Curriculum Vitae

First Name: Lorenzo
Last Name: Mascotto
Place of birth: Milan, Italy
Date of birth: 1 December 1990
Office Phone: +39-0264485754
Address: Via Cozzi 55, 20125 Milan, Italy, Office U5-3051
E-mail: lorenzo.mascotto@unimib.it
Web-page: `https://staff.matapp.unimib.it/~mascotto/`
Languages:

- Italian, native
- English, fluent
- German, intermediate

Current positions

- **Associate professor** at Università di Milano-Bicocca (Italy) since October 2024
- **Senior Research Fellow** at Universität Wien (Austria) since October 2021
- **Research Associate** at IMATI-CNR Pavia (Italy) since December 2021
- **National scientific qualification** to serve as Full Professor of Numerical Analysis in Italian Universities in the period 11.12.2023 – 11.12.2034

Past Positions & Education

- **Lecturer (RTD-B)** at Università di Milano-Bicocca (Italy) October 2021 – September 2024
- **University assistant**: Universität Wien (Austria) February 2019 – September 2021
- **Post-Doc**: Universität Wien (Austria) November 2017 – January 2019 (under the supervision of prof. I. Perugia), within the project "Taming complexity in Partial Differential Systems" financed with funds of the *Der Wissenschaftsfonds*
- **PhD:** Università degli Studi di Milano, November 2014 – October 2017, excellent cum laude. Advisor: prof. L. Beirão da Veiga. Carl von Ossietzky Universität Oldenburg (Germany), October 2015 – October 2017, summa cum laude. Advisor: prof. A. Chernov. Title of the Thesis: "The *hp* version of the Virtual Element Method". Date of the Joint PhD Defense: 26.02.2018

Preprints

1. M. Botti, L. Mascotto *Sobolev-Poincaré inequalities for piecewise $W^{2,p}$-functions over general polytopic meshes.* Preprint available at `http://arxiv.org/abs/2611.06646`, 2026

2. M. Botti, L. Mascotto, M. Mosconi *A nonconforming method for a generalized Darcy–Forchheimer model.* Preprint available at `http://arxiv.org/abs/2604.21558`, 2026

3. M. Botti, L. Mascotto *Trace inequalities for piecewise $W^{1,p}$-functions over general polytopic meshes.* Preprint available at `http://arxiv.org/abs/2512.09752`, 2025

4. T. Chaumont-Frelet, J. Gedicke, L. Mascotto *A generalized Hessian-based error estimator for an IPDG formulation of the biharmonic problem in two dimensions.* Preprint available at `https://arxiv.org/abs/2405.05776`, 2025

Papers

1. M. Botti, L. Mascotto, G. Vacca, M. Visinoni *Stability and interpolation estimates of Hellinger-Reissner virtual element spaces.* Published on-line in *IMA Journal of Numerical Analysis*: `https://doi.org/10.1093/imanum/draf131`.

2. A. Bressan, L. Mascotto, M. Mosconi *New Crouzeix-Raviart elements of even degree: theoretical aspects, numerical performance, and applications to the Stokes' equations.* Published on-line in *IMA Journal of Numerical Analysis*: `https://doi.org/10.1093/imanum/draf091`.

3. Z. Dong, M. Georgoulis, L. Mascotto, Z. Wang *A posteriori error analysis and adaptivity of a space-time finite element method for the wave equation in second order formulation.* Numerische Mathematik, 158(5), pp. 1933–1972, 2026.

4. Z. Dong, L. Mascotto, Z. Wang *A priori and a posteriori error estimates of a DG-CG method for the wave equation in second order formulation.* Numerische Mathematik, 158(5), pp. 2125–2171, 2026.

5. M. Botti, L. Mascotto *Sobolev-Poincaré inequalities for piecewise $W^{1,p}$-functions over general polytopic meshes.* SIAM Journal on Numerical Analysis, 64(4), pp. 1478–1504, 2026.

6. T. Chaumont-Frelet, J. Gedicke, L. Mascotto *Generalised gradients for virtual elements and applications to a posteriori error analysis.* Mathematics of Computation, 95(360), pp. 1603–1629, 2026

7. L. Beirão da Veiga, K. Hu, L. Mascotto *Error estimates for a helicity-preserving finite element discretisation of an incompressible magnetohydrodynamics system.* Mathematical Modelling and Numerical Analysis, 59(2), pp. 1075–1094, 2025

8. M. Botti, L. Mascotto *A Nečas-Lions inequality with symmetric gradients on star-shaped domains based on a first order Babuška-Aziz inequality.* Journal of Mathematical Analysis and Applications, 545(2), 129159, 2025

9. Z. Dong, L. Mascotto *hp-optimal convergence of the original DG method for linear hyperbolic problems on special simplicial meshes.* IMA Journal of Numerical Analysis, 45(3), pp. 1372–1396, 2025

10. E. Artioli, L. Mascotto *Enriched virtual elements for plane elasticity with corner singularities.* Computational Mechanics, 73, pp. 1439–1454, 2024

11. L. Beirão da Veiga, Y. Liu, L. Mascotto, A. Russo *The nonconforming virtual element method with curved edges.* Journal of Scientific Computing, 99, article number 23, 2024

12. S. Gómez, L. Mascotto, A. Moiola, I. Perugia *Space-time virtual elements for the heat equation.* SIAM Journal on Numerical Analysis, 62(1), pp. 199–228, 2024

13. S. Gómez, L. Mascotto, I. Perugia *Design and performance of a space-time virtual element method for the heat equation on prismatic meshes.* Computer Methods in Applied Mechanics and Engineering, 418A, 116491, 2024

14. L. Mascotto *The role of stabilization in the virtual element method: a survey.* Computers & Mathematics with Applications, 151, pp. 244–251, 2023

15. Z. Dong, L. Mascotto *hp-optimal interior penalty discontinuous Galerkin methods for the biharmonic problem.* Journal of Scientific Computing, 96(1), article 30, 2023

16. L. Beirão da Veiga, F. Dassi, G. Manzini, L. Mascotto *The Virtual Element Method for the 3D Resistive Magnetohydrodynamic model.* Mathematical Models and Methods in Applied Sciences, 33(3), pp. 643–686, 2023

17. L. Beirão da Veiga, L. Mascotto *Interpolation and stability properties of low order face and edge virtual element spaces.* IMA Journal of Numerical Analysis, 43(2), pp. 828–851, 2023

18. L. Beirão da Veiga, L. Mascotto *Stability and interpolation properties of serendipity nodal virtual elements.* Applied Mathematics Letters, 142, article 108639, 2023

19. L. Beirão da Veiga, L. Mascotto, J. Meng *Stabilization and interpolation properties for edge and face virtual elements of general order.* Journal of Scientific Computing, 94(3), article 56, 2023

20. L. Beirão da Veiga, L. Mascotto, J. Meng *Interpolation and stability estimates for edge and face virtual elements of general order.* Mathematical Models and Methods in Applied Sciences, 32(8), pp. 1589–1631, 2022

21. Ch. Erath, L. Mascotto, J. M. Melenk, I. Perugia, A. Rieder *Mortar coupling of hp-discontinuous Galerkin and boundary element methods for the Helmholtz equation.* Journal of Scientific Computing, 92(1), article 2, 2022

22. F. Dassi, J. Gedicke, L. Mascotto *Adaptive virtual element methods with equilibrated fluxes.* Applied Numerical Mathematics, 173, pp. 249–278, 2022

23. P. F. Antonietti, L. Mascotto, M. Verani, S. Zonca *Stability analysis of polytopic Discontinuous Galerkin approximations of the Stokes problem with applications to fluid-structure interaction problems.* Journal of Scientific Computing, 90(1), article number 23, 2022

24. L. Beirão da Veiga, F. Dassi, G. Manzini, L. Mascotto *Virtual elements for Maxwell's equations.* Computers & Mathematics with Applications, 116, pp. 82–99, 2022

25. E. Artioli, L. Mascotto *Enrichment of the nonconforming virtual element method with singular functions.* Computer Methods in Applied Mechanics and Engineering, 385, 114024, 2021

26. Z. Dong, L. Mascotto, O. J. Sutton *Residual-based a posteriori error estimates for hp-discontinuous Galerkin discretisations of the biharmonic problem.* SIAM Journal on Numerical Analysis, 59(3), pp. 1273–1298, 2021

27. A. Chernov, C. Marcati, L. Mascotto *p- and hp-virtual elements for the Stokes problem.* Advances in Computational Mathematics, 47(2), article number 24, 2021

28. L. Mascotto, J. M. Melenk, I. Perugia, A. Rieder *FEM-BEM mortar coupling for the Helmholtz equation in three dimensions.* Computers & Mathematics with Applications, 80(11), pp. 2351–2378, 2020

29. L. Mascotto, A. Pichler *Extension of the nonconforming Trefftz virtual element method to the Helmholtz problem with piecewise constant wave number.* Applied Numerical Mathematics, 155, pp. 160–180, 2020

30. O. Čertík, F. Gardini, G. Manzini, L. Mascotto, G. Vacca *The p- and hp-versions of the virtual element method for elliptic eigenvalue problems*. Computers & Mathematics with Applications, 79(9), pp. 2035–2056, 2020

31. A. Chernov, L. Mascotto *The harmonic virtual element method: stabilization and exponential convergence for the Laplace problem on polygonal domains*. IMA Journal of Numerical Analysis, 39(4), pp. 1787–1817, 2019

32. L. Mascotto, I. Perugia, A. Pichler *A nonconforming Trefftz virtual element method for the Helmholtz problem*. Mathematical Models and Methods in Applied Sciences, 29(9), pp. 1619–1656, 2019

33. L. Beirão da Veiga, G. Manzini, L. Mascotto *A posteriori error estimation and adaptivity in hp virtual elements*. Numerische Mathematik, 143(1), pp. 139–175, 2019

34. L. Mascotto, I. Perugia, A. Pichler *A nonconforming Trefftz virtual element method for the Helmholtz problem: numerical aspects*. Computer Methods in Applied Mechanics and Engineering, 347, pp. 444–476, 2019

35. L. Mascotto, I. Perugia, A. Pichler *Non-conforming harmonic virtual element method: h- and p-versions*. Journal of Scientific Computing, 77(3), pp. 1874–1908, 2018

36. P. F. Antonietti, L. Mascotto, M. Verani *A multigrid algorithm for the p-version of the virtual element method*. Mathematical Modelling and Numerical Analysis, 52(1), pp. 337–364, 2018

37. L. Mascotto *Ill-conditioning in the virtual element method: stabilizations and bases*. Numerical Methods for Partial Differential Equations, 34(4), pp. 1258–1281, 2018

38. F. Dassi, L. Mascotto *Exploring high-order three dimensional virtual elements: bases and stabilizations*. Computers & Mathematics with Applications, 75(9), pp. 3379–3401, 2018

39. L. Beirão da Veiga, A. Chernov, L. Mascotto, A. Russo *Exponential convergence of the hp virtual element method in presence of corner singularities*, Numerische Mathematik, 138(3), pp. 581–613, 2018

40. L. Beirão da Veiga, A. Chernov, L. Mascotto, A. Russo *Basic principles of hp virtual element methods*. Mathematical Models and Methods in Applied Sciences, 26(8), pp. 1567–1598, 2016

Proceedings

1. Z. Dong, L. Mascotto *On the suboptimality of the p-version discontinuous Galerkin methods for first order hyperbolic problems*, 14th WCCM-ECCOMAS Congress 2020, vol. 700, 2021

Chapters

1. L. Mascotto, I. Perugia, A. Pichler, *The nonconforming Trefftz virtual element method: general setting, applications, and dispersion analysis for the Helmholtz equation*. In "The Virtual Element Method and its Applications", SEMA SIMAI Springer Series, vol. 31, pp. 363–410, 2022

Editorial Activity

- Member of the Editorial Board of Calcolo (Springer), 2026 – present
- Guest editor for the Special Issue "Advancements in Polytopal Element Methods" on the Journal "Mathematics in Engineering", 2024

Grants ($\gtrsim$ 2000 €)

- 340.000,00 €. Funding to organize the Trimester Program "Nonstandard Discretizations of Partial Differential Equations: from Theory to Applications ". Co-organizers: Paola Antonietti; Joscha Gedicke. September 2027 – December 2027

- 187.400,00 €. (unit leader, Milano-Bicocca of the) Project PRIN Grant ASTICE "Advanced Space-TIme disCrEtization methods: theory, solvers and applications" 28.09.2023–27.09.2025 funded by the Italian Ministery of Research and Unviersity, PI Andrea Moiola (University of Pavia)

- 407.526,00 €. Einzelprojekt P 33477, funded on 09.03.2020 by the FWF

Teaching activity

- **Academic Year 2025–2026 PhD course**, "Numerical Methods for time-dependent PDEs", PhD in Mathematics, University of Milano-Bicocca and Pavia (12 hours), in collaboration with Dr. Sergio Gomez, in English

- **Academic Year 2025–2026, 2026–2027** "Metodi del Calcolo Scientifico", Spring Semester, Department of Computer Science, Master, Università di Milano-Bicocca (52 hours), in Italian

- **Academic Year 2024–2025** "Metodi del Calcolo Scientifico", Spring Semester, Department of Computer Science, Master, Università di Milano-Bicocca, in collaboration with Prof. F. Dassi (42 hours), in Italian

- **Academic Year 2022–2023/2023–2024** "Metodi del Calcolo Scientifico", Spring Semester, Department of Computer Science, Master, Università di Milano-Bicocca, in collaboration with Prof. F. Dassi (10 hours), in Italian

- **Academic Year 2022–2023/2023–2024/2024–2025/2025–2026/2026–2027** "Metodi numerici per Equazioni alle Derivate Parziali", Spring Semester, Department of Mathematics and Applications, Master, Università di Milano-Bicocca, in collaboration with Dr. C. Tablino Possio (42 hours), in Italian

- **Academic Year 2022–2023/2023–2024/2024–2025/2026–2027** Teaching assistant for the course "Metodi numerici avanzati per Equazioni alle Derivate Parziali", Department of Mathematics and Applications, Master, Università di Milano-Bicocca, Prof. L. Beirão da Veiga (20 hours), in Italian

- **Academic Year 2022–2023/2023–2024/2024–2025 PhD course**, "Numerical Optimization", Fall Semester, PhD in Economics, Statistics and Data Science, University of Milano-Bicocca (12 hours), in English

- **Academic Year 2021–2022** "Metodi del Calcolo Scientifico", Spring Semester 2022, Department of Computer Science, Master, Università di Milano-Bicocca (52 hours), in Italian

- **Academic Year 2021–2022** Teaching assistant for the course "Metodi numerici avanzati per Equazioni alle Derivate Parziali", Fall Semester, Department of Mathematics and Applications, Master, Università di Milano-Bicocca, Prof. L. Beirão da Veiga (20 hours), in Italian

- **Academic Year 2020–2021** "Topics in Finite Elements", Spring Semester 2021, Fakultät für Mathematik, Master, Universität Wien (10 hours), in English

- **Academic Year 2020–2021** "Übungen zu Numerische Mathematik 1", Fall Semester 2020–2021, Fakultät für Mathematik, Bachelor, Universität Wien (56 hours), in German and English

- **Academic Year 2020–2021 PhD course** on-line, "The virtual element method", Northwest Polytechnic University Xi'an, China (3 hours), in English

- **Academic Year 2019–2020** "Übungen zu Analysis", Spring Semester 2020, Fakultät für Mathematik, Bachelor, Universität Wien (28 hours), in German
- **Academic Year 2019–2020** "Übungen zu Numerische Mathematik 1", Fall Semester 2019–2020, Fakultät für Mathematik, Bachelor, Universität Wien (56 hours), in German
- **Academic Year 2018–2019** "Topics in Finite Elements", Spring Semester 2019, Fakultät für Mathematik, Master, Universität Wien, in collaboration with Prof. Ilaria Perugia (16 hours), in English
- **Academic Year 2016–2017** Teaching assistant for the course "Methods for Scientific Calculus", Spring Semester 2017, Department of Computer Science, Master, Università degli Studi di Milano-Bicocca, together with Prof. Alessandro Russo (20 hours), in Italian
- **Academic Year 2016–2017** Teaching assistant for the course "Numerical Methods for Partial Differential Equations 2", Spring Semester 2017, Department of Mathematics, Master, Università degli Studi di Milano, course by Prof. Paola Causin (24 hours), in Italian
- **Academic Year 2015–2016** "Minimat: introduction to Mathematics", September 2015, Department of Computer Science, Bachelor, Università degli Studi di Milano (21 hours), in Italian
- **Academic Year 2015–2016** Teaching assistant for the course "Methods for Scientific Calculus", Spring Semester 2016, Department of Computer Science, Master, Università degli Studi di Milano-Bicocca, together with Prof. Lourenço Beirão da Veiga (20 hours), in Italian
- **Academic Year 2015–2016** Teaching assistant for the course "Numerical Methods for Partial Differential Equations 2", Spring Semester 2016, Department of Mathematics, Master, Università degli Studi di Milano, course by Dr. Paola Causin (36 hours), in Italian

Mentoring and Supervision of Students

- Advisor for the MSc Thesis "On the Crouzeix–Raviart Finite Element Method for p-Laplace-Type Problems" of Claudio Ranghetti at the Department of Mathematics and Applications, University of Milano-Bicocca, July 2026
- Advisor for the BSc Thesis "Risoluzione dell'equazione di advezione-diffusione in 1D con metodi agli elementi finiti" of Marta Piantelli at the Department of Mathematics and Applications, University of Milano-Bicocca, November 2025
- Advisor for the MSc Thesis "Finite element quasi-interpolation techniques for low regularity functions" of Clarissa Calió at the Department of Mathematics and Applications, University of Milano-Bicocca, July 2025
- Advisor for the MSc Thesis "Nodally bound-preserving finite element methods for second order partial differential equations" of Martina Salvia at the Department of Mathematics and Applications, University of Milano-Bicocca, July 2025
- Advisor for the BSc Thesis "Il metodo agli elementi finiti in una dimensione per il problema di Helmholtz" of Gianluca Stucchi at the Department of Mathematics and Applications, University of Milano-Bicocca, February 2025
- Advisor for the MSc Thesis "Conforming and non conforming finite element methods for the linear elasticity problem" of Dario Ferloni at the Department of Mathematics and Applications, University of Milano-Bicocca, November 2024
- Advisor for the BSc Thesis "Il metodo delle differenze finite per la deformazione di una piastra sottile" of Francesca Boffelli at the Department of Mathematics and Applications, University of Milano-Bicocca, November 2024

- Advisor for the BSc Thesis "Risoluzione di un'equazione differenziale tramite un metodo spettrale" of Daniele Brunetto at the Department of Mathematics and Applications, University of Milano-Bicocca, September 2024
- Advisor for the MSc Thesis "Space-time least-squares finite element methods for parabolic equations" of Marialetizia Mosconi at the Department of Mathematics and Applications, University of Milano-Bicocca, July 2024
- Advisor for the BSc Thesis "Il metodo alternante di Schwarz per la decomposizione del dominio" of Greta Busati at the Department of Mathematics and Applications, University of Milano-Bicocca, July 2024
- Advisor for the BSc Thesis "Metodi di ottimizzazione di tipo Trust Region" of Mr. Daniele Rossetti at the Department of Mathematics and Applications, University of Milano-Bicocca, November 2022
- Advisor for the MSc Thesis "Space-time finite elements for the heat equation: a priori analysis and adaptivity" of Ms. Agnese Frangi at the Department of Mathematics and Applications, University of Milano-Bicocca, September 2022
- Advisor for the MSc Thesis "The Virtual Element Method for the Helmholtz equation" of Mr. Daniele Dell'Oro at the Department of Mathematics and Applications, University of Milano-Bicocca, September 2022
- Advisor for the BSc Thesis "Abschätzung der Obere Grenze von Sigma Funktion" of Mr. Moisej Plistiev at the Fakultät für Mathematik, University of Vienna, January 2021
- Co-advisor (together with Prof. I. Perugia) for the MSc Thesis "Reduced basis methods for the Helmholtz problem" of Mr. Mark Strempel at the Faculty of Computer Science, University of Vienna, January 2020

PhD students

- Marialetizia Mosconi, University of Milano-Bicocca: 11.2024 – 10.2027

Post docs

- Swati Yadav, post doc at the University of Milano-Bicocca: 07.2024 – 01.2025
- Alexander Rieder, post doc at the University of Vienna: 03.2021 – 09.2021
- Monica Nonino, post doc at the University of Vienna: 03.2021 – 02.2024

Invited talks [1] and seminars

- Communication *TBA*, 5–9 July 2027, ICOSAHOM 2027, Milan, Italy
- Communication *TBA*, 17–29 May 2027, International Workshop on Advanced Computation of Partial Differential Equations, CityUHK, Hong Kong
- Communication *TBA*, 8–9 April 2027, Numerics of PDEs unplugged, Karlsruhe, Germany
- Communication *Sobolev-Poincaré inequalities for piecewise $W^{1,p}$ and $W^{2,p}$ functions*, 18–22 January 2027, WONAPDE 2027 (Eight Chilean workshop on numerical analysis of partial differential equation 2027), Concepcion, Chile

[1] With participation to the associated congress.

- Communication *Maxwell compactness for the virtual element complex*, 18–22 January 2027, WONAPDE 2027 (Eight Chilean workshop on numerical analysis of partial differential equation 2027), Concepcion, Chile
- Communication [plenary] *Sobolev-Poincaré inequalities for piecewise $W^{1,p}$ and $W^{2,p}$ functions over general polytopic meshes*, 9–12 November 2026, POEMS 2026, KAUST, Saudi Arabia
- Seminar *Equivalences and geometric bounds for $W^{1,p}$ inf-sup constants*, 21 September 2026, Nemesis Seminar, Universitè de Montpellier, Montpellier, France
- Communication *A generalized Hessian-based error estimator for an IPDG formulation of the biharmonic problem*, 20–24 July 2026, CMAM 2026, Vienna, Austria
- Communication *Trace inequalities for piecewise $W^{1,p}$ functions*, 9–11 July 2026, Foundations of Numerical PDEs, FoCM 2026, Vienna, Austria
- Communication *Locking-free and gradient-robust a posteriori error estimates for linear elasticity*, 25–28 May 2026, HOFEIM 2026, Siena, Italy
- Communication *A generalized Hessian-based error estimator for an IPDG formulation of the biharmonic problem*, 6–10 April 2026, International Conference of Advanced numerical schemes for multiphysics problems, Sanya, China
- Communication *Lucubrations on the stability and interpolation in the VEM world*, 18–19 December 2025, PoliTopes: A workshop on polytopal methods at PoliTo, Turin, Italy
- Seminar *On Sobolev-Poincaré inequalities for piecewise $W^{1,p}$ functions*, 5 November 2025, PDE Afternoon, University of Vienna and Technical University of Vienna, Austria
- Communication *Sobolev-Poincaré inequalities for piecewise $W^{1,p}$ functions over general polytopic meshes*, 1–5 September 2025, ENUMATH 2025, Heidelberg, Germany
- Communication *Error estimates for some structure preserving Galerkin discretizations of incompressible magnetohydrodynamics systems*, 13–18 July 2025, ICOSAHOM 2025, Montréal, Canada
- Communication *A posteriori error estimates of a DG-CG method for the wave equation in second order formulation*, 24–27 June 2025, 30th Biennial Numerical Analysis Conference, Glasgow, UK
- Seminar *On Sobolev-Poincaré inequalities for piecewise $W^{1,p}$ functions*, 4 June 2025, Institute for Numerical Simulations, University of Bonn, Germany
- Communication *A Nečas-Lions inequality with symmetric gradients on star-shaped domains based on a first order Babuška-Aziz inequality*, 3–6 December 2024, POEMS 2024, Paris, France
- Communication *Interpolation estimates for virtual element complexes*, 19–21 June 2024, Kick-off workshop – ERC NEMESIS, Montpellier, France
- Communication *Space-time virtual elements: a priori error analysis, residual error estimators, and adaptivity*, 10–14 June 2024, CMAM-10, Bonn, Germany
- Communication *Residual-based a posteriori error estimates for an hp discontinuous Galerkin method of the biharmonic problem*, 29 May – 2 June 2024, International Conference on Applied Mathematics, Hong Kong
- Seminar *Space-time virtual elements: a priori error analysis, residual error estimators, and adaptivity*, 9 May 2024, "Numerical Analysis Seminar" at the Department of Mathematics, Chinese University of Hong Kong, Hong Kong

- Communication *Enriching VEM with singular functions for crack propagation*, 29–31 January 2024, Calcolo Scientifico e Modelli Matematici 2024, Naples, Italy
- Communication *Residual-based a posteriori error estimates for an hp-discontinuous Galerkin method of the biharmonic problem*, 15–19 January 2024, WONAPDE 2024, Concepción, Chile
- Communication *Generalized gradients for virtual elements and applications to a posteriori error analysis*, 14–18 August 2023, ICOSAHOM 2023, Seoul, South Korea
- Communication *Virtual elements for Maxwell and MHD equations*, 3–7 July 2023, Workshop "Structure preserving numerical methods for partial differential equations", Lausanne, Switzerland
- Communication *Space-time virtual elements: a priori error analysis, residual error estimators, and adaptivity*, 27–30 June 2023, 29th Biennial Numerical Analysis Conference, Glasgow, UK
- Communication *The stability, the interpolation, and the VEM*, 25–28 April 2023, 22nd Computational Fluids Conference, Cannes, France
- Seminar *Enriching Galerkin methods*, 23 November 2022, "Mathlab seminar" at SISSA, Trieste, Italy
- Communication *Virtual elements, exact sequences, and magnetic problems*, 29 August – 2 September 2022, CMAM 2020–2022, Vienna, Austria
- Communication *Virtual Elements for time dependent Maxwell's equations and beyond*, 31 July – 5 August 2022, WCCM-APCOM 2022, Yokohama, Japan, on-line conference
- Communication *An overview of recent extended polygonal methods*, 4–8 July 2022, ESMC 2022, Galway, Ireland
- Communication *A space-time virtual element method for parabolic problems*, 5–9 June 2022, ECCOMAS 2022, Oslo, Norway
- Communication *Recent developments in enriched and extended virtual elements*, 14–18 March 2022, SIAM Conference on analysis of PDEs in Germany, on-line conference
- Seminar *Enriching Galerkin methods*, 3 March 2022, "Very informal seminar", University of Pavia, Italy
- Communication *Four error estimators for the p- and hp-versions of the virtual element method*, 12–16 July 2021, ICOSAHOM 2020–21, on-line conference
- Communication *A new paradigm for enriching virtual elements*, 21–24 June 2021, SIAM Conference on Mathematical & Computational Issues in the Geosciences, on-line conference
- Communication *Enriching virtual elements with singular functions*, 17–19 May 2021, Polygonal methods for PDEs: theory and applications, on-line workshop
- Seminar *Enriched nonconforming virtual element methods*, 29 April 2021, INRIA-SERENA internal seminar, invitation of Dr. Zhaonan Dong
- Communication *On Trefftz virtual element spaces*, 26–30 August 2019, WAVES 2019, Vienna, Austria
- Communication *The p- and hp-virtual elements for elliptic eigenvalue problems*, 15–19 July 2019, ICIAM 2019, Valencia, Spain
- Communication *The Trefftz virtual element method*, 18–21 June 2019, MAFELAP 2019, Uxbridge, London, UK
- Communication [keynote lecture] *A nonconforming Trefftz virtual element method for the fluid-fluid interface problem*, 18–22 February 2019, GAMM 2019, Vienna, Austria

- Communication *A nonconforming Trefftz virtual element method for the fluid-fluid interface problem*, 21–25 January 2019, Sixth Chilean Workshop of Numerical Analysis of Partial Differential Equations WONAPDE 2019, Concepción, Chile
- Communication *hp VEM and a posteriori error analysis*, 2–6 July 2018, 10th European Solid Mechanics Conference, Bologna, Italy
- Communication *A nonconforming Trefftz-virtual element method for the Helmholtz problem*, 12–15 June 2018, Structural Dynamical Systems workshop, Capitolo, Italy
- Communication *Nonconforming harmonic virtual element method: h- and p-versions*, 3–4 May 2018, 14th Austrian Numerical Analysis Day 2018, Klagenfurt, Austria
- Communication *hp Virtual Element Method*, 17–19 January 2018, DK Winter Workshop and SFB Internal Meeting, Reichenau an der Rax, Austria
- Communication *The hp version of the Virtual Element Method*, 25–29 September 2017, ENUMATH 2017, Voss, Norway
- Communication *Virtual Element Method: a therapy for ill-conditioning*, 5–7 July 2017, PO-EMS workshop on Polytopal Methods for PDEs, Milan, Italy
- Seminar *hp Virtual Element Methods: an introduction*, 17 May 2017, DK seminar – Summer Term 2016–17, invitation of Prof. Ilaria Perugia
- Communication *The Harmonic version of the Virtual Element Method and its hp version*, 5–7 April 2017, IACM 19th International Conference on Finite Elements in Flow Problems – FEF 2017, Rome, Italy
- Communication *The hp version of the Virtual Element Method: approximation of corner singularities*, 13–17 September 2016, SIMAI 2016, 20 minutes, Politecnico di Milano, Milan, Italy
- Communication *The hp version of Virtual Element Methods for the Poisson problem: approximation of corner singularities*, 13–17 June 2016, MAFELAP 2016, Brunel University, London, UK
- Seminar *Raffinamenti di tipo hp per il metodo degli Elementi Virtuali*, 10 June 2016, PhD Day, Milan, Italy
- Seminar *An introduction to Virtual Element Methods and their p version*, 12 November 2015, Oberseminar, Oldenburg, Germany
- Communication *Basic principles of hp Virtual Element Method*, 9–11 September 2015, X-DMS (Extended Discretization Methods) 2015, Ferrara, Italy

Participation in Schools

- Summer School in Dobbiaco (Bolzano), Italy: "Theory and Practice of the Virtual Element Method", 17–22 June 2018
- Summer School in Dobbiaco (Bolzano), Italy: "Innovative concepts for complexity reduction in numerical PDEs: nonlinear approximation, sparsity, adaptivity, model reduction", 21–26 June 2015

Periods for scientific collaboration

- 21–24 September 2026, invited to Universitè de Montpellier, Montpellier, France, invitation of Dr. Jérôme Droniou

- 2–7 August 2026, invited to INRIA, Paris, France, invitation of Dr. Zhaonan Dong
- 2–5 June 2026, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke
- 3–7 December 2025, invited to INRIA, Paris, France, invitation of Dr. Zhaonan Dong
- 30 November – 3 December 2025, invited to INRIA, Lille, France, invitation of Dr. Théophile Chaumont-Frelet
- 1–6 November 2025, invited to the Fakultät für Mathematik, Universität Wien, invitation of Prof. Ilaria Perugia
- 28 September – 2 October 2025, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke
- 2–7 August 2025, invited to INRIA, Paris, France, invitation of Dr. Zhaonan Dong
- 1–6 June 2025, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke
- 1–3 December 2024, invited to INRIA, Lille, France, invitation of Dr. Théophile Chaumont-Frelet
- 29 September – 4 October 2024, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke
- 25–31 August 2024, invited to INRIA, Paris, France, invitation of Dr. Zhaonan Dong
- 22–26 July 2024, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Gregor Gantner
- 13–17 May 2024, invited to INRIA, Lille, France, invitation of Dr. Théophile Chaumont-Frelet
- 11–15 December 2023, invited to the Fakultät für Mathematik, Universität Wien, invitation of Prof. Ilaria Perugia
- 17–21 July 2023, invited to the Department of Mathematics, University of Salento, Lecce, Italy, invitation of Prof. Ivonne Sgura
- 31 May – 2 June 2023, invited to the Fakultät für Mathematik, Universität Wien, invitation of Prof. Ilaria Perugia
- 22–26 January 2023, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke
- 15–20 January 2023, invited to the Fakultät für Mathematik, Universität Wien, invitation of Prof. Ilaria Perugia
- 22–25 November 2022, invited to SISSA, Trieste, Italy, invitation of Prof. Andrea Cangiani
- 21–27 May 2022, invited to INRIA, Paris, France, invitation of Dr. Zhaonan Dong
- 16–21 January 2022, invited to the Fakultät für Mathematik, Universität Wien, invitation of Prof. Ilaria Perugia
- 21–25 November 2021, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke
- 17–22 July 2021, invited to INRIA, Paris, France, invitation of Dr. Zhaonan Dong
- 6–10 September 2020, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke

- 10–14 March 2020, invited to the School of Mathematics, University of Cardiff, UK, invitation of Dr. Zhaonan Dong
- 17–21 February 2020, invited to IMATI-CNR, Pavia, Italy, invitation of Dr. Gianmarco Manzini
- 10–13 February 2020, invited to the Institut für Mathematik, Carl von Ossietzky Universität Oldenburg, invitation of Prof. Alexey Chernov
- 18–20 November 2019, invited to Institut für Numerische Simulation, Universität Bonn, Germany, invitation of Prof. Joscha Gedicke
- 4–17 August 2019, invited to the Theoretical Division, Los Alamos National Laboratory, New Mexico, USA, invitation of Dr. Gianmarco Manzini
- 1–5 October 2018, invited to the Dipartimento di Matematica, Università degli Studi di Milano-Bicocca, invitation of Dr. Giuseppe Vacca
- 27–29 August 2018, invited to the Institut für Mathematik, Carl von Ossietzky Universität Oldenburg, invitation of Prof. Alexey Chernov
- 3–31 October 2017, invited to Fakultät für Mathematik, Universität Wien, invitation of Prof. Ilaria Perugia
- 16–19 May 2017, invited to the Fakultät für Mathematik, Universität Wien, invitation of Prof. Ilaria Perugia

Organization activity

- Member of the Organizing Committee of "ICOSAHOM 2027", 5–9 July 2027, Milan, Italy
- Organizer of the mini-symposium "Functional Analysis Tools in Numerical Methods for PDEs" in *WONAPDE 2027, Eighth Chilean workshop on numerical analysis of partial differential equation 2027*, 18–22 January 2027, Concepcion, Chile, in collaboration with M. Botti
- Organizer of the Trimester Program "Nonstandard Discretizations of Partial Differential Equations: from Theory to Applications", 20 September 2027 – 17 December 2027, Bonn, Germany, in collaboration with P. Antonietti and J. Gedicke
- Organizer of the mini-symposium "A posteriori error estimates and adaptive algorithms for nonconforming methods" in *CMAM 2026*, 20–24 July 2026, Vienna, Austria, in collaboration with Z. Dong
- Organizer of the mini-symposium "Advances on nonstandard Galerkin methods" in the *30th Biennial Numerical Analysis Conference*, 24–27 June 2025, Glasgow, UK, in collaboration with Z. Dong
- Organizer of the minisymposium "Advances in p- and hp-, and problem oriented Galerkin methods" in *CMAM-10*, 10–14 June 2024, Bonn, Germany, in collaboration with T. Chaumont-Frelet
- Organizer of the minisymposium "Advances in Polytopic Methods" in *WONAPDE 2024, Seventh Chilean workshop on numerical analysis of partial differential equation 2024*, 15–19 January 2024, Concepcion, Chile, in collaboration with M. Botti
- Member of the Organizing Committee of the Workshop "POEMs 2022", 12–14 December 2022, Milan, Italy, in collaboration with M. Botti, F. Dassi, I. Mazzieri (Organizing Committee), P. F. Antonietti, L. Beirão da Veiga, D. Di Pietro, A. Russo, M. Verani (Scientific Committee)

- Organizer of the minisymposium "Polygonal and polyhedral methods: theory and applications" in *GIMC-SIMAI YOUNG 2022*, 29–30 September 2022, Pavia, Italy, in collaboration with M. Botti
- Organizer of the minisymposium "Structure preserving and adaptive polytopal methods" within *ECCOMAS 2022*, 5–9 June 2022, Oslo, Norway, in collaboration with P. F. Antonietti, A. Cangiani, and Z. Dong
- Organizer of the minisymposium "*p*- and *hp*-Galerkin methods and approximation of singularities" within *ICOSAHOM 2020*, 12–16 July 2021, Vienna, Austria, in collaboration with Z. Dong
- Organizer of the minisymposium "Recent advancements in p and hp Galerkin methods" within *MAFELAP 2019, The Mathematics of Finite Elements and Applications 2019*, 17–21 June 2019, London, UK, in collaboration with Z. Dong and A. Chernov
- Organizer of the minisymposium "Recent advances in Galerkin methods based on polytopal meshes" within *GAMM 2019*, 18–22 February 2019, Vienna, Austria, in collaboration with S. Weißer
- Organizer of the minisymposium "Recent advancements in polygonal methods" within *WONAPDE 2019, Sixth Chilean workshop on numerical analysis of partial differential equation 2019*, 21–25 January 2019, Concepcion, Chile, in collaboration with L. Beirão da Veiga, D. Mora, and G. Vacca
- Local Organizer of "The 15th European Finite Element Fair", 26–27 May 2017, Milan, Italy
- Organizer and Creator of MediolaNum 2017, miniworkshop for PhD students and Post Docs from the Universities of Milan (and its neighbourhood), 12 May 2017, Milan, Italy

Referee activity for Journals

- Advances in Computational Mathematics (Springer)
- Alexandria Engineering Journal (Elsevier)
- Applied Mathematics Letters (Elsevier)
- Applied Mathematics and Computation (Elsevier)
- Applied Numerical Mathematics (Elsevier)
- BIT Numerical Mathematics (Springer)
- Calcolo (Springer)
- Computational Mechanics (Springer)
- Computers & Mathematics with Applications (Elsevier)
- Computer Methods in Applied Mechanics and Engineering (Elsevier)
- Computer Physics Communications (Elsevier)
- Communications in Computational Physics (Global Science Press)
- Communications in Nonlinear Science and Numerical Simulation (Elsevier)
- Domain Decomposition Methods in Science and Engineering XXIX (Springer)
- Engineering with Computers (Springer)
- ESAIM: Mathematical Modelling and Numerical Analysis (EDP Sciences)

- Electronic Transactions on Numerical Analysis (University of Kent and RICAM)
- Foundations of Computational Mathematics (EMS Press)
- IMA Journal of Numerical Analysis (Oxford Academic)
- International Journal for Numerical Methods in Engineering (Wiley)
- International Journal of Computational Methods (World Scientific)
- International Journal of Numerical Analysis and Modeling (Global Science Press)
- Journal of Applied Mathematics and Computing (Springer)
- Journal of Computational and Applied Mathematics (Elsevier)
- Journal of Computational Dynamics (American Institute of Mathematical Sciences)
- Journal of Computational Mathematics (Global Science Press)
- Journal of Computational Physics (Elsevier)
- Journal of Mathematical Analysis and Applications (Elsevier)
- Journal of Scientific Computing (Springer)
- Mathematical Models and Methods in Applied Sciences (World Scientific)
- Mathematical Methods in the Applied Sciences (Wiley)
- Mathematics and Computers in Simulations (Elsevier)
- Mathematics of Computation (American Mathematical Society)
- Mathematics in Engineering (AIMS press)
- Numerical Algorithms (Springer)
- Numerical Mathematics: Theory, Methods and Applications (Global Science Press)
- Proceedings in Applied Mathematics and Mechanics (Wiley)
- Research in the Mathematical Sciences (Springer)
- Results in Applied Mathematics (Elsevier)
- SIAM Journal on Numerical Analysis (SIAM)
- SIAM Journal on Scientific Computing (SIAM)
- SN Partial Differential Equations and Applications (Springer)

Referee activity for PhD Thesis

- Referee for the PhD Thesis of Alberto Artoni (2023, Politecnico di Milano)
- Referee for the PhD Thesis of Liu Jingyu (2026, City University of Hong Kong)

Professional membership

- Member of the Italian Society for Applied and Industrial Society (SIMAI)
- Member of the Italian National Group for Scientific Computing (GNCS)

Milan, November 5, 2026

Lorenzo Mascotto