2018). "Gravity-driven, dry granular flows over a loose bed in stationary and homogeneous conditions". *Physical Review Fluids*, 3, 024301.
- Larcher, M., Armanini, A. (2018). "Schlitzsperrren zur hydrodynamischen Kontrolle del Sedimente". *Wildbach- und Lawinenverbau: Zeitschrift für Wildbach-, Lawinen-, Erosions- und Steinschlagschutz* 181, 274-279.
- Jenkins, J.T., Larcher, M. (2017). "Dense, Layered, Inclined Flows of Spheres. *Physical Review Fluids*, 2, 124301. <https://doi.org/10.1103/PhysRevFluids.2.124301>.
- Larcher, M., Jenkins, J.T. (2015). "The evolution of segregation in dense inclined flows of binary mixtures of spheres". *Journal of Fluid Mechanics*, 782, 405-429.
- Larcher, M., Jenkins, J.T. (2014) "Saturated, collisional flows of spheres over an inclined, erodible bed between vertical sidewalls". *Advances in Water Resources*, 72, 15-21.
- Armanini, A., Larcher, M., Dumbser, M., Nucci, E. (2014) "Submerged granular channel flows driven by gravity". *Advances in Water Resources*, 63, 1-10.
- Larcher, M., Jenkins, J.T. (2013) "Segregation and mixture profiles in dense, inclined flows of two types of spheres". *Physics of Fluids*, 25, 113301.
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