Laura del Río Martín

Career profile

Assistant Professor with research background in mathematical modelling, numerical simulation, numerical analysis and high-performance computing.
My current research topics include finite volume, finite element, and discontinuous Galerkin methods, and arbitrary-Lagrangian-Eulerian schemes with applications to computational fluid dynamics, solid mechanics and computational acoustics. Strong background in High-Performance computing and massively parallel simulations, in particular, parallel programming with MPI and OpenMP and scheduling.

Personal Information

MOBILE: +393519768917, +34676166071
EMAIL: laura.delrio@unitn.it, laura.del.rio.martin@gmail.com
0000-0002-7812-3161 RESEARCHERID AAF-3212-2020 Scopus 57209511972

Education

2015 - 2020 **Ph.D. in Mathematical Modelling and Numerical Simulation in Engineering and Applied Science**,
University of A Coruña (Spain)

Ph.D. Thesis: Numerical characterization of complex materials and vibro-acoustic systems (available in http://hdl.handle.net/2183/26435).
Supervisor: Andrés Prieto Aneiros
Mark: *Summa Cum Laude* with International Doctor Mention.

Doctoral visit at California Institute of Technology (Caltech)
September 2018 - December 2018
Supervisor: Oscar P. Bruno

2013-2015 **MSc in Industrial Mathematics, Numerical Simulation specialization**,
University of Santiago de Compostela (Spain)

Master's Thesis: Acoustic characterization of an absorbing tile by using incident plane waves (available in http://hdl.handle.net/2183/14880)
Mark: 9.42 / 10.

2008-2013 **Licenciatura en Matemáticas (Bachelor of Science degree in Mathematics)**
University of Valladolid (Spain)

Research Experience

- Assistant professor at Dipartimento di Ingegneria e Scienza dell'Informazione
  University of Trento (Italy), March 2023 - Present
- Postdoctoral researcher at Dipartimento di Ingegneria Civile Ambientale e Meccanica
  University of Trento (Italy), January 2022 - March 2023
- Postdoctoral Research Fellowship at Department of Mathematics
  University of A Coruña (Spain), January 2022 - March 2023
- Postdoctoral Research Fellowship at Dipartimento di Ingegneria e Scienza dell'Informazione
  University of Trento (Italy), January 2021 - December 2021
- Research assistant at Department of Applied Mathematics
  University of Santiago de Compostela (Spain), February 2020 - November 2020

- RESEARCH ASSISTANT AT DEPARTMENT OF MATHEMATICS
  University of A Coruña (Spain), March 2019 - November 2019

- RESEARCHER AT TECHNOLOGICAL INSTITUTE FOR INDUSTRIAL MATHEMATICS
  Santiago de Compostela (Spain), August 2016 - March 2018

- RESEARCH ASSISTANT AT DEPARTMENT OF MATHEMATICS
  University of A Coruña (Spain), July 2015 - July 2016

SCIENTIFIC PUBLICATIONS

Articles: 12 Monographs: 2 Proceedings: 3 Forthcoming: 6 Dissemination: 1

Peer reviewed international journals

1. S. Busto, **L. Río-Martín**. "Semi-implicit hybrid finite volume/finite element method for the GPR model of continuum mechanics". *Accepted in Journal of Scientific Computing, 2025*

2. J. Bellavita, T. Pasquali, **L. Río-Martín**, F. Vella, G. Guidi. "Popcorn: Accelerating Kernel K-means on GPUs through Sparse Linear Algebra". *Under review*

3. **L. Río-Martín**, F. Dhaouadi, M. Dumbser. "An exactly curl-free finite-volume/finite-difference scheme for a hyperbolic compressible isentropic two-phase model". Journal of Scientific Computing, **102** (13), 2025.

4. J. Carbajo, P. Poveda, E. Segovia, A. Prieto, **L. Río-Martín**, J. D. Pastor, J. Ramis. "An Alternative Approach to Determine the Dynamic Stiffness of Resilient Materials under Low Prestatic Load". Applied Sciences, **14** (11), Article n. 4925, 2024.

   Applied Sciences. Subject Area: Engineering (Q2); Materials Science (Q2). SJR: 0.492; h-index: 101; IS 2023: 3.1; IF 2023: 2.5

5. **L. Río-Martín** and A. Prieto. "Data-driven characterization of viscoelastic materials using time-harmonic hydroacoustic measurements". Computers & Structures, Vol. 292, Article n. 107229, 2024.

   Computers & Structures. Subject Area: Mechanical Engineering (Q1); Modeling and Simulation (Q1); Computer Science Applications (Q1). SJR: 1.259; h-index: 152; IS 2022: 5.03; IF 2022: 4.4

6. **L. Río-Martín** and M. Dumbser. "High order ADER Discontinuous Galerkin schemes for a symmetric hyperbolic model of compressible barotropic two-fluid flows", Communications on Applied Mathematics and Computation, Vol. 6, 2119–2154, 2024.

   Applied Mathematics and Computation. Subject Area: Applied Mathematics (Q2); Computational Mathematics (Q2). SJR: 0.677; h-index: 8; IS 2022: 1.64; IF 2022: 1.4

7. F. Fambri, E. Zampa, S. Busto, **L. Río-Martín**, F. Hindenlang, E. Sonnendrücker and M. Dumbser. "A well-balanced and exactly divergence-free staggered semi-implicit hybrid finite volume/finite element scheme for the incompressible MHD equations". Journal of Computational Physics, Vol. 493, 2023.

   Journal of Computational Physics. Subject Area: Applied Mathematics (Q1); Numerical Analysis (Q1); Computational Mathematics (Q1). SJR: 1.753; h-index: 275; IS 2022: 4.33; IF 2022: 4.645

8. S. Busto, M. Dumbser and **L. Río-Martín**. "An Arbitrary-Lagrangian-Eulerian hybrid finite volume/finite element method on moving unstructured meshes for the Navier-Stokes equations". Applied Mathematics and Computation. Vol. 437, Article n. 127539, 2023.

   Applied Mathematics and Computation. Subject Area: Applied Mathematics (Q1); Computational Mathematics (Q1). SJR: 0.962; h-index: 166; IS 2022: 4.28; IF 2022: 4.091

9. S. Busto, M. Dumbser, **L. Río-Martín**. "Staggered semi-implicit hybrid FV/FE schemes for turbulent and non-Newtonian flows". Mathematics. MDPI AG. Vol. 9 (22), Article n. 2972, 2021

   Mathematics. Subject Area: Mathematics (Q1). SJR: 0.495; h-index: 32; IS 2020: 2.88; IF 2020: 2.258

10. **L. Río-Martín**, S. Busto, M. Dumbser. "A massively parallel hybrid FV/FE scheme for computational fluid dynamics". Mathematics. MDPI AG. Vol. 9 (18), Article n. 2316, 2021.

    Mathematics. Subject Area: Mathematics (Q1). SJR: 0.495; h-index: 32; IS 2020: 2.88; IF 2020: 2.258

11. S. Busto, **L. Río-Martín**, M.E. Vázquez-Cendón, M. Dumbser. "A semi-implicit hybrid finite volume/finite element scheme for all Mach number flows on staggered unstructured meshes". Applied Mathematics and Computation. Vol. 402, Article n. 126117, 2021.

    Applied Mathematics and Computation. Subject Area: Applied Mathematics (Q1); Computational Mathematics (Q1). SJR: 0.972; h-index: 145; IS 2020: 4.31; IF 2020: 4.091

12. J. Carbajo, A. Prieto, J. Ramis and **L. Río-Martín**. "A non-parametric fluid-equivalent approach for the acoustic characterization of rigid porous materials", Applied Mathematical Modelling, Vol. 76, 2019, Pages 330–347.

    Applied Mathematical Modelling. Subject Area: Applied Mathematics (Q1); Modeling and Simulation (Q1). SJR: 1.011; h-index: 112; IS 2019: 4.21; IF 2019: 3.633

Monographs

1. **L. Río-Martín**. "Numerical characterization of complex materials and vibro-acoustic systems". Ph.D. thesis. University of A Coruña. 2020

2. **L. Río-Martín**. "Acoustic characterization of an absorbing tile by using incident plane waves". Master thesis. University of Santiago de Compostela. 2015

Proceedings

1. J. Carbajo, P. Poveda, E. Segovia, J. Ramis, A. Prieto and **L. Río-Martín**. "Determination of dynamic stiffness of materials used under floating floors using electrodynamic actuators", Proceedings from 53° Congreso Español de Acústica, XII Encuentro Ibérico de Acústica, 2022.

2. J. Carbajo, A. Prieto, J. Ramis and **L. Río-Martín**. "Data-driven characterization of porous materials by using frequency-dependent measurements", Proceedings from 48° Congreso Español de Acústica, Encuentro Ibérico de Acústica, 2017.

3. A. Bermúdez de Castro, A. Prieto, and **L. Río-Martín**, "Analysis of a reverberation room by using numerical simulation tool". Revista de Acústica, ISSN-e 2254-2396, Volume 51, Numbers 3 and 4, 2020, Pages 31–38.

Forthcoming

1. A. Bermúdez, A. Prieto, **L. Río-Martín**. "A time-harmonic/time-domain hybrid approach based on displacement-based formulations to compute the absorbing coefficient in alpha cabins". *Under review*

2. **L. Río-Martín**, M. Dumbser. "High-order ADER Discontinuous Galerkin schemes for a symmetric hyperbolic model for compressible multi-phase flows in poroelastic media". *In preparation*

3. L. Río-Martín, J. Carbajo, A. Prieto and J. Ramis. "Characterization of viscoelastic materials using impact excitations". *In preparation*

TEACHING EXPERIENCE

Undergraduate: 117 hours Master: 138 hours Ph.D. and Postdoc: 62 hours Training in a company: 8 hours

2024 | Lecturer at "SHORT COURSE ON ADVANCED NUMERICAL METHODS FOR HYPERBOLIC EQUATIONS"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)
January 2024 - February 2024 20 hours
Language: English

2023 | Lecturer at "INTRODUCTION TO PARALLEL COMPUTING"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)
September 2023 - December 2023 24 hours
Language: English

2023 | Lecturer at "METODI NUMERICI PER L'AMBIENTE"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)
September 2023 - December 2023 38 hours
Language: English

2023 | Lecturer at "SHORT COURSE ON ADVANCED NUMERICAL METHODS FOR HYPERBOLIC EQUATIONS"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)
January 2023 - February 2023 20 hours
Language: English

2023 | Lecturer at "SEMINAR IN HIGH-PERFORMANCE COMPUTING WITH CPU"
Dipartimento di Matematica, University of Trento (Italy)
07/06/2023, 09/06/2023 6 hours
Language: English

2022-2023 | Lecturer at "CALCOLO NUMERICO E PROGRAMMAZIONE"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)
September 2022 - February 2023 45 hours
Language: Italian

2022 | Lecturer at "METODI NUMERICI PER L'AMBIENTE"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)
September 2022 - December 2022 40 hours
Language: English

2021-2022 | Lecturer at "METODI NUMERICI PER L'AMBIENTE"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)
December 2021 - February 2022 30 hours
Language: English

2021 | Lecturer at "SEMINAR IN HIGH-PERFORMANCE COMPUTING"
Dipartimento di Ingegneria e Scienza dell'Informazione, University of Trento (Italy)
26/11/2021, 03/12/2021 4 hours
Language: English

2021 | Lecturer at "METODI NUMERICI PER L'AMBIENTE"
Dipartimento di Ingegneria Civile, Ambientale e Meccanica, University of Trento (Italy)

September 2021 - December 2021 30 hours
Language: English

2021 | Lecturer at 3rd SUMMER SCHOOL IN HIGH-PERFORMANCE COMPUTING
Dipartimento di Ingegneria e Scienza dell'Informazione, University of Trento (Italy)
30/08/2021 - 03/09/2021 12 hours
Language: English

2020 | Lecturer at "MATHEMATICAL BASICS FOR BUILDING"
Department of Mathematics, University of A Coruña (Spain)
October 2020 - December 2020 48 hours
Language: Spanish

2018 | Lecturer at "INTRODUCTION TO SALOME"
Adhex Tech Tapes facilities, S. L., Porriño (Spain)
April 2018 8 hours
Language: Spanish

FUND RAISING AND RESEARCH PROJECTS

2023 | WINNER OF CPU HOURS AT THE ITALIAN COMPUTING CENTRE (CINECA) VIA THE ITALIAN SUPERCOMPUTING RESOURCE ALLOCATION - ISCRA
PI of the project *NeMesiS - HP10B22TLQ*
Project: "Numerical Methods for complex hyperbolic flows"
Value of the grant: 2 million CPU hours on the supercomputer Galileo 100 (Italian Supercomputing center (CINECA), Italy)

2022 | WINNER OF CPU HOURS AT THE ITALIAN COMPUTING CENTRE (CINECA) VIA THE ITALIAN SUPERCOMPUTING RESOURCE ALLOCATION - ISCRA
PI of the project *NuMFluS - HP10CC7KR3*
Project: "Numerical Methods for Fluid-Structure Interaction problems and multiphase flows"
Value of the grant: 75000 CPU hours on the supercomputer Galileo 100 (Italian Supercomputing center (CINECA), Italy)

2022 | WINNER OF CPU HOURS AT THE SUPERCOMPUTER CENTER OF GALICIA (SPAIN) VIA THE SPANISH PROJECT RES - RED ESPAÑOLA DE SUPERCOMPUTACIÓN
Co-PI of the project *IM-2022-3-0017*
Project: "Modelling and numerical simulation of the cardiovascular system using hybrid methods: a way towards personalized medicine"
Value of the grant: 2.5 millions of CPU hours on the supercomputer Finiterrae III (Supercomputer center of Galicia (CESGA), Spain)

2021 | WINNER AND PI OF THE GRANT "AYUDAS PARA LA RECUALIFICACIÓN DEL SISTEMA UNIVERSITARIO ESPAÑOL. MODALIDAD MARGARITA SALAS PARA JÓVENES DOCTORES"
Universidade da Coruña (Spain)
Project: "High-Performance computing and numerical analysis for Fluid-Structure Interaction problems. Application to biomedical and computational aeroacoustics problems".
Reference: RSU.UDC.MS15
Value of the grant: 120000 €

2021 | WINNER OF THE RESEARCH FELLOWSHIP AT THE DEPARTMENT OF INFORMATION ENGINEERING AND COMPUTER SCIENCE (DISI).

University of Trento (Italy)
Research title: "High performance computing ed analisi numerica per applicazioni in fisica ed ingegneria".
Value of the grant: 24000 €

2021 | AWARD "GIOVANI RICERCATORI"
Gruppo Nazionale per il Calcolo Scientifico (GNCS), Instituto Nazionale di Alta Matematica (INDAM), Italy
Value of the award: 1000 €

2018 | WINNER OF THE GRANT "AXUDAS PARA ESTADIAS PREDOUTORAIS INDITEX-UDC 2018"
Inditex and University of A Coruña (Spain)
Value of the grant: 4305 €

CONFERENCES

International: 21 National: 1

High-order ADER Discontinuous Galerkin schemes for compressible two-phase flows in elastic media
AUTHORS: L. Río-Martín, M. Dumbser
CONGRESS: 9th European Congress on Computational Methods in Applied Sciences and Engineering
PRESENTATION FORMAT: Invited talk
03/06/2024 - 07/06/2024 Lisbon (Portugal)

CONGRESS: Sharing Higher-order Advanced Research Know-how on Finite Volume (SHARK-FV 2024)
PRESENTATION FORMAT: Attendance
26/05/2024 - 31/05/2024 Minho (Portugal)

Numerical methods for compressible two-phase flows with curl involutions
AUTHORS: L. Río-Martín, F. Dhaouadi, M. Dumbser
CONGRESS: 3rd International workshop on Perspectives on Multiphase Fluid Dynamics, Continuum Mechanics and Hyperbolic Balance Laws (Prohyp 2024)
PRESENTATION FORMAT: Invited talk
22/04/2024 - 26/04/2024 Trento (Italy)

An Exactly Curl-Free Scheme For A Hyperbolic Model Of Compressible Two-Fluid Flows
AUTHORS: L. Río-Martín, F. Dhaouadi, M. Dumbser
CONGRESS: 7th Chilean Workshop on Numerical Analysis of Partial Differential Equations (WONAPDE 2024)
PRESENTATION FORMAT: Invited talk
15/01/2024 - 19/01/2024 Concepción (Santiago de Chile)

High-order ADER Discontinuous Galerkin schemes for compressible barotropic two-phase flows
AUTHORS: L. Río-Martín, M. Dumbser
CONGRESS: Numerical methods for Hyperbolic problems (Numhyp 2023)
PRESENTATION FORMAT: Invited talk
26/06/2023 - 30/06/2023 Bordeaux (France)

CONGRESS: Sharing Higher-order Advanced Research Know-how on Finite Volume (SHARK-FV 2023)
PRESENTATION FORMAT: Attendance
22/05/2023 - 26/05/2023 Minho (Portugal)

A family of semi-implicit hybrid finite volumes / finite elements methods for computational fluid dynamics

AUTHORS: L. Río-Martín, S. Busto, M. Dumbser
CONGRESS: XXVII Congreso de Equaciones Diferenciales y Aplicaciones / XVII Congreso de Matemática Aplicada
PRESENTATION FORMAT: Invited talk
18/07/2022 - 22/07/2022 Zaragoza (Spain)

Staggered semi-implicit hybrid finite volume/finite element schemes for computational fluid dynamics using an efficient MPI parallelization
AUTHORS: L. Río-Martín, S. Busto, M. Dumbser
CONGRESS: Sharing Higher-order Advanced Research Know-how on Finite Volume (SHARK-FV 2022)
PRESENTATION FORMAT: Invited talk
23/05/2022 - 27/05/2022 Minho (Portugal)

Staggered semi-implicit hybrid FV/FE schemes for turbulent and non-Newtonian flows
AUTHORS: L. Río-Martín, S. Busto, M. Dumbser
CONGRESS: High-Order NOnlinear numerical Methods for evolutionary PDEs: Theory and applications (HONOM 2022)
PRESENTATION FORMAT: Invited talk
04/04/2022 - 08/04/2022 Braga (Portugal)

A family of semi-implicit hybrid finite volumes - finite elements methods for computational fluid dynamics using an efficient MPI parallel implementation
AUTHORS: L. Río-Martín, S. Busto, M. Dumbser, M.E. Vázquez-Cendón
CONGRESS: 7^{th} International Conference on Numerical Methods for Hyperbolic Problems
PRESENTATION FORMAT: Invited talk
26/07/2021 - 30/07/2021 Trento (Italy)

Acoustic characterization of rigid porous materials by using a data-driven approach
AUTHORS: L. Río-Martín, J. Carbajo, A. Prieto, J. Ramis
CONGRESS:XXVI Congreso de Ecuaciones Diferenciales y Aplicaciones. XVI Congreso de Matemática Aplicada
PRESENTATION FORMAT: Contributed talk
14/06/2021 - 18/06/2021 Gijón (Spain)

Numerical characterization of porous materials using alpha cabins
AUTHORS: L. Río-Martín, A. Bermúdez, A. Prieto
CONGRESS: 21^{st} ECMI Conference on Industrial Applied Mathematics
PRESENTATION FORMAT: Contributed talk
13/04/2021 - 15/04/2021 Online

Non-parametric characterization of viscoelastic materials in underwater environments
AUTHORS: L. Río-Martín, A. Prieto
CONGRESS: 8^{th} European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) and 14^{th} World Congress on Computational Mechanics (WCCM)
PRESENTATION FORMAT: Invited talk
11/01/2021 - 15/01/2021 Paris (France)

Numerical computation of the diffuse field absorption coefficient of porous materials by using alpha cabins
AUTHORS:L. Río-Martín, J. Ávila, A. Bermúdez, A. Prieto, J. Rodríguez
CONGRESS: I Conference on Transfer between Mathematics and Industry (CTMI 2019)
PRESENTATION FORMAT: Contributed talk
22/07/2019 - 24/07/2019 Santiago de Compostela (Spain)

Superalgebraically convergent quasi-periodic Green functions for transmission problems in periodic surfaces
AUTHORS: L. Río-Martín, O. P. Bruno, A. Prieto
CONGRESS: 9th International Congress on Industrial and Applied Mathematics
PRESENTATION FORMAT: Contributed talk
15/07/2019 - 19/07/2019 Valencia (Spain)

Data-driven characterization of porous materials by using frequency-dependent measurements
AUTHORS: L. Río-Martín, J. Carbajo, A. Prieto, J. Ramis
CONGRESS: 48° Congreso Español de Acústica, Encuentro Ibérico de Acústica y Simposio Europeo de Acústica Sostenible de Edificios
PRESENTATION FORMAT: Invited talk
04/10/2017 - 06/10/2017 A Coruña (Spain)

An efficient generalized Levin-type method for solving highly oscillatory integrals with exotic oscillators
AUTHORS: L. Río-Martín, A. Prieto
CONGRESS: International Conference on Scientific Computation and Differential Equations (SciCADE 2017)
PRESENTATION FORMAT: Invited talk
11/09/2017 - 15/09/2017 Bath (United Kingdom)

A robust numerical procedure to characterize viscoelastic materials at high frequency regime
AUTHORS: L. Río-Martín, A. Prieto
CONGRESS: XXV Congreso de Ecuaciones Diferenciales y Aplicaciones. XV Congreso de Matemática Aplicada
PRESENTATION FORMAT: Contributed talk
26/06/2017 - 30/06/2017 Cartagena (Spain)

Acoustic characterization of a viscoelastic tile using frequency-dependent ultrasound measurements
AUTHORS: L. Río-Martín, A. Prieto
CONGRESS: First *Julio Palacios* International Symposium
PRESENTATION FORMAT: Poster
20/07/2016 - 22/07/2016 A Coruña (Spain)

Data-driven identification of linear viscoelastic models using frequency-dependent ultrasound measurements
AUTHORS: A. Prieto, L. Río-Martín
CONGRESS: EuroRegio 2016, 9th Iberian Acoustics Congress, 47th Spanish Congress on Acoustics
PRESENTATION FORMAT: Contributed talk
13/06/2016 - 15/06/2016 Porto (Portugal)

Acoustic characterization of a viscoelastic tile by using frequency-dependent ultrasound measurements
AUTHORS: A. Prieto, L. Río-Martín
CONGRESS: XVII Escuela Hispano-Francesa *Jacques-Louis Lions* sobre Simulación Numérica en Física e Ingeniería
PRESENTATION FORMAT: Poster
06/06/2016 - 10/06/2016 Gijón (Spain)

INVITED LECTURER IN SEMINARS

Numerical Methods for Compressible Two-Phase Flows with Curl Involutions
SEMINAR:Séminaire de Calcul Scientifique et Modélisation at Institut de Mathématiques de Bordeaux
24/10/2024 Bordeaux (France)

High-order numerical methods for compressible multiphase flows
SEMINAR: Kick-off NumSeaHy project
24/11/2022 Santiago de Compostela (Spain)

A family of semi-implicit hybrid FV/FE methods for computational fluid dynamics using an efficient MPI parallel implementation
SEMINAR: Seminario de Matemática Industrial
29/06/2022 A Coruña (Spain)

A robust numerical procedure to characterize viscoelastic materials at high frequency regime
SEMINAR: Close-out SIMNUMAR project
15/07/2016 Ferrol (Spain)

CONGRESS AND COURSES ORGANIZATION

Organization of the **2nd CINI Summer School on High Performance Computing and Emerging Technologies**
Trento (Italy) NUMBER OF ATTENDANTS: 70
17/06/2024 - 21/06/2024 40 hours

Organization of the **3rd International workshop on Perspectives on Multiphase Fluid Dynamics, Continuum Mechanics and Hyperbolic Balance Laws**
Trento (Italy) NUMBER OF ATTENDANTS: 50
22/04/2024 - 26/04/2024

Organization of the **High-Performance Computing with CPU**
Trento (Italy), NUMBER OF ATTENDANTS: 30 , FORMAT: Blended
07/06/2023 and 09/06/2023 6 hours

Organization of the **Short course on advanced numerical methods for hyperbolic equations** for international researchers
Trento (Italy), NUMBER OF ATTENDANTS: 40 FORMAT: Blended
29/01/2023 and 02/02/2023 40 hours

Organization of the **Seminar in High-Performance Computing**
Trento (Italy) NUMBER OF ATTENDANTS: 60 FORMAT: Blended
26/11/2021 and 03/12/2021 4 hours

Organization of the **7th International Conference on Numerical Methods for Hyperbolic Problems**
Trento (Italy) NUMBER OF ATTENDANTS: 60 FORMAT: Blended
26/07/2021 - 30/07/2021

Organization of the **3rd Summer School in High-Performance Computing**
Trento (Italy) NUMBER OF ATTENDANTS: 60 FORMAT: Blended
30/08/2021 - 03/09/2021 40 hours

PARTICIPATION IN PROJECTS

Numerical characterisation of coastal seabed environments using hydroacoustic data-driven techniques - NumSeaHy
REFERENCE: TED2021-131660B-I00

PRINCIPAL INVESTIGATOR: Andrés Prieto Aneiros
FINANTIAL ENTITY: Ministerio de Ciencia e Innovación (MICINN)
01/12/2022 - 30/11/2024

Metodi numerici per problemi differenziali multiscala: schemi di alto ordine, ottimizzazione, controllo
REFERENCE: CUP E53C22001930001
PRINCIPAL INVESTIGATOR: Giulia Bertaglia
FINANTIAL ENTITY: Gruppo Nazionale per il Calcolo scientifico
01/01/2023 - 31/12/2023

Grants for the consolidation and structuring of competitive research units
REFERENCE: ED431C 2022/47
PRINCIPAL INVESTIGATOR: Carlos Vázquez Cendón
FINANCING ENTITY: Consellería de Cultura, Educación e Ordenación Universitaria (Xunta de Galicia)
01/01/2022 - 31/12/2025

Modelado, simulación, optimización y control. Aplicaciones en ciencia e industria - Generación de Conocimiento 2021
REFERENCE: PID2021-122625OB-I00
PRINCIPAL INVESTIGATOR: Jerónimo Rogríguez García, María del Pilar Salgado Rodríguez
FINANCING ENTITY: Ministerio de Ciencia e Innovación (MICINN)
01/09/2022 - 31/08/2026

Mathematical and computational methods for new challenges in quantitative finance, environment, biotechnology and engineering
REFERENCE: PID2019-108584RB-I00
PRINCIPAL INVESTIGATOR: Carlos Vázquez Cendón
FINANCING ENTITY: Ministerio de Ciencia e Innovación (MICINN)
01/06/2020 - 31/05/2023

Grants for the consolidation and structuring of competitive research units
REFERENCE: ED431C 2018/33
PRINCIPAL INVESTIGATOR: Carlos Vázquez Cendón
FINANCING ENTITY: Consellería de Cultura, Educación e Ordenación Universitaria (Xunta de Galicia)
01/01/2019 - 31/12/2021

Mathematical models and numerical simulation for challenges in quantitative finance, environment, biotechnology and industrial efficiency
REFERENCE: MTM2016-76497-R
PRINCIPAL INVESTIGATOR: Carlos Vázquez Cendón
FINANCING ENTITY: Ministerio de Economía y Competitividad (MINECO)
01/01/2018 - 31/12/2020

Grants for the consolidation and structuring of competitive research units
REFERENCE: CN2012/130
PRINCIPAL INVESTIGATOR: Carlos Vázquez Cendón
FINANCING ENTITY: Consellería de Cultura, Educación e Ordenación Universitaria (Xunta de Galicia)
01/01/2012 - 31/12/2015

PARTICIPATION IN TEACHING INNOVATION PROJECTS

Grupo de Innovación Docente en Modelización Matemática e SImulación NUMérica (M2SINUM)
COORDINATOR: Andrés Prieto Aneiros

ENTITY: Universidade da Coruña
ACADEMIC COURSE: 2022/2023

REVIEWER FOR INTERNATIONAL JOURNALS

Journal of Computational Physics
Applied Mathematics and Computation
International Journal for Numerical Methods in Fluids.

COMPUTER SKILLS

PROGRAMMING LANGUAGES:	Python, Fortran, C/C++, LaTeX, R, Pascal, Eiffel, Java
PARALLEL PROGRAMMING:	MPI, OpenMP, CUDA
QUEUING SYSTEMS:	SLURM, SGE, PBS
NUMERICAL SIMULATION:	FEniCS, SALOME, COMSOL, OpenBem, FreeFem++, MIKE
MESHING SOFTWARE:	Gmsh, Ansys-Fluent, Gambit
COMPUTER-AIDED DESIGN:	Autocad, Solidworks, FreeCad, SketchUp
APPLICATIONS:	Mathematica, MatLab, Maple, GNU Octave, Paraview, Tecplot
TOOLS:	Microsoft Visual Studio, GitHub, Tortoise SVN
OPERATING SYSTEMS:	Linux, Windows.
INTERFACE DEVELOPING:	OpenNum

LANGUAGES

SPANISH:	Mother tongue
ENGLISH:	Advanced Certificate in English C1 (CEFR)
ITALIAN:	B2 (CEFR)
GALICIAN LANGUAGE:	C1 (CEFR)

RESEARCH INTERESTS

Numerical Analysis
Numerical Simulation
Mathematical Modeling
High-Performance Computing
Computational Fluids Dynamics
Computational Acoustics
Solid Mechanics