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RÉSUMÉ

A.L. I am Associate Professor in Hydraulic and Maritime Constructions and Hydrology at the University of Padova, Italy (2021) and Hans Fischer Fellow at the Institute of Advanced Studies of the Technical University of Munich TUM-IAS, Germany (2021). I got my MSc in Civil Engineer (five years degree) by the University of Padova, Italy (2006), M.Sc.in Numerical Methods (2011) and PhD in Structural Analysis (2012) by the Technical University of Catalonia (UPC), Spain. Between 2008 and 2018 I have been working at the International Center for Numerical Methods in Engineering CIMNE, Barcelona and I have been part time lecturer at the Civil Engineering School of UPC, Barcelona, Spain. My PhD thesis was awarded the Special Doctorate Award by the UPC, and it was finalist for the best PhD thesis in numerical methods issued by SEMNI.I have been awarded the Rita Levi Montalcini fellowship (2018-2021) by the Italian Ministry, the Juan de la Cierva Incorporation fellowship (2016-2018) by the Spanish Ministry and the PDJ fellowship by the regional Catalonian government (2014-2016). I work in computational mechanics with special focus on geomechanics and coupled problems. I have worked with different numerical approaches, from finite elements, to continuum-based particle methods, in both Lagrangian and Eulerian frameworks. I have worked on the development and combination of different numerical techniques for the analysis of coupled problems accounting for free surface flows, non-Newtonian materials and fluid-structure interaction including unfitted techniques. I am the author of 17 JCR papers, 59 proceedings in international congresses, of 4 monographs and book chapters and several other technical documents. I am the editor in chief of Advances in Computational Science and Engineering (ACSE), edited by AIMS. I have been involved in 17 national and 7 European competitive projects and several private consultancies in the field of computational mechanics. I have been principal investigator (PI) of one European and 3 national competitive projects. I have been invited as plenary or keynote lecturer in 11 international congresses and I am actively collaborating with prestigious research groups in Europe. I have given 10 invited seminars or lectures in top ranked European Universities or research institutes. I have supervised one PhD student at UPC (ESR of a MSCA-ITN) and I am currently supervising 4 doctoral students and one post doc and I was the supervisor of 31 master or degree theses. I have been giving lectures at the Technical University of Catalonia (UPC) for ten years teaching Strength of Materials and Structural Analysis undergraduate courses (2009-2018) and Finite Elements (2008-2018) and communications skills (2015-2017) master courses. Since 2019 I have been teaching Linear Algebra and Numerical analysis at the Industrial Engineering School and Computer Science undergraduate courses and Numerical Methods for Continuous Systems at the Mathematical Engineering Master Course of the University of Padova.

Finally I am one of the main developers of KRATOS Multiphysics open source platform.

EMPLOYMENT POSITIONS

October 2021 – a) **a) Associate Professor in Hydraulic and Maritime Constructions and Hydrology**

Università degli Studi di Padova (Italy). Department of Mathemathics "Tullio Levi Civita"

b) Hans Fischer Fellow

Technical University of Munich, Instriture for Advanced Studies, TUM-IAS, (Germany), Chair of Structural Analysis.

Oct 2018 – Sep 2021 **Ricercatore a tempo determinato RTBb - Assistant Professor (Rita Levi Montalcini Professorship) in Hydraulic and Maritime Constructions and Hydrology at UNIPD**

Department of Mathemathics "Tullio Levi Civita", Università degli Studi di Padova (Italy).

Jul 2015 – Jun 2016 **Personal Doctor Junior PDJ - Junior Professor, postdoc fellowship at UPC**

Civil Engineering School of the Universitat Politècnica de Catalunya, UPC BarcelonaTech, Barcelona, Spain

Sep 2013 – Jul 2015 **Associated lecturer at UPC (professore a contratto)**

Civil Engineering School of the Universitat Politècnica de Catalunya, UPC BarcelonaTech, Barcelona, Spain

Sep 2008 – Ago 2013 **Teaching Assistant at UPC**

Civil Engineering School of the Universitat Politècnica de Catalunya, UPC BarcelonaTech, Barcelona, Spain

Sep 2008 – Sep 2018 **Scientist at CIMNE**

International Center for Numerical Methods Engineering (CIMNE), Barcelona Spain. Internal positions holds:

- 2008 - Affiliated Scientist (internal agreement with UPC)
- 2013 - Scientist
- 2014 - Assistant Research Professor
- 2015 - Affiliated Scientist (internal agreement with UPC)
- 2017 - Associate Research Professor and Juan de la Cierca fellow

EDUCATION

2012 **PhD in Structural Analysis**

Title of the thesis: "A coupled Eulerian-PFEM model for the simulation of overtopping in rockfill dams".Advisors: E. Oñate, R. Rossi; Civil Engineering School, Universitat Politècnica de Catalunya, UPC BarcelonaTech, Bacelona, Spain

- Special Doctoral Award 2014 delivered by UPC BarcelonaTECH
- Finalist for the award for the best PhD thesis discussed in Spain in 2012 issued by the Spanish Association for Numerical Methods in Engineering (SEMNI)
- Title homologated in Italy (2018) to Dottore di Ricerca

2011 **Máster en Métodos Numéricos para Cálculo y Diseño en Ingeniería**

Title of the thesis: "Development of a numerical algorithm to simulate free surface problems in a variable porosity medium. An application to the analysis of flow-through rockfill dams"

Fundació Politècnica de Catalunya,Barcelona, Spain

2006 **MSc in Civil Engineering (five years degree)**

Title of the thesis: "On the application of the Particle Finite Element Method (PFEM) in Civil Engineering" Thesis developed at CIMNE during an Erasmus interchange (Nov 2005 - Mar 2006).

Civil Engineering School, Università degli Studi di Padova, Padova, Italy and CIMNE, Barcelona, Spain Advisors: R. Scotta and E. Oñate (CIMNE)

- Final Mark: 110/110 cum laude e menzione al merito (special mention of the evaluation committee for the curriculum studiorum)
- Title homologated in Spain (2011) to the Spanish Ingeniero de Caminos Canales y Puertos

2000 **High School scientific degree**

Liceo scientifico A. Einstein, Piove di Sacco, Padova, Italy

- Final Mark: 100/100.

AWARDS & FELLOWSHIPS

01/10/2021 – present Hans Fischer Fellowship of TUM-IAS Fellow of the TUM institute for Advanced Studies, Munich, Germany.

01/10/2018 – 30/09/2021 Rita Levi Montalcini young researcher (Ranked 1st in engineering and architecture fields). Issued by the Italian Ministry of Research and University MIUR;

19/06/2017 – 30/09/2018 Juan de la Cierva Incorporación – (Ranked 1st in Civil Engineering) Post doctoral Grant issued by the Spanish Ministry;

01/07/2015 – 18/06/2017 PDJ2014 – (Ranked 1st in Civil Engineering) postdoctoral grant from the Catalonian regional government;

2014 Special Doctoral Award 2014 delivered by UPC BarcelonaTECH for the PhD thesis "A coupled Eulerian-PFEM model for the simulation of overtopping in rockfill dams";

2012 Finalist for the award for the best PhD thesis discussed in Spain in 2012 issued by the Spanish Association for Numerical Methods in Engineering (SEMNI);

2009 Outstanding Paper Award 2009 delivered by EMERALD for the paper "Validation of the Particle Finite Element Method (PFEM) for simulation of free surface flows".

05/2010 – 08/2010 Mobility scholarship Issuing body: Spanish Ministry of Science and Education

11/2006 – 08/2008 Beca predoctoral UPC recerca (UPC research doctoral grant) Issuing body: UPC

06/2006 – 10/2006 CIMNE scholarship Centre Internacional de Mètodes Numèrics en Enginyeria (CIMNE)

HABILITATIONS

04/2018 Italian habilitation to "Professore di II fascia" (Associate Professor) in SC 08/A1 Hydraulic, Hydrology, Hydraulic and Maritime Constructions ICAR02

10/2018 Italian habilitation to "Professore di II fascia" (Associate Professor) in SC 08/B2 Strength of Materials and Theory of Structures ICAR08

2016 Spanish research habilitation necessary to apply to posiotion of "Profesor Agregado" (Associate Professor) in 2016 by AQU (Spain)

2013 Spanish habilitation to "Profesor Lector" (Lecturer) by AQU (Spain)

LANGUAGE SKILLS

Language	Speaking	Understanding	Writing
Italian	Good	Good	Good
Spanish	Good	Good	Good
English	Good	Good	Good
French	Sufficient	Fair	-
Catalan	Sufficient	Good	Sufficient

SCIENTIFIC EXPERIENCE

RESEARCH INTERESTS

- Computational Mechanics;
- Computational Fluid Dynamics (CFD);
- Fluid Structure Interaction (FSI);
- Coupled Problems;
- Particle methods;
- Embedded/Immersed techniques for FSI;
- Non-Newtonian materials;

PROJECTS

INTERNATIONAL PROJECTS

1. REACT- Digital Twins Of Civil StRucturEs And Protection Systems In A ClimAte Change PerspecTive. TUM-IAS, Munich, Germany 80.000€ 01/10/2021-30/09/2024 (PI of the project).
2. ExaQUte- EXAscale Quantification of Uncertainties for Technology and Science Simulation. PI:R. Rossi, REA Ref H2020 FET-Future & emerging technologies G.A.nº 800898, 698.500,00 € 01/06/2018-31/05/2021.
3. T-MAPPP - Training in Multiscale Analysis of multi-Phase Particulate Processes Scientific coordinators: Larese, A.; Oñate, E.. REA, Ref: FP7 PEOPLE 2013 ITN–Grant Agreement nº607453, 324.273Eur, 14/03/2014. 14/03/2018 (WP leader)
4. TCAiNMaND - Tri Continental Alliance in Numerical Methods applied to Natural Disasters FP7-PEOPLE-2013-IRSES, Ref.: FP7- 612607, 235.200Eur, 01/01/2014 – 31/12/2017 (PI of the project)
5. FLOODSAFE - Assessment and Initial Steps for the Exploitation of a Simulation Software for the Study and Mitigation of the Effect of Floods on Constructions and Landscape REC Ref:ERC-PoC-2014 AdG n: 267521, 149.856Eur, 1/9/2015 – 31/8/2016
6. ULITES - Ultra-lightweight structures with integrated photovoltaic solar cells: design, analysis, testing and application to an emergency shelter prototype PI: Rossi, R. REA Ref: Program FP7-SME-2012 – Grant Agreement nº: 314891, 324.273Eur. 07/01/2013. 07/01/2015. Web page http://www.cimne.com/websasp/ulites/ (WP leader)
7. SAFECON - New Computational Methods for Predicting the security of constructions to Water Hazards accounting for fluid-soil-structure interactions. Scientific coordinator: Oñate, E. REC Ref: FP7 – Ideas (Advanced Grant) - Grant Agreement nº: 267521, 2.487.734Eur, 01/01/2011. 31/12/2015. Web page http://www.cimne.com/safecon/

NATIONAL PROJECTS

1. RETURN - multi-Risk sciEnce for resilienT commUnities undeR a changiNg climate - MUR-PNRR Partenariato Esteso PE3 sui Rischi Naturali 01/10/2021-31/03/2026
2. iNEST - Interconnected Nord Est Innovation System (Spoke 9)- MUR-PNRR Ecosistema dell'Innovazione 01/10/2021-31/03/2026
3. NEMESIS - NumErical MEthods for the SImulation of the impact of extreme hazards on Structures and landscape - University of Padova 39,376.70Eur 18/11/2020-31/05/2023 (PI of the project)
4. PITON - Particle-fluid-structure-InTeractiOn in Natural hazards – MIUR (Rita Levi Montalcini Project) – 215.173,66Eur – 01/10/2018-30/09/2021 (PI of the project)
5. GNCS2020 - Interpolazione e smoothing: aspetti teorici, computazionali e applicativi con un'enfasi all'elaborazione di immagini e all'analisi dei dati - Progetto GNCS2020-INdAM 09/03/2020-08/03/2021;

6. PRECISE - Numerical methods for PREdicting the behaviour of CIvil StructurEs under water natural hazards – MINECO - BIA2017-83805-R – 125.000Eur- 01/01/2018 – 31/12/2020 (PI of the project)
7. EUIN2017 - Development of the ERC Starting Grant Proposal – MINECO - Europa Investigación EUIN 87969 – 10000Eur - 01/11/2017 -28/02/2018 (PI of the project)
8. HIRMA – Development and validation of a tool for defining the failure hydrogram in embankment dams considering the specific geomechanics MINECO – Ref. RTC – 2016-4967-5, 176 024Eur 01/09/2016- 31/08/2019
9. ACOMBO - Development of a computational code for the analysis of thermo-mechanical behaviour of arch dams MINECO, Ref: RTC-2015-3794-5, 194.723Eur, 01/09/2015 - 31/08/2018
10. DIABLO - Development of an optimized code for the design of spillways with wedge-shaped blocks MINECO, Ref: RTC-2014-2081-5, 183.761Eur, 01/09/2014 - 31/12/2017
11. VOLADAPT – New efficient and effective blasting process, in the sense of use of resources and raw materials, by predictive and adaptive techniques minimizing emission MINECO, Ref: RTC-2014-2237-5, 262.834Eur, 01/02/2014 - 31/12/2016
12. EACY - Enhanced accuracy computational and experimental framework for strain localization and failure mechanisms. M., MINECO Ref. MAT2013-48624-C2-1-P, 49.387Eur, 01/02/2014 - 31/12/2016
13. TIPSEN – BarcelonaKEY call for Projects
14. EDAMS – Métodos numéricos y experimentales para la evaluación de la seguridad y protección de las presas de materiales sueltos en situación de sobrevertido Ref: BIA2010-21350-C03-01, 49.489Eur 01/10/2010. 01/10/2013
15. XPRES – Desarrollo de un método para el estudio del proceso de rotura de presas de escollera por sobrevertido combinando técnicas de elementos finitos y partículas. MEC, Ref: BIA2007-68120-C03-01,179.080Eur, 01/10/2007. 01/10/2010
16. Ciudad Multidimensional LCM. Ciudad Multidimensional MEC Ref: Pyto: PSE-380000-2006-6, Subpto 27, 28, 140.013Eur, 01/01/2006.31/12/2009
17. STRUCT -LNG - Desarrollo de herramientas de diseño para el cálculo estructural en el transporte de gas licuado MEC Ref: CIT-370300-2005-16, 76.526Eur, 01/01/2005. 31/12/2005

PRIVATE CONSULTING

1. ENI (20/07/2021-30/04/2022) Development of a mathematical and a numerical model to asses the sensitivity of the model of the channel to the material parameters and the geometry of the perforating well; PI M. Putti 50.000Eur
2. ENI (03/05/2022-20/10/2022) Development of a model of a physical channel for high speed data tranfer through the mud column of a perforating well. PI M. Putti 79.928Eur
3. CEPSA (2015-2017) Computational model for the simulation of enhanced oil recovery (EOR) laboratory experiments. Private consultancy;
4. Technical consulting for the Harbor of Barcelona for the failure of marine precast dike 01-06-2007 - 31-07-2007.

PUBLICATIONS

JOURNAL PAPERS

17. Singer, V.; Sautter, K.B., Larese, A., Wüchner, R.; Bletzinger, K.U.; A partitioned material point method and discrete element method coupling scheme, Advanced Modeling and Simulation in Engineering Sciences, 9(16), (2022); DOI: https://doi.org/10.1186/s40323-022-00229-5
16. Wriggers, W., Larese, A., Rung, T., Oñate, E. Assessment of simplified momentum equations for free surface flows through rigid porous media; (2022) Experimental and Computational Multiphase Flow; DOI: 10.1007/s42757-022-0133-y
15. Zorrilla, R., Larese, A., Rossi, R., A discontinuous Nitsche based Finite Element formulation for the imposition of the general Navier-slip boundary condition over embedded volumeless geometries, International Journal for Numerical Methods in Fluids, 93(9), 0271-2091, (2021) DOI: https://doi.org/10.1002/fld.5018

14. Chandra, B.; Singer, V.; Teschemacher, T.; Wuechner, R. and Larese, A. Nonconforming Dirichlet boundary conditions in Implicit Material Point Method by means of penalty augmentation, Acta Geotechnica, 16(8), 2315-2335 (2021) DOI: 10.1007/s11440-020-01123-3 Impact factor 4.350 (SJR) Q1.
13. Moran, R., Larese, A., Alves, R., Toledo, M.A., A procedure to design toe protections against extreme through-flows for rockfill dams Engineering Structures, 295, 400-412 (2019) https://doi.org/10.1016/j.engstruct.2019.06.004 Impact factor 3.548 (JCR) Q1.
12. Zorrilla, R., Larese, A., Rossi, R., A modified Finite Element formulation for the imposition of the slip boundary condition over embedded geometries, CMAME 353, 123-157(2019) Impact factor 5.763 (JCR) Q1.
11. Iaconeta, I. Larese, A., Rossi, R., Oñate, E. A stabilized, mixed, implicit Material Point Method for non-linear incompressible solid mechanics problems; Computational Mechanics 175, 226-232,(2019) DOI 10.1007/s00466-018-1647-9 Impact factor 3.459 (JCR) Q1.
10. Iaconeta, I., Larese, A., Rossi, R., Guo, Z. Comparison of a Material Point Method and a Meshfree Galerkin Method for the simulation of cohesive-frictional materials, Materials, 10 , 1150, (2017) doi: 10.3390/ma10101150 Impact factor 2.654 (JCR) Q1.
9. Cotela, J., Rossi, R. and Larese A., Simulation of two and three-dimensional viscoplastic flows using adaptive mesh refinement International Journal for Numerical Methods in Engineering, 112,(11) 1636-1658 (2017) DOI: 10.1002/nme.5574 Impact factor 2.1 (JCR) Q1.
8. Larese, A. A Lagrangian PFEM approach for non-Newtonian viscoplastic materials. Revista Internacional de Métodos Numéricos para cálculo y diseño en Ingeniería (RIMNI) 33(3-4), p 307-317 (2017).
DOI: https://dx.doi.org/10.1016/j.rimni.2016.07.002 Impact factor 0.423 (JCR) Q2.
7. Moreno, E., Larese, A. and Cervera, M. Modelling of Bingham and Herschel-Bulkley flows with mixed P1/P1 finite elements stabilized with Orthogonal Subgrid Scale, Journal of Non-Newtonian Fluid Mechanics, 28,pp 1-16, (2016). DOI: 10.1016/j.jnnfm.2015.12.005 Impact factor 1.821 (JCR) Q1.
6. Salazar, F., Irazabal, J., Larese, A. and Oñate, E. Numerical modelling of landslide-generated waves with the particle finite element method (PFEM) and a non-Newtonian flow model International Journal for Numerical and Analytical Methods in Geomechanics (2016) 40, pp 809-826. DOI: 10.1002/nag.2428 Impact factor 1.561 (JCR) Q2.
5. Larese, A., Rossi, R., Oñate, E., Finite Element Modeling of free surface flow in variable porosity media. Archives of Computational Methods in Engineering 22(4) (2015), pp 637-653 DOI: 10.1007/s11831-014-9140-x. Impact factor 4.136 (JCR) Q1.
4. Larese, A.; Rossi, R.; Oñate, E.; Toledo, M.A.; Moran, R., Campos, H., Numerical and experimental study of overtopping and failure of rockfill dams. International Journal of Geomechanics (ASCE) 15 (4), art. no. 04014060 (2015) ISSN 1532-3641. DOI: 10.1061/(ASCE) GM.1943-5622.0000345. Impact factor 1.197 (JCR) Q1.
3. Larese, A.; Rossi, R.; Idelsohn, S.R.; Oñate, E.A coupled PFEM-Eulerian approach for the solution of porous FSI problems. Computational mechanics.50 - 6,pp. 805 - 819. (2012). ISSN 0178-7675. DOI: 10.1007/s00466-012-0768-9 Impact factor 2.432 (JCR) Q1.
2. Rossi, R.; Larese, A.; Dadvand, P.; Oñate, E. An efficient edge-based level set finite element method for free surface flow problems. International journal for numerical methods in fluids. 71-6, pp.687-716 DOI. 10.1002/fld.3680, (2012). ISSN 0271-2091, DOI: 10.1002/fld.3680. Impact factor 1.329 (JCR) Q2.
1. Larese, A.; Rossi, R.; Oñate, E.; Idelsohn, S., Validation of the Particle Finite Element Method (PFEM) for simulation of free surface flows. Engineering computations. 25 - 4,pp. 385 – 425 (2008), ISSN 0264-4401, DOI: 10.1108/02644400810874976. Impact factor 1.206 (JCR) Q2

CONFERENCE PROCEEDINGS

60. Singer, V., Chandra, B., Wüchner, R., Larese, A., A staggered Material Point Method and Finite Element Method ocoupling scheme using Gauss Seidel communication pattern, IX International Conference on Computational Methods for Coupled Problems in Science and Engineering, Online 2021;

59. Larese, A., Chandra, B., Rossi, R., Wüchner, R., Coupled problems for the simulation of water related natural hazards and their interaction with structures, 3rd International Conference on Computational Engineering and Science for Safety and Environmental Problems, Japan, 2020;
58. Larese, A., Chandra, B., Rossi, R., Wüchner, R., Simulation of large mass movements and their interaction with protection structures using an implicit mpm-fem coupling and non-conforming boundary conditions, 14th World Congress in Computational Mechanics (WCCM) ECCOMAS Congress 2020, Paris, France;
57. Larese, A:, Chandra, B., Rossi, R., Wüchner, R:, Implicit MPM-FEM coupled model for the simulation of large mass movements and their interaction with protection structures, International Symposium on SPH and other particle-based continuum methods and their applications in geomechanics, 11-13 September 2019, Vienna, Austria;
56. Chandra, B., Larese, A. Bucher, P., Whüchner R., Coupled Soil-Structure Interaction Modeling and Simulation of Landslide Protective Structures Proceedings of the VIII International conference on Coupled Problems in Science and Engineering, p 135-142 Sitges, Spain 3-5 June 2019;
55. Larese, A., Rossi, R., Salazar, F., Wüchner R., Oñate, E., Computational models for the simulation of extreme environmental flows Proceeding of the 2nd International Conference on Natural Hazards & Infrastructure ICONHIC 23-26 June 2019 Crete Greece
54. Chandra, B., Larese, A., Iaconeta, I., Rossi„ R., Wüchner, R., Soil-structure interaction simulation of landslides impacting a structure using an implicit material point method Proceeding of the MPM2019 8-10 January 2019 Cambridge UK
53. Amaya, J., Rossi, R., Larese, A., Pohl, M., A finite element implementation for the three variable Biot model and an introduction to its application to sugar cane milling processes. 2018 IEEE 38th Central America and Panama Convention, CONCAPAN 2018
52. Larese, A., Salazar, F., Iaconeta I.,Rossi R.,Oñate E. Particle methods for the simulation of free surface flows Proceeding of the 5th IAHR Europe Congress. New challenges in hydraulic research and engineering, 12-14 June 2018, Trento, Italy. (2018)
51. Larese, A., Salazar, F., San Mauro, J., Oñate, E., Toledo, M.A. Morán R., Advanced computational methods for dam protections against overtopping. Proceedings of the III 3rd International Conference on Protection against Overtopping 6-8 June 2018, Grange-over-Sands , UK (2018)
50. Larese, A., Salazar, F., Toledo, M.A., Oñate, E., Advanced numerical solutions for enhancing the safety of zoned rockfill dams in extreme scenarios, Proceeding of the International Workshop on overflowing erosion of dams and dikes on 11-15 December, 2017 Aussois, France (2017)
49. Larese, A., Rossi, R., Zorrilla, R., Wuechner, R., Oñate, E., Towards the Virtual Wind Tunnel. Proceedings of the International CAE conference, 2017, Vicenza, Italy.
48. Iaconeta, I., Larese, A., Rossi, R. and Oñate E., Simulation of granular flow problems with an implicit Material Point Method, V International Conference on Particle-Based Methods: fundamentals and applications: Hannover, Germany, (2017).
47. Larese, A., Iaconeta, I., Rossi, R. and Oñate E., Implicit grid-based and meshless MPM formulations. V International Conference on Particle-Based Methods: fundamentals and applications: Hannover, Germany, (2017).
46. Rossi, R. Larese, A., Iaconeta, I., Guo, Z. .,An implicit meshless material point method algorithm Congress on Numerical Methods in Engineering - CMN 2017, Valencia, Spain (2017)
45. Iaconeta, I., Larese, A., Rossi, R. and Oñate E. An implicit material point method applied to granular flows using an irreducible and mixed formulation Congress on Numerical Methods in Engineering - CMN 2017, Valencia, Spain (2017)
44. Zorrilla, R., Rossi, Oñate, E., Larese, A. FSI simulation problems with embedded fluid formulation. Application to mud motors simulation and Virtual Wind Tunnel facility Congress on Numerical Methods in Engineering - CMN 2017, Valencia, Spain (2017)
43. Scotta, R., Stecca, E., Larese, A., Water towers undergoing dynamic actions: numerical solution of coupled FSI problem and applications 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN), Rhodes, Greece, 15-17 June 2017

42. Larese, A.; Rossi, R.; Zorrilla, R., Wüchner, R., Oñate, E. Embedded techniques for FSI problems, VII International Conference on Coupled Problems in Science and Engineering, Rhodes, Greece (2017)

41. Iaconeta, I., Larese, A., Rossi, R., Oñate, E., An implicit material point method applied to granular flows. Procedia Engineering Proceeding of the 1st International Conference on the Material Point Method, Vol 175, 226-232 MPM 2017, Delft, Netherlands (2017)

40. Salazar, F., San Mauro, J, Larese, A., Irázabal, J., Morán, R., Oñate, E., Toledo, M.A. Applications of numerical methods in design and evaluation of overtopping protection systems. Proceeding of the 2nd International Seminar on Dam Protection Against Overtopping, Ft. Collins, Colorado, USA (2016)

39. San Mauro, J, Larese, A., Salazar, F., Morán, R., Toledo, M.A. Hydraulic and stability analysis of the supporting layer of wedge-shaped blocks, Proceeding of the 2nd International Seminar on Dam Protection Against Overtopping, Ft. Collins, Colorado, USA (2016)

38. Iaconeta, I., Larese, A., Rossi, R., Oñate, E., An implicit Material Point Method. Formulation and Validation Proceeding of the VII European Congress in Computational Methods in Applied Science and Engineering, Crete, Greece (2016)

37. Wriggers, W., Larese, A., Volkner, S., Oñate, E., Rung, T., Comparative study of granular soil models using particle and mesh based schemes Proceeding of the VII European Congress in Computational Methods in Applied Science and Engineering, Crete, Greece (2016)

36. Larese, A., Salazar, F., Rossi, R. and Oñate, E., The Particle Finite Element Method (PFEM) for problems in Geomechanics Proceeding of the IV International Conference on Particle -Based Methods: fundamentals and applications: Barcelona, Spain, (2015).

35. Iaconeta, I. , Larese, A., Celigueta, M. and Oñate, E., A comparison between continuum and discrete modelling of granular material. Proceeding of the IV International Conference on Particle-Based Methods: fundamentals and applications: Barcelona, Spain, (2015).

34. Alves, R.M. Morán, R., Toledo, M.Á., Irazábal, J. ,. Salazar, F., Larese, A., Análisis experimental y numérico del oleaje producido por la inestabilidad de laderas de embalses IV Jornadas de Ingeniería del Agua, Córdoba, (2015)

33. Gomez, B.M., De Simone, S., Rossi, R., Larese, A., Carrera, J. Development of a finite element code to solve thermo-hydro-mechanical coupling and simulate induced seismicity. Proceeding of the EGU General Assembly 2015, Vienna, (2015)

32. Fernández, S. Carrera, J., Rodriguez, .L., Benitez, J., Rossi, R., Larese, A. Analysis of seawater flow through optical fiber. Proceeding of the EGU General Assembly 2015, Vienna, (2015)

31. Larese, A.; Rossi, R.; Oñate, E. , Simulation of the beginning of failure in rockfill dams caused by overtopping . Proceeding of the 1st International Seminar on Dam Protection against Overtopping and Accidental Leakage, Madrid, Spain (2014).

30. Larese, A., Rossi, R., Wüchner, R., Al Sofi, H., Oñate E., FSI analysis of lightweight structures. Towards a virtual wind tunnel Proceeding of the 11th World Congress in Computational Mechanics, Barcelona, Spain (20-25/06/2014)

29. Rossi, R., Dadvand, P., Larese, A., Maireni N., Davari, M., Wüchner, R., Advances in the use of simplicial finite elements for flow problems Proceeding of the 11th World Congress in Computational Mechanics, Barcelona, Spain (2014)

28. Rossi R., Larese A., Dadvand P., Davari M., Scotta R., Lazzari M., Stecca E., Wuechner R., Baumgaertner D., Wolf J. High-Performance Embedded approaches for CFD simulation. Towards the Virtual Wind Tunnel. Proceeding of the International Symposium on Computational Wind Engineering CWE2014, Hamburg, Germany, (2014)

27. Larese, A.; Rossi, R.; Oñate, E. A combined Lagrangian-Eulerian technique for problems in geomechanics Proceeding of the V International Conference on Computational Methods for Coupled Problems in Science and Engineering, Ibiza, Spain, (17-19/06/2013).

26. Morán; R., Alves, R.; Toledo, M.; Larese, A.; Salazar, F. and Rossi, R. Procedimiento de diseño de protecciones tipo repié para evitar la rotura por deslizamiento en masa de presas de escollera sometidas a percolaciones extremas Proceeding of the III Jornada de ingeniería del agua, Valencia, Spain, (2013)

25. Larese, A.; Rossi, R.; Oñate, E. Simulación de presas de escollera en condiciones de sobrevertido Proceedings of the Congreso de Métodos Numéricos en Ingeniería CMN2013, Bilbao, Spain, (2013).

24. Salazar, F.; San Mauro, J.; Irazábal, J.; Larese, A.; Rossi, R.; Oñate, E.; Moran, R.; Toledo, M. El papel de los modelos numéricos en la investigación y el diseño de aliviaderos de presas. Proceeding of the Jornada Técnica Avances en Investigación Aplicada en Seguridad Hidráulica de Presas, Madrid, Spain (2013)

23. Morán, R.; Alves, R.; Toledo, M.; Salazar, F.; Larese, A. , San Mauro, J. Protecciones de presas mediante repiés de escollera y bloques en forma de cuña Proceeding of the I Jornada Técnica sobre Avances en investigación aplicada en seguridad hidráulica de presas, Madrid, Spain (2013)

22. Larese, A.; Rossi, R.; Oñate, E. Failure of rockfill dams during overtopping scenarios. A coupled level set-PFEM approach. Proceeding of the 6th European Congress on Computational Methods in Applied Sciences and Engineering Wien, Austria, (2012).

21. Larese, A.; Rossi, R.; Oñate, E. A visco-rigid model using PFEM for simulating the failure of non-coheisve granular material Proceeding of the II International Conference on Particle-Based Methods: fundamentals and applications: Barcelona, Spain, 26-28/10/2011.

20. Salazar, F.; Moran, R.; Rossi, R.; Larese, A. Numerical modeling of the hydraulic performance of Oliana dam spillway using Kratos . Proceedings of the: XI ICOLD Benchmark Workshop on Numerical Analysis of Dams.ISBN 978-84-695-1816-8, Valencia, Spain (2011).

19. Larese, A.; Rossi, R.; Oñate, E. Coupling Eulerian and Lagrangian models to simulate seepage and evolution of failure in prototype rockfill dams . Proceedings of the XI ICOLD Benchmark Workshop on Numerical Analysis of Dams..ISBN 978-84-695-1816-8, Valencia, Spain (2011).

18. Larese, A.; Rossi, R.; Oñate, E.; Toledo, M.; Moran, R.; Campos, H.; Lara, Á.; Viña, M. Theme B: simulation of the behavior of prototypes of rockfill dams during overtopping scenarios: seepage evolution and beginning of failure. Proceedings of the XI ICOLD Benchmark Workshop on Numerical Analysis of Dams. ISBN 978-84-695-1816-8, Valencia Spain (2011).

17. Rossi, R.; Larese, A.; Oñate, E.; Idelsohn, S.R. Simulating complex problems in civil engineering: the particle finite element method and beyond. Proceedings of Métodos numéricos em engenharia, Coimbra, Portugal (2011).

16. Larese, A.; Rossi, R.; Oñate, E. A combined PFEM-level set model to simulate the behavior of a rockfill dam in overtopping scenarios. Proceedings of the IV International Conference on Computational Methods for Coupled Problems in Science and Engineering. Kos, Greece, (20-22/06/2011).

15. Rossi, R.; Larese, A.; Oñate, E. On the simulation of rock-fill dam behaviour in overspill conditions. Proceedings of Multiphysics 2011. The International Society of Multiphysics. Barcelona, Spain (2011).

14. Salazar, F.; Rossi, R.; Moran, R.; Larese, A. Estudio de la capacidad de desagüe de aliviaderos con compuertas mediante modelación numérica: aplicación a la presa de Oliana. Proceedings of the II Jornadas de Ingeniería del Agua (JIA). ISBN 978-84-615-4023-5, Barcelona, Spain (2011)

13. Larese, A.; Rossi, R.; Toledo, M.; Oñate, E. Physical and numerical modelization of the behaviour of rockfill dams during overtopping scenarios. Proceedings of Dam Maintenance and Rehabilitation II. pp. 479 - 487.CRC Press, 2010. ISBN 978-0415616485, Zaragoza, Spain (23-25/11/2010).

12. Lechuga, C.; Lara, Á.; Berga, M.; Viña, M.; Toledo , M.; Morán, R.; Campos, H.; García, J.; Larese, A. Estudios sobre el comportamiento de presas de escollera ante vertidos por coronación. Proceedings of the IX Jornadas Españolas de Presas. ISBN 978-84-92626-68-7. Valladolid, Spain (2010)

11. Larese, A.; Rossi, R.; Oñate, E.; Toledo , M. Metodología de análisis de comportamiento de presas de escollera frente a un sobrevertido. Proceedings of the IX Jornadas Españolas de Presas .ISBN 978-84-92626-68-7, Valladolid, Spain (15-17/06/2010).

10. Larese, A.; Rossi, R.; Oñate, E. Overtopping in rockfill dams: a mixed Lagrangian Eulerian formulation. Proceedings of the IV European Conference on Computational Mechanics, Paris, France (17-21/05/2010).

9. Larese, A.; Rossi, R.; Oñate, E. Analysis of stability of earth dams in overtopping scenarios with the particle finite element method. Proceedings of Particle-based methods: fundamentals and applications (Particles 2009), ISBN 9788496736825. Barcelona, (25-27/11/2009).
8. Larese, A.; Rossi, R.; Oñate, E. A mixed Lagrangian and Eulerian FSI approach for simulation of overtopping on embankment dams. Proceedings of Computational Methods for Coupled Problems in Science and Engineering, Ischia.
7. Larese, A.; Rossi, R.; Oñate, E. Combinación de métodos Lagrangianos de elementos finitos y partículas (PFEM) con métodos Eulerianos para el análisis del comportamiento de presas de escollera durante un sobrevertido. Proceedings of Métodos Numéricos en Ingeniería, ISBN 9788496736665, Barcelona, Spain (29/06-02/07/2009)
6. Larese, A.; Rossi, R.; Oñate, E. Un método de cálculo para el estudio de la seguridad de presas de escollera durante un sobrevertido. Proceedings of the VIII Jornadas Españolas de Presas .ISBN 978-84-380-0406-7, Cordoba, Spain (26-28/11/2008).
5. Larese, A.; Rossi, R.; Oñate, E.; Idelsohn, S. Particle finite element method and level set method for the simulation of the failure of rockfill dams due to overtopping phenomena. Proceedings of the VIII World Congress in Computational Mechanics WCCM8-ECCOMAS : ISBN 9788496736559, Venice, Italy (30/06-4/07/2008).
4. Larese, A.; Rossi, R.; Oñate, E.; Idelsohn, S. Safety analysis of rockfill dams during overspill phenomena. Proceedings of the Symposium Operation, Rehabilitation and Up-grading of Dams. Bulgarian Committee on Large Dams, Sofia, Bulgari (2008).
3. Celigueta, M.A.; Larese, A.; Latorre, S. PFEM application in fluid structure interaction problems. Proceedings of the 4th Conference on advances and applications of GiD: the personal pre and post processor. ISBN 978-84-96736-52-8, Ibiza, Spain (8-9/5/2008).
2. Larese, A.; Rossi, R.; Oñate, E.; Idelsohn, S. Particle finite element method (PFEM) in hydraulic and geotechnical civil engineering. Proceedings of the GACM Colloquium on Computational Mechanics; Munich, Germany (10-12/10/2007).
1. Larese, A.; Rossi, R.; Idelsohn, S.; Oñate, E. On the validation of the particle finite element method (PFEM) for complex engineering fluid flow problems. Proceedings of the ECCOMAS CFD 2006. ISBN 90-9020970-0, Netherlands (2006).

MONOGRAPHS

4. Iaconeta, I., Larese, A., Oñate, E., Discrete-continuum hybrid modelling of flowing and static regimes. Monograph CIMNE (M188) ISBN: 978-84-945689-4-7 (2020)
3. Gracia, L., Salazar, F., Larese, A., Development of a computational tool for structural verification of dams. Monograph CIMNE (M162) ISBN: 978-84-945689-4-7 (2016)
2. Larese A.,Oñate E., Rossi, R., A coupled Eulerian-PFEM model for the simulation of overtopping in rockfill dams. Monograph CIMNE M133 (2012) ISBN: 978-84-940243-6-8, B-29348-2012 (2012)
1. Larese A., On the application of the Particle Finite Element Method (PFEM) in Civil Engineering. Monograph CIMNE M98 (2006) ISBN: 84-96736-02-4, B-46523-2006. (2006)

BOOK CHAPTERS

3. Larese, A.;Iaconeta, I., Chandra, B., Singer, V., Implicit MPM and coupled MPM-FEM in geomechanics. In Point based numerical mothods in geomechanics, ALERT Doctoral school 2020 pp153-188 (2020).
2. Larese, A.; Rossi, R.; Oñate, E. , Simulation of the beginning of failure in rockfill dams caused by overtopping . Dam Protection against Overtopping and Accidental Leakage, Eds. Toledo, Moran and Oñate Taylor & Francis group London ISBN 978-1-138-02808-1, pp. 111-118, (2015).
1. Larese, A.; Rossi, R.; Oñate, E., Toledo, M.; Physical and numerical modelization of the behaviour of rockfill dams during overtopping scenarios. Dam Maintenance and Rehabilitation II. - Proceedings of the 2nd International Congress on Dam Maintenance and Rehabilitation, pp. 479 - 487.CRC Press, 2010. ISBN 978-0415616485 (2011).

TECHNICAL REPORTS AND ANY OTHER SCIENTIFIC PRODUCTION

2. Larese, A.; Oñate, E. CIMNE Verification of the validation analysis of Xfinas elements database. 01/2009.
1. Oñate, E.; Suarez, B.; Idelsohn, S.; Rossi, R.; Celigueta, M.A.; Larese, A. Trabajo realizado por CIMNE en relación con la rotura del muelle del Prat del puerto de Barcelona. 07/2007.

SEMINARS AND LECTURES

- INVITED KEYNOTES OR PLENARIES

09/2022 Invited senior plenary speaker to the GIMC SIMAI Young 2022, Pavia, Italy Title: ”The Material Point Method and beyond”;

10/2021 Invited keynote speaker to the ”Computational Modelling for Future Research in Geoenvironmental Sciences” (CMFRGS) (online) Title: ”Implicit Material Point Method in Geomechanics”;

12/2020 Invited keynote speaker to the 3rd International Conference on Computational Engineering and Science for Safety and Environmental Problems (COMPSAFE), Japan, Title: ”Coupled problems for the simulation of water related natural hazards and their interaction with structures” ;

01/2020 Invited keynote speaker to Wonder Women in Cyber Security and Computer Science, University of Padua, Italy, Title: ”Increasing safety of civil structures in extreme natural events through “cyber modeling” ”;

06/2018 Invited keynote speaker to PROTECTIONS 3rd International Seminar on Dam Protection against Overtopping and Accidental Leakage, Lake District, UK, Title: ”Advanced computational methods for dam protections against overtopping”;

12/2017 Invited keynote speaker to the International Workshop on Overflowing Erosion of Dams and Dikes, Aussois, France. Title: ”Advanced numerical solutions for enhancing the safety of zoned rockfill dams in extreme scenarios”;

06/2017 Invited plenary speaker to the COUPLED PROBLEMS 2017, Rhodes, Greece, Title: “Embedded techniques for FSI problems”;

04/2016 Invited plenary speaker to the CONIA 2016, El Salvador Title: “Dam Safety: Numerical simulation of overtopping in rockfill dams and landslide into the reservoir”;

10/2015 Invited keynote speaker to the MUMOLADE Michael School, Barcelona, Spain, Title: ”Numerical and Experimental Study of Failure of Rockfill Dams under Extreme Events”;

11/2014 Invited keynote speaker to PROTECTIONS 1st International Seminar on Dam Protection against Overtopping and Accidental Leakage, Madrid, Spain. Title: ”Simulation of the beginning of failure in rockfill dams caused by overtopping”;

11/2011 Invited keynote speaker to the XI ICOLD Benchmark Workshop on Numerical Analysis of Dams. Valencia, Spain, Title:”Coupling Eulerian and Lagrangian models to simulate seepage and evolution of failure in prototype rockfill dams”.

- INVITED LECTURES

2022/05/30 Simulation of extreme water hazards and their interaction with structures and protections systems, Invited seminar at the Department of Civil Engineering and Architecture, University of Pavia, Italy

2021/10/02-03 Short Course on Particle-Based Methods in Engineering and Applied Science. The Material Point Method. Hamburg, Germany

2021/07/07 Guest lecturer to the Advanced Finite Element Course, MSc in Computational Mechanics - COME, TUM, Munich, Germany (online)

2020/06/04 Invited speaker: Geomechanics and fluid-structural interaction applications using Kratos Multiphysic; COWI, Denmark

2019/01/17 Computational models and methods for the simulation of flow-related natural hazards and their interaction with structures. Guest speaker of the "BGCE research days" (BGCE: Bavarian Graduate school of Computational Engineering), Munich, Germany.

2018/07/23 Simulation of nonlinear behavior in fluids and solids by particle methods with a special focus on the Material Point Method (MPM), Invited seminar Chair of Structural Analysis, Technical University of Munich, Germany

2018/07/13 Computational models for the simulation of water natural hazards Invited Seminar Università degli Studi di Padova, Mathematical Department, Italy

2018/03 Computational models for the simulation of water natural hazards. Invited seminar, Politecnico di Milano, Italy

2016/10 Material Point Method for goehazards (8 hours post graduate course). Departamento ECA – Sección ingeniería del terreno, Civil Engineering School, Barcelona, Spain

2012/10 Finite Elements for Fluids with open source software (22 hours post graduate course). Invited by the Chair of Structural Analysis, Prof. Kai-Uwe Bletzinger, and by the Chair of: Computational Mechanics, Prof. Fabian Duddeck, of the Technical University of Munich (Germany)

ORGANIZATION OF CONGRESSES/SEMINARS

2021/06/13-16 Chair of COUPLED2021 IX International Conference on Coupled Problems in Engineering, Sardinia, Italy

2019/11 - present Organizer of NumLab Seminar series, University of Padua, Italy

2016/04 Organizer of the post graduate course "Short course on modelling in Oil&Gas" given by Eng. Raju Gandikota. Barcelona, Spain

2015/10 Co-Chair of the local organizing committee of the IV International Conference on Particle-Based Methods: fundamentals and applications, Barcelona, Spain

2015/09/28- 2015/10/06 Organizer of the postgraduate school "T-MAPPP summer school", Barcelona, Spain

2010-2018 Organizer of the CIMNE seminar series, Barcelona, Spain

ORGANIZATION OF MINISYMPOSIA / SESSIONS

- World Congress in Computational Mechanics WCCM (2020)
- 3rd International Conference on Computational Engineering and Science for Safety and Environmental Problems, Kobe, Japan, COMPSAFE (2020)
- International Conference on Coupled Problems in Science and Engineering, COUPLED (Editions 2019, 2021)
- International Conference on Particle Based Methods. Fundamentals and Applications (Editions 2015, 2017, 2019, 2021)
- Congreso de métodos Numéricos en Ingeniería CMN Editions (2013, 2017)

MEMBER OF EVALUATION PANELS

2020-present Project reviewer as external expert for the Mexican National Council of Science and Technology CONACIYT; Call for "Frontier Science 2019";

2019-present Project reviewer as external expert for Mitacs Accelerate, Canada. Area of computational engineering applied to geotechnics.

EDITORIAL ACTIVITY

Editor in chief Advances in Computational Science and Engineering ACSE, American Institute of Mahematical Sciences AIMS. 2022, link to ACSE webpage

Guest Editor Advanced Modeling and Simulation in Engineering Sciences, Springer. Special issue on Recent Advances in Hypercomplex Disaster Simualtions, 2022, Edited by Kenjiro Terada, Antonia Larese, Ethan Kubatko and Mitsuteru Asai

Guest Editor Mathematical and Computational Applications, MDPI Special issue on Computational Methods for Coupled Problems in Science and Engineering, 2022, Edited by Simona Perotto, Gialuigi Rozza and Antonia Larese

REVIEW ACTIVITY

- Reviewer for CMAME (Q1), Journal of Hydraulic Engineering (Q1), Journal of Numerical Methods in Engineering (Q1), International Journal for Numerical Methods in Fluids (Q1), Acta Geotechnica (Q1) International Journal of Geomechnics (ASCE) (Q1), International Journal of Non-Linear Mechanics (Q1), Computational Particle Mechanics (Q1) Ocean Engineering (Q2), Coastal Engineering (Q1)

MEMBER OF SCIENTIFIC COMMITTEES

- 22nd Computational Fluid Conference CFC2023, Cannes, France
- International Conference on Coupled Problems in Engineering (Editions 2017, 2019, 2021)
- International Conference on Particle Based Methods. Fundamentals and Applications (Editions 2015, 2017, 2019, 2021)
- ECCOMAS Young Investigators Conference, (Editions 2017, 2021);
- International Conference on Dam Protection against Overtopping and Accidental Leakage (Editions 2014, 2020);
- XI ICOLD Benchmark Workshop on Numerical Analysis of Dams , Valencia, Spain (2011).

SCIENTIFIC SOCIETIES OR INSTITUTES

2021-present Fellow of the Italian Society of Applied and Industrial Mathematics (SIMAI)

2021-present Fellow of the Union of Italian Mathematics (UMI)

2020-present Fellow of the (Italian Group of Computational Mechanics (GIMC) of the Italian Association of theoretical and Applied Mechanics (AIMETA)

2020-present Fellow of the European Mechanics Society (EUROMECH)

2019-present Fellow of the Gruppo Nazionale Calcolo Scientifico (GNCS) of the Istituto di Alta Matematica (INdAM)

2015-present Fellow of the Young Investigators Section of the Spanish Association for Numerical Methods in Engineering

2014-present Fellow of the Spanish Association for Numerical Methods in Engineering (SEMNI)

2009-present Voting member of the Comité de Cálculo de presas of the Spanish Committee on Large Dams (SpanCOLD)

2012-present Member of the FLUMEN institute of the UPC

2008-2018 Member of the Continuum Mechanics Group (MC2) ot the UPC, Barcelona Spain

TEACHING

MASTER COURSES

2019 - present Numerical Methods for Continuous Systems, Master in Mathematical Engineering, Università degli Studi di Padova (6ECTS)

2008-2018 Finite Elements - Master of Science in Computational Mechanics -Erasmus Mundus - – Civil engineering school UPC (5ECTS)

2008-2018 Finite Elements - Master on Numerical Methods in Engineering - – Civil engineering school UPC (5ECTS)

2014-2017 Industrial training - Master on Numerical Methods in Engineering – Civil engineering school UPC (15ECTS)

2015-2017 Communication skills - Master on Numerical Methods in Engineering - Civil engineering school UPC (5ECTS)

UNDERGRADUATE COURSES

2018-present Linear Algebra –Industrial Engineering, Università degli Studi di Padova (9ECTS)

2018-2019, 2021-present Numerical Analysis – Industrial Engineering, Università degli Studi di Padova (6ECTS)

2019- 2020 Numerical Analysis – Computer Science, Università degli Studi di Padova (6ECTS)

2011-2018 Mechanics of Materials – Civil Engineering School – UPC (6ECTS)

2011-2018 Theory of structures - Civil Engineering School – UPC (6ECTS)

2008-2011 Structures- Civil Engineering School –UPC (12ECTS)

DOCTORAL COURSES

2020/09/28-10/01 ALERT doctoral school 2020 -"Point based numerical methods in geomechanics"

DIRECTION OF DOCTORAL THESIS

2019/11/29 Ilaria Iaconeta (ESR fellow of ITN: T-MAPPP) Title of the thesis: Discrete-continuum hybrid modelling of flowing and static regimes. Universidad Politécnica de Catalunya, UPC-BarcelonaTech, Spain.

Ongoing:

- Nicola Segala, Industrial PhD (Dott. in alta formazione UniPD) with the company 2F Water Venture.Title: "correlations between leak points in water supply systems and graph theory" (2020/10 - 2023/10).
- Nicolò Crescenzio, Title: "Advanced Numerical Methods for the Simulation of the Consequences of Extreme Hazards on Structuras ad Protection Systems" PhD in Computational Mathematics Univeristy of Padova (2022/01 - 2025/01).
- Danial Dehghan, Title: "Accelerated Tools for 2D and 3D Numerical Modelling of Sediment Transport and Morphology Evolution in Rivers and Reservoirs. Case Study of Lower Ebro River" PhD in Civil Engineering, Technical University of Catalonia (2021/10 - 2024/10).
- Andino Borst, PhD in Civil Engineering, Technical University of Munich (2022/11 - 2025/11).

DIRECTION OF MASTER OR DEGREE THESES

31. ”Non conforming boundary conditions in finite element and particle methods” (07/2022) Nicola Comerci, Advisor: V. Singer A. Larese, Laurea Magistrale in Ingegneria Matematica, Università degli Studi di Padova, Italy
30. ”Una formulazione Updated Lagrangian in spostamenti per fluidi incomprimibili a superficie libera utilizzando MPM” (12/2021) Alessandro Contri, Advisor: A. Larese, Laurea Magistrale in Ingegneria Matematica, Università degli Studi di Padova, Italy
29. ”Numerical Solution of Optimal Design Problems via a Dynamic formulation of Monge-Kantorovich Equation” (07/2021) Nicolò Crescenzio, Advisor: M. Putti, A. Larese, E. Facca, Laurea Magistrale in Ingegneria Matematica, Università degli Studi di Padova, Italy
28. Radial Basis Functions for the approximate solution of differential equations (12/2020) Angelica Crepaldi, Advisors: W. Erb, A. Larese, Bachelor in Mathematics (Laurea Triennale), Università degli Studi di Padova Italy.
27. Stabilized formulation using the Material Point Method (07/2020) Gloria Pietropolli, Advisor: A. Larese, Master of Science in Mathematics (Laurea Magistrale), Università degli Studi di Padova Italy.
26. Numerical Experiments on the stability of the Navier Stokes equations (07/2020) Andrea Gorgi, Advisor: M. Putti, A. Larese, Bachelor in Areospace Engineering (Laurea Triennale), Università degli Studi di Padova Italy.
25. Numerical Shape Optimization. A Dynamic Monge-Kantorovich Approach (2019) Nicola Segala, Advisors:M. Putti, F. Piazzon, E. Facca, A. Larese, Laurea Magistrale in Matematica, Università degli Studi di Padova, Italy;
24. Soil structure interaction simulation using a coupled implicit material point- finite element method (2019) Bodhinanda Chandra, Advisors: R. Whuecner, A. Larese, Technical University of Munich (TUM), Germany;
23. Particle Methods in Civil Engineering (2018) Alba Navarro Casanova, Advisor: A. Larese, Master on Numerical Methods in Engineering ETSECCPB-UPC;
22. Numerical models for multi-phase flow in porous media for applications to oil engineering (2017) Cristina Más Trilla; Advisors: A. Larese, P. Becker, E. Oñate, Master in Civil Engineering ETSECCPB-UPC;
21. Coupled problems in dam engineering (2016) Maria de los Angeles Gonzalez, Advisors: A. Larese, P. Becker, Master on Numerical Methods in Engineering ETSECCPB-UPC;
20. FSI procedures for Civil Engineering Applications (2016) Rubén Zorrilla, Advisors: A. Larese, R. Rossi, Master on Numerical Methods in Engineering ETSECCPB-UPC;
19. Optimización de la simulación del contacto mecánico en procesos de estampación de chapas metálicas (2016) Marc Puigpinos, Advisors: F. Rastellini, A. Ejigo, A. Larese Master on Numerical Methods in Engineering ETSECCPB-UPC;
18. Desarrollo de una herramienta computacional para la comprobación estructural de presas (2016) Lorenzo Gracia, Advisors: F. Salazar, A. Larese, Master on Numerical Methods in Engineering ETSECCPB-UPC;
17. An algorithm for numerical modelling of Cross-Laminated Timber structures (2015) Gabriele D'Aronco, Advisors: R. Scotta, S. Oller, A. Larese Università degli studi di Padova (Italia);
16. Pre-process for Numerical Analysis of Cross-Laminated Timber Structures (2015) Alessandra Ferrandino, Advisors: R. Scotta, A. Larese Università degli studi di Padova (Italia);
15. Simulation of atmospheric effects with the DLR code Tau (2015) Laia Alcaraz Capsada, Turors: R.Flores, R. Hinrich, A. Larese, Master on Numerical Methods in Engineering ETSECCPB-UPC;
14. Theoretical study and FEM/DEM particle analysis of piping (2015). Giuseppe Pizzinat Advisors: A. Larese and G. Cortellazzo (UniPD) Università degli studi di Padova (Italia);
13. Numerical simulation of the loads on wind turbine access platforms and comparison with large scale experiment (2014) Carlos Alvarez Abad; Advisors: A. Larese, Prof P. Ruol (UniPD); Prof L. Martinelli (UniPD). Master in Civil Engineering ETSECCPB-UPC;
12. An SPH Formulation for Incompressible Newtonian Free Surface Flows. (2013) Cem Karakaova; Advisors: A. Larese, R. Rossi (CIMNE). Master on Numerical Methods in Engineering ETSECCPB-UPC;

11. Evaluación de la seguridad estructural de la presa de Camarasa mediante un modelo de cálculo de elementos finitos. (2011) Eduardo Echeverria Garcia. Advisor: A. Larese; Master en métodos numéricos para cálculo y diseño en Ingeniería;
10. Creación de una herramienta para la generación de fenómenos de oleaje en un código de elementos finitos (2014) Assis Araño TFG Ingeniería de la construcción ETSECCPB UPC;
9. Desarrollo de una interfaz para la imposición de condiciones de contorno variables para un código de elementos finitos (2014) Marc Busquets TFG Ingeniería de la construcción ETSECCPB UPC;
8. Proyecto de pasarela peatonal de conexión del barrio de Bellamar hasta la playa en Castelldefels (2014) Celia Castaño TFG Ingeniería de la construcción ETSECCPB UPC;
7. Simulación numérica de la filtración en escollera (2013) Antonio Lara Silva, TFC Caminos ETSECCPB UPC;
6. Validación del código Kratos para el cálculo estructural (2013) Joan Pere Ruiz Vidal, Castaño TFG Ingeniería de la construcción ETSECCPB UPC;
5. Projecte d'urbanització destinat a la creació d'una zona d'habitatges unifamiliars a la Vall Fosca (Lleida), (2012), Juan Salvador Latorre Sánchez, PFC Caminos ETSECCPB UPC;
4. Análisis de los fenómenos hidrodinámicos en escolleras con aplicaciones a presas de materiales sueltos, (2010), Raquel Juan Hernández, TFC Caminos ETSECCPB UPC;
3. Análisis numérico del proceso de filtración en presas de escollera, (2009) Tapia Navarro, Cristian TFC Caminos ETSECCPB UPC;
2. Analysis and numeric simulations of dynamic wind effect on Braga stadium (2008) Alberto Agostini. Università degli Studi di Padova (Italia);
1. Aeroelastic study of a bridge cross-section (2008), Enrico Stecca, Università degli Studi di Padova (Italia).

INSTITUTIONAL RESPONSIBILITY

2020-present Representative for the University of Padova in the WORKING GROUP APRE - Civil Security for Society for the definition of the next framework programmes Horizon Europe

2020-present Member of the Department Council of the Department of Mathematics, Università degli Studi di Padova, Italy;

2019 - present Member of the commission for spaces, Department of Mathematics, Università degli Studi di Padova, Italy

2013-2017 Head of the Máster on Numerical Methods in Engineering of the ETSCCPB (Official master of the UPC). Responsible for the national and international accreditation process (EUR-ACE® Master), Barcelona, Spain;

2013-2017 Member of the commission for research and post graduate of the Civil engineering school of the UPC Barcelona, Spain;

2008-2018 Member of the board of study of the Master Erasmus Mundus in Computational Mechanics of the UPC-Ecole Centrale de Nantes- Swansea University- Stuttgart University;

2011-2013 Member of the Department council de RMEE of the UPC, Barcelona, Spain.

DOCTORAL BOARDS

2018-present Member of the Doctoral Board 35º, 36º, 37º, 38º cycles - Doctoral School in Mathematics (PhD in Mathematics and Computational Mathematics), Università degli Studi di Padova

2014- 2018 Member of the doctoral board in Structural Analysis and Civil Engineeering Doctoral School - UPC-Barcelona TECH, Spain

DOCTORAL COMMITTEES

EVALUATION COMMITTEE -

21/12/2021 Member of the evaluation committee for the thesis: "The Local Maximum-Entropy Material Point Method" by Miguel Molinos, Advisors: M. Pastor and P. Navas, Universidad Politécnica de Madrid, UPM, Madrid, Spain

24/09/2021 Member of the evaluation committee for the thesis: "Numerical modelling of viscoelastic flows based on a log-conformation formulation" by Laura Moreno, Advisors: R. Codina, J. Baiges, Universidad Politécnica de Cataluña, UPC-BarcelonaTECH, Barcelona, Spain

21/12/2020 Member of the evaluation committee for the thesis: "A fully Lagrangian formulation for fluid-structure interaction between free-surface flows and multi-fracturing solids and structures" by Alejandro Cornejo, Advisors: E. Oñate, F. Zarate, Universidad Politécnica de Cataluña, UPC-BarcelonaTECH, Barcelona, Spain

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03/2016 Member of the evaluation committee for the thesis:"Three-dimensional numerical simulation of large scale landslides"by F. Ferri, Advisors: U.Perego, M. Cremonesi, Politecnico di Milano, Italy;

05/2014 Member of the evaluation committee for the thesis:"Elementos finitos mixtos estabilizados para flujos viscoplásticos" by Elvira Moreno, Advisor: M. Cervera, Universidad Politécnica de Cataluña, UPC, Barcelona, Spain

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OTHER CREDITS

FOREIGN EXPERIENCES

- (In addition to the Spanish (13 years) and German (3 years) experiences)

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CAREER BREAKS

27 Dec 2016 -17 Apr 2017 Maternity leave.

Padova, 21st October 2022

Antonia Larese