Curriculum Vitae et Studiorum
Paola F. Antonietti

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I. Education

Jan. 19, 2007 PhD in Mathematics and Statistics, Dipartimento di Matematica, Università degli Studi di Pavia, Italy. Thesis: "*Domain Decomposition, Spectral Correctness and Numerical Testing of Discontinuous Galerkin Methods*". Advisors: Prof. A. Buffa, Prof. I. Perugia.

Sept. 19, 2003 Laurea (MSc) *cum laude* in Mathematics, Università degli Studi di Pavia, Italy. Advisor: Prof. I. Perugia. Thesis "*Il metodo Interior Penalty per il problema di Poisson*".

July 1999 High school diploma (scientific oriented), Italy. Final grade: 100/100.

II. Accademic Positions

Jan. 9, 2023 $\longrightarrow$ Head of Laboratory for Modeling and Scientific Computing MOX, Dipartimento di Matematica, Politecnico di Milano.

Apr. 8, 2019 $\longrightarrow$ Professor of Numerical Analysis at MOX – Laboratory for Modeling and Scientific Computing, Dipartimento di Matematica, Politecnico di Milano.

Nov. 2022— Research associate, IMATI – Institute for Applied Mathematics and Information Technologies "*Enrico Magenes*", Pavia, IT.

III. Past Accademic Positions

Feb. 16, 2015 - Apr. 7, 2019 Tenured Associate Professor of Numerical Analysis at MOX – Laboratory for Modeling and Scientific Computing, Dipartimento di Matematica, Politecnico di Milano.

June 1, 2008 - 15 Feb., 2015 Assistant Professor of Numerical Analysis at MOX – Laboratory for Modeling and Scientific Computing, Dipartimento di Matematica, Politecnico di Milano.

Feb. 1, 2008 - May 31, 2008 Postdoctoral fellow, MOX – Laboratory for Modeling and Scientific Computing, Dipartimento di Matematica, Politecnico di Milano, Italy.

Oct. 1, 2007 - Jan. 31, 2008 Postdoctoral fellow, Dipartimento di Matematica, Università degli Studi di Pavia.

March 1, 2007 - Sept. 30, 2007 Research fellow, School of Mathematical Sciences, University of Nottingham, UK. Position funded by the ADIGMA European Project.

Jan. 2006 - June 2006 Visiting PhD Student, Oxford University Computing Laboratory, Oxford, UK. Supervisor: Prof. E. Süli.

Nov. 1, 2003 - Oct. 31, 2006 PhD student (with an Italian government scholarship) at Dipartimento di Matematica, Università degli Studi di Pavia, Italy.

Oct. 2003 Admitted to the Master "*Applicazioni della Matematica nell'Industria*" (MAMI) Dipartimento di Matematica, Università degli Studi di Milano Bicocca, Italy. Financial support given by Istituto Nazionale di Alta Matematica (INdAM). Renounced for incompatibility with the PhD position.

IV. Honors and Awards

2023 Recipient of the ERC 2023 Synergy Grant "*NEMESIS*" (2024-2030) funded by the European Research Council (co-PIs: Lourenco Beirao da Veiga, Daniele A. Di Pietro, Jerome Droniou).

2020 ***ECCOMAS Jacques-Louis Lions award.*** Awarded by the European Community on Computational Methods in Applied Sciences on a biannual basis. The Jacques-Louis Lions award is awarded to young researchers with outstanding contributions in the field of Computational Mathematics.

2020 The paper: [P. F. Antonietti, C. Facciolá, A. Russo, and M. Verani, "*Discontinuous Galerkin Approximation of Flows in Fractured Porous Media on Polytopic Grids*" *SIAM J. Sci. Comput.*, 41(1), A109–A138] is among the 51 articles listed in the **SIAM Journals Top Three Most Cited Papers** since 2018 in the 17 journals published by SIAM.

2016 *SIMAI prize 2015* awarded by the Italian Society of Applied and Industrial Mathematics. The prize is given to a young researcher who has given outstanding contributions in the field of applied and industrial mathematics. The selection was made by an international panel of mathematicians belonging to European Societies of Applied Mathematics.

2015 SIR (Scientific Independence of Young Researchers) starting grant funded by MIUR: the Italian Ministry of Education, Universities and Research.

2015 Fondazione Cariplo and Regione Lombardia research grant.

2008, 2011, 2013, 2015 "*Young researchers grant*" awarded by Dipartimento di Matematica, Politecnico di Milano.

2008 "*Fausto Saleri*" prize awarded by the Italian Society for Industrial Applications of Mathematics (SIMAI), 2008. Project: "*Numerical methods for the simulation of extrusion processes*".

2004 Winner (ex-aequo) of the "*S. Cinquini and M. Cinquini Cibrario*" prize for the best thesis in Mathematics of the Academic Years 2001-2002 and 2002-2003 awarded by Università degli Studi di Pavia, 2004.

V. Scientific Boards, Committees and Commissions of Trust

2023⟶. Member of the Scientific Committee of the *Center for Technology Foresight* at Politecnico di Milano: a Strategic Advisory Board aimed at looking into the longer-term future of science, technology, and innovation in order to make better-informed policy decisions.

2023⟶ Member of the Steering Committee of the *ATOS Joint Research Center*, Politecnico di Milano

2023⟶ Member of ICOSAHOM (International Conference on Spectral and High Order Methods) Scientific Committee.

2022-2025 Member of the Scientific Advisory Board of the VISTA Center for Modeling of Coupled Subsurface Dynamics (CSD), University of Bergen.

2022⟶ Scientific board, Gianfranco Ferrè Research Center, Politecnico di Milano.

2022-2025 National Center "*High Performance Computing, Big Data e Quantum Computing*", Politecnico scientific coordinator for the spoke n.6 "*Multiscale Modelling and Engineering Applications*".

2022⟶ Member of the Scientific Committee of the Conference Series "Polytopal Element Methods in Mathematics and Engineering" (POEMS).

2023 Member of the SIAM/GS Career Prize Selection Committee.

2022–2023 Domain Panel Member – Engineering, Mathematics and Computer Sciences – EuroHPC Regular Access Call.

2022 Member of the ECCOMAS Awards Committee.

2022 Member of the Scientific Committee of the international workshop "*Polytopal Element Methods in Mathematics and Engineering*" (POEMS2022) December 12-14, 2022, Politecnico di Milano.

2022 Member of the Evaluation Committe, SNSF Swiss Postdoctoral Fellowships 2022.

2021–2023 Member of the National Scientific Qualification (ASN) Committee for qualification to associate and full professors (ASN 2021-2023).

2020–2022 Member of GEV 01 (Mathematics and Informatics), National Evaluation of Research Quality (VQR 2015-19).

2020-2022 Member of the scientific board of the Department of Mathematics, Politecnico di Milano.

2020–2021 Panel member of the Research Council for Natural Sciences and Engineering at the Academy of Finland 2020

2020–2021 Panel member, National Research Program 2021-2027 (PNR 2021-2027), Ministry of Education.

2020 Member of the Scientific Committee of the international conference "Finite Volumes for Complex Applications IV" (FVCA9) June 15-19, 2020 in Bergen, Norway.

2020 Invited mentor at the "*ECCOMAS Young Investigators Career Forum*", within the WCCM-ECCOMAS 2020 conference. Organized by the ECCOMAS Young Investigators Committee (EYIC).

2017-2022 Member of the working group `PoliMI2040` at Politecnico di Milano. PoliMI2040 is a Strategic Planning Advisory Board supporting the Institutional Bodies in developing strategic plans and medium-term visions on teaching and research.

2018–onwards Member of the board of economic auditors (collegio dei revisori dei conti) of SIMAI-Italian Society of Industrial and Applied Mathematics.

2017⟶ Member of the Scientific Board of Doctoral program in Mathematical Models and Methods in Engineering, Politecnico di Milano.

2016-2019 Member of ECCOMAS Young Investigators Committee (EYIC).

VI. Research Fellowships

2016 Istitute Henri-Poincaré. Short term fellowship as visiting Professor.

VII. Editorial Duties

2022⟶ Associate Editor of Mathematics of Computation.

2020⟶ Associate Editor of SIAM Journal on Scientific Computing.

2023⟶ Associate Editor of Bollettino dell'Unione Matematica Italiana (BUMI).

2022⟶ Associate Editor of Frontiers in Applied Mathematics and Statistics, specialty section on Numerical Analysis and Scientific Computation.

2021⟶ Associate Editor of European Journal of Computational Mechanics.

2022 Guest editor for the special volume on "*The Virtual Element Method ad its Applications*" in the SEMA-SIMAI Springer series.

2017 Guest editor for the special issue "*Advanced numerical methods: recent developments, analysis and application*" on Computational Methods in Applied Mathematics.

VIII. Interviews and Press

2023 PAM–PodcAst di Matematica: "*Matematica alla scoperta del cervello*" [Link]

2023 "*Nuove generazioni di metodi numerici: il progetto NEMESIS.*" Maddmaths! - Matematica: Divulgazione e Didattica [Link].

2023 POMERIGGIO MARCONI - Ospite Paola Antonietti - Politecnico di Milano [Link].

2023 Corriere.it 26.10.23 [Link].

2023 EurekAlert NEWS RELEASE 26.10.23 [Link].

2023 BIOENGINEER 26.10.23 [Link].

2023 ANSA 26.10.23 [Link].

2016 Paola F. Antonietti, "*Measuring seismic phenomena*", Platinum Il Sole 24 ore Business media, n. 26, pg. 91, Novembre 2016. ISSN: 2038-2596.

2016 "*Paola Antonietti e... le onde sismiche.*" Maddmaths! - Matematica: Divulgazione e Didattica. [Link].

2010 P. F. Antonietti and M. Verani. "*Matematica applicata ai tessuti: uno stile tutto da dimostrare*", Newton 2 (2010), pp. 94-95

IX. Invited Research Visits

1. University of Bari (Jan 2024). Invited by L. Lopez.
2. Simula (May 2023). Invited by K.A. Mardal and L. Zikatanov.
3. EPFL (Jan. 2023). Invited by A. Buffa.
4. University of Nottingham (16-19 March 2020). Invited by A. Cangiani, P. Houston (cancelled).
5. University of Geneva (17-19 Feb. 2020). Invited by M. Gander, P. Lucero.
6. Technische Universität München (11 Jan. 2019). Invited by B. Wohlmuth.

7. University of Leiceser (14–17 Feb. 2017). Invited by M. Geourgolis.
8. University of Montpellier (23–25 Jan. 2017). Invited by D. Di Pietro.
9. EPFL Lausanne (5–6 July. 2016). Invited by L. Dedè, A. Quarteroni.
10. University of Vienna (26 Jan.–1 Feb 2014). Invited by I. Perugia.
11. Centre de Recerca Matemàtica, Barcelona (25 Jan.-3 Feb. 2012). Invited by B. Ayuso.
12. School of Mathematical Sciences, University of Nottingham (28 March-3 Apr. 2011). Invited by P. Houston.
13. Università degli Studi del Sannio di Benevento (13–16 Dec. 2010). Invited by A. Borzì.
14. Mathematisches Institut, Universität Bern, Bern (11–15 Oct. 2010). Invited by T. Whiler.
15. BCAM, Basque Center for Applied Mathematics, Bilbao (7–12 Feb. 2010). Invited by E. Zuazua.
16. Universidad Autònoma de Madrid, Madrid (22–26 May 2009). Invited by B. Ayuso.
17. IMDEA, Universidad Autònoma de Madrid, Madrid (9–15 Nov. 2008). Invited by A. Pratelli.
18. Department for Mathematics, UBC, Vancouver (1–5 Dec. 2007). Invited by D. Schötzau.
19. School of Mathematical Sciences, University of Nottingham (1 Oct.-1 Nov. 2007). Invited by P. Houston.
20. Department for Mathematics CCES RWTH - Aachen University, Aachen (5–10 Nov. 2006). Invited by J. Schoberl.
21. Fachbereich Mathematik und Informatik, Johannes Gutenberg-Universität, Mainz (10–20 Nov. 2005). Invited by di A. Juengel.

X. Invited Lectures, Conference Talks, Seminars

Plenary Lectures

1. ECM24 "*9th European Congress of Mathematics*", Sevilla, ES (semi-plenary)
2. PINN-PAD 2024: "*Physics Informed Neural Networks in PADua*", Padova, IT
3. ECCOMAS 2024: "*9th European Congress on Computational Methods in Applied Sciences and Engineering*" June 3-7, 2024, Lisbon (PT). Semi-plenary lecture.
4. HONOM 2024: "*International Conference on High-Order Nonlinear numerical Methods*", Sept. 9-13, 2024, Chania (GR).
5. FVCA10: " *Finite Volumes for Complex Applications Conference*", Université de Strasbourg, 30 Oct. 30-Nov. 3, 2023 (FR).
6. M-FET 2023 ECCOMAS Thematic Conference "*III Modern Finite Element Technologies – Mathematical and Mechanical Aspects*", Mülheim (DE).
7. INdAM Days 2023, Università degli Studi di Salerno (IT).
8. ENUMATH 2023: "*European Conference on Numerical Mathematics and Advanced Applications*", September 4-8, 2023, Lisbon (PT).
9. Scientific Meetings of Italian Mathematics Union – UMI 2022-2024, in occasion of UMI's centenary, 23 Giugno 2022, Napoli (IT).
10. Swiss Numerics Day 2021, EPFL, Sept. 13, 2021, Lausanne (CH).
11. Chemnitz Finite Element Symposium 2021, Sept. 6-8, 2021, Technische Universität Chemnitz (DE).

12. UKACM 2021 "*Annual Conference of the UK Association for Computational Mechanics*", April 14-16, 2021, Loughborough University - online.
13. ENUMATH 2021 "*European Conference on Numerical Mathematics and Advanced Applications*", Lisbon (PT) (postponed to 2023).
14. Swiss Numerics Day 2020, University of Bern, June 4, 2020, Bern (CH) (cancelled).
15. IperPA2019 "*XVIII Italian Meeting on Hyperbolic Equations*", Palermo (IT)
16. SIMAI 2016: "*Bi-annual congress of the Italian Society of Industrial and Applied Mathematics*", Sept 13–16, 2016, Politecnico di Milano, Italy, "*2015 SIMAI Prize*" recipient lecture.
17. ICOSAHOM 2016: " *International Conference on Spectral and High Order Methods*", June 20-24, 2016, Rio de Janeiro, Brazil.
18. CANUM 2016: "*Congress of Numerical Analysis*", May 9–13, 2016, Obernai, France.
19. DDM22"*22nd International Conference on Domain Decomposition Methods*", Sept. 16-20, 2013, Lugano, Switzerland.
20. SIMAI 2010: "*Bi-annual congress of the Italian Society of Industrial and Applied Mathematics*", Cagliari University, Cagliari, June 21-25, 2010 ("*Fausto Saleri prize*" recipient lecture).

Invited Lectures and Colloquia

1. Invited lecture at the Workshop "*1st GRIP Conference: Glymphatic's role in proteinopathies*", Moss (NO), May 11-13, 2023.
2. Invited lecture at the Workshop "*17th Meeting of Tomography and Applications*", Politecnico di Milano (IT), May 15-17, 2023.
3. Invited lecture at the 2nd SFB International Workshop "*Taming Complexity in Partial Differential Systems*", University of Vienna (AU), Apr. 19-21, 2023.
4. Invited lecture at the Workshop "*Interplay of discretization and algebraic solvers: a posteriori error estimates and adaptivity*", Paris (FR), June 8-10, 2022,
5. Invited lecture at the Workshop "*RANAPDE - Recent Advances in the Numerical Approximation of Partial Differential Equations*", Universitá degli Studi di Milano (IT), June 24-25, 2021.
6. Invited lecture at INdAM Workshop "*MACH2021 Mathematical modeling and Analysis of degradation and restoration in Cultural Heritage*". Roma (IT), September 13-15, 2021.
7. Invited lecture at workshop "*Scattering by random heterogeneous media*", University of Augsburg, September 13–15, 2021.
8. Invited lecture at the 2nd SFB International Workshop on "*Taming Complexity in Partial Differential Systems*", Vienna from Wednesday, Feb. 24-26, 2021 (postponed to 2022).
9. Invited lecture at the "*LIA COPDESC and Lions Magenes Days*", Paris (FR), Nov 4–7, 2019.
10. Invited lecture at the workshop "*Seminari Padovani di Analisi Numerica*", Padova, Italy May 6-7, 2020 (postponed).
11. Invited lecture at the 2nd Workshop of the ERC Project CHANGE "*New CHallenges for (adaptive) PDE solvers: the interplay of ANalysis and GEometry*". Sestri Levante, Italy, November 25–27, 2019.
12. Invited keynote lecture at the workshop "*Iterative Methods for Partial Differential Equations*" organized by Gabriel R. Barrenechea and Jennifer Pestana. The workshop is funded by the London Mathematical Society within the "*Scottish Numerical Methods Network*". September 27, 2019. Strathclyde (UK).

13. Invited lecture at the "*Introductory Workshop*", within the Isaac Newton Institute program on "*Geometry, compatibility and structure preservation in computational differential equations*", organized by Elizabeth Mansfield, Arieh Iserles, Chris Budd, (Workshop organisers) and Elena Celledoni, Doug Arnold, Franco Brezzi and Reinout Quispel (program organisers), University of Cambridge, UK, July 8-12, 2019.

14. Invited keynote lecture within the minisymposium "*Advanced discretization methods in geoscience*" organized by Maria Nestola and Marco Favino, at the "*X-DMS 2019: eXtended Discretization Methods Conference*", July 3-5, 2019, Lugano (CH).

15. Invited lecture at the "*Scientific Colloquia and Meeting of the Unione Matematica Italiana*", Bologna, May 24, 2019, Italy. First talk given by a numerical analyst ever.

16. Invited lecture at the workshop "*Calcolo scientifico e modelli matematici: alla ricerca delle cose nascoste attraverso le cose manifeste*", Como, June 16–18, 2018.

17. Invited lecture at the workshop "*Nonconforming and DG methods*", Jan. 27, 2017, Università degli Studi di Milano.

18. Invited lecture at the workshop "*Discontinuous Galerkin methods*", June, 13, 2016, University of Reading.

19. Invited lecture at the GNCS meeting, Feb. 2–4, 2016, Montecatini.

20. Invited lecture at the workshop "*Polytopal Methods in Mathematics and Engeneering*", Oct., 26-28, 2015, Georgia Institute of Technology in Atlanta, GA (speaker: M. Verani).

21. Invited lecture at the workshop "*Discretization Methods for Polygonal and Polyhedral Meshes*", Sept, 17-19, 2012, University of Milano-Bicocca (IT).

22. Invited lecture at "*Journèes Lions-Magenes*", Universitè Pierre et Marie Curie, Laboratoire Jacques-Louis Lions, Paris, Dec. 14-15, 2011.

23. Invited lecture, BIRS workshop on "*Discontinuous Galerkin Methods for Partial Differential Equations*" organized by B. Cockburn, D. Schotzau and C.-W. Shu, Banff, Nov. 25-30, 2007.

24. Invited lecture, 2nd MIDNAG Meeting on "*Iterative Methods for the Solution of Systems of Equations*", Leicester University, May 24, 2007.

25. Invited lecture at the workshop "*Discontinuous Galerkin Methods: from Theoretical Development to Industrial Applications*", Bergamo, Feb. 24, 2006.

Invited Talks at Conferences

1. Invited talk within the minisymposium "*New Trends In The Mathematical And Numerical Aspects Of Fluid-Structure Interaction*" organized by M. Fernández, C. Grandmont, and M. Vidrascu at "*9th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS)*", June 3–7, 2024, Lisbon, PT.

2. Invited talk within the minisymposium "*Recent advances in discontinuous Galerkin methods and the related applications*" organized by E. Chung, L. Zhao at " *10th International Congress on Industrial and Applied Mathematics (ICIAM23)*", August 20-25, 2023, Tokyo, Japan.

3. Invited talk within the minisymposium "*Recent advancements in Polytopal Methods for Fluid Mechanics*" organized by L. Beirao da Veiga, D. Di Pietro, G. Vacca, at "*IACM Computational Fluids Conference (CFC23)* ", Cannes, FR, Apr. 25–28, 2023.

4. Invited talk within the minisymposium "*Novel numerical methods for partial differential equations*" organized by S. Badia, J. Droniou, V. Calo at "*SIAM Conference on Computational Science and Engineering (CSE23)*", Amsterdam, Feb. 26 - March 3, 2023.

5. Invited talk within the minisymposium "*Machine Learning for Finite Element Analysis*" organized by B. Keith, K. Mittal, S. Petrides, at "*SIAM Conference on Mathematics of Data Science*", San Diego, USA, Sept. 26 -30, 2022.

6. Invited talk within the minisymposium "*Looking into the Earth: Modelling, Inversion and Uncertainty Quantification in Computational Geophysics*" organized by V. Hapla, A. Zunino, J. Brackenhoff, at "*PASC2022: The Platform for Advanced Scientific Computing Conference*", Basel, Switzerland, June 27-29, 2022.

7. Invited talk within the minisymposium "*Structure preserving and adaptive polytopal methods*" organized by P.F. Antonietti, A. Cangiani, Z. Dong, L. Mascotto at "*ECCOMAS 2022*" conference, Oslo (NO), June 5-9, 2022.

8. Invited talk within the minisymposium "*Effective solvers for innovative discretizations of partial differential equations and applications*" organized by P. Antonietti, L. Pavarino and S. Scacchi at the "*bi-annual congress of the Italian Society of Applied and Industrial Mathematics (SIMAI)*", Parma, Aug. 30- Sept. 3, 2021.

9. Invited talk within the minisymposium "*Advances in the numerical simulation of multi-scale seismic wave propagation*" organized by I. Mazzieri, C. Smerzini and R. Paolucci at the "*2021 SIAM Conference on Mathematical and Computational Issues in Geosciences*", Politecnico di Milano, June 21-24, 2021.

10. Invited talk within the minisymposium "*Polygonal finite elements, DG and related methods*" organized by E.-J. Park, L. Zhao and D.-w. Shin at the "*the 26th International Domain Decomposition Conference (DD XXVI)*", Hong Kong, China, December 7-12, 2020.

11. Invited talk within the minisymposium "*"Advances in polygonal and polyhedral methods""*, organized by A. Borio, S. Lemaire, I. Mazzieri, and G. Vacca, at WCCM-ECCOMAS 2020 conference, Paris, France, July 19-24, 2020 (rescheduled in January 2021).

12. Invited talk within the minisymposium "*Polygonal Finite Elements, DG, and Related Methods*" organized by E.-J. Park, D-W. Shin and L. Zhao at the "*26th International Conference on Domain Decomposition Methods*", Chinese University of Hong Kong, December 7-12, 2020.

13. Invited talk within the minisymposium "*High-order polygonal and polyhedral methods*", organized by C. Canuto, and M. Verani at "*International Conference on Spectral and High Order Methods (ICOSAHOM)*", Vienna, Austria, July 6-10, 2020. (rescheduled in July 2021).

14. Invited talk within the minisymposium "*Polygonal and polyhedral methods in Applied Mathematics*", organized by D. Mora, and M. Verani at "*The International Congress on Industrial and Applied Mathematics 2019 (ICIAM 2019)*", Valencia, Spain, July 15-19, 2019.

15. Invited talk within the minisymposium "*Unfitted Finite Element Methods: Analysis, Algorithms and Applications*", organized by C. Lehrenfeld (University of Göttingen), E. Burman (University College London, UK), A. Massing (Umea University, Sweden), A. Reusken (RWTH Aachen University, Germany). at "*The Mathematics of Finite Elements and Applications 2019 (MAFELAP 2019)*", Brunel Institute of Computational Mathematics, Brunel University, UK, June 17-21, 2019.

16. Invited talk within the minisymposium "*Recent advancements in p- and hp- Galerkin methods*", organized by A. Chernov, P. Dong, and L. Mascotto at "*The Mathematics of Finite Elements and Applications 2019 (MAFELAP 2019)*", Brunel Institute of Computational Mathematics, Brunel University, UK, June 17-21, 2019.

17. Invited talk within the minisymposium "*Metodi Numerici per le Equazioni alle Derivate Parziali*", organized by L. Beirao da Veiga and M. Verani at "*XXI Congresso dell'Unione Matematica Italiana*", Università di Pavia, IT, Sept. 2-7, 2019.

18. Invited talk within the minisymposium "*Advances in analytical and discretization methods for discontinuities and singularities*", organized by E. Benvenuti, N. Sukumar and A. Tralli, at "*I0th European Solid Mechanics Conference (ESMC 2018)*", July 2-6, 2018, Bologna, Italy.

19. Invited talk within the minisymposium "*Virtual Element Methods*", organized by L. Beirao da Veiga, F. Brezzi, D. Marini, A. Russo at "*International Conference on Finite Elements in Flow Problems (FEF 2017)*", 5–7 Apr. 2017, Rome, Italy.
20. Invited talk within the minisymposium "*PDE Discretisation Methods on Polygonal and Polyhedral Meshes*", organized by A. Cangiani, G. Manzini, and S. Weisser at MAFELAP 2016, Brunel Institute of Computational Mathematics, Brunel University, June 14-17, 2016.
21. Invited talk within the minisymposium "*Galerkin Methods for Nonlinear Evolution Problems*", organized by M. Georgoulis and T. Wihler at MAFELAP 2016, Brunel Institute of Computational Mathematics, Brunel University, June 14-17, 2016.
22. Invited talk within the minisymposium "*High-order methods for polygonal and polyhedral meshes*", organized by L. Beirao da Veiga, F. Brezzi, L. D. Marini and A. Russo at ECCOMAS 2016, Creta, 5–10 June 2016.
23. Talk within the minisymposium "*Polygonal and Polyhedral Methods*" organized by P.F. Antonietti, L. Beirao da Veiga and M. Verani at X-DMS 2015: eXtended Discretization Methods Conference, Sept, 9-11 2015, Ferrara (Italy).
24. Invited talk within the minisymposium "*Structure-preserving and Polyhedral Discretizations*", organized by da L. Beirao da Veiga, A. Buffa, A. Ern, J.A. Evans, M. Gerritsma, G. Manzini e G. Sangalli at the "11th. World Congress on Computational Mechanics (WCCM XI)", Barcelona, July 20–25, 2014.
25. Invited talk within the minisymposium "*Solvers for Discontinuous Galerkin Methods*" organized by B. Ayuso and S.C. Brenner at the "*21th International Conference on Domain Decomposition Methods*", INRIA Rennes-Bretagne-Atlantique, Rennes, June 25-29, 2012.
26. Invited talk within the minisymposium "*Domain Decomposition for Discontinuous Galerkin Methods*" organized by B. Ayuso and S.C. Brenner at the "*20th International Conference on Domain Decomposition Methods*", UC San Diego, Feb. 7-11, 2011.
27. Invited talk within the minisymposium "*Advances in Domain Decomposition, Multilevel and Multigrid Methods*" organized by B. Ayuso, P.S. Vassilevski and L. T. ZikataNov. at the SIAM/RSME-SCM-SEMA Meeting "*Emerging Topics in Dynamical Systems and Partial Differential Equations*", Barcelona, May 31–June 4, 2010.
28. Invited talk within the minisymposium "*Theoretical and Computational Aspects of Discontinuous Galerkin Methods*" organized by Y. Epshteyn, B. Riviere and J. Guzman at "*MAFELAP 2009*", Brunel Institute of Computational Mathematics, Brunel University, June 9–12, 2009.
29. Invited talk within the minisymposium "*Non-conforming finite elements*" organized by A. Buffa, C. Lovadina within "VIII Congress of the Italian Society of Industrial and Applied Mathematics (SIMAI 2006)", Baia Samuele, Ragusa, May 22–26, 2006.

Lectures within International Schools/Doctoral Schools

1. Invited Lecture within the "*Summer school on advanced parallel-in-time methods*". The summer schoold is organized by G. CIaramella and funded by the European Mathematical Society and the Indam GNCS group. June, 13–15, 2023. Politecnico di Milano.
2. Lecturer of the doctoral course "*Theory and Application of Discontinuous Galerkin Methods for Partial Differential Equations*", International Doctoral School Gran Sasso Science Institute (GSSI), L'Aquila, April 2020.
3. Invited lecture within the doctoral course "*POLIMI4CasaItalia*", Politecnico di Milano Doctoral School, May 2017.
4. Lecturer of the doctoral course "*Discontinuous Galerkin methods*", International Doctoral School Gran Sasso Science Institute (GSSI), L'Aquila, May 2017.
5. Lecturer of the doctoral course "*Discontinuous Galerkin methods*", International Doctoral School Gran Sasso Science Institute (GSSI), L'Aquila, Feb. 2016.

Oberwolfach Meetings

1. Oberwolfach workshop "*Hilbert Complexes: Analysis, Applications, and Discretizations*", organized by A. M. Alonso Rodriguez, Douglas N. Arnold, D. Pauly, and F. Rapetti, June 19–25, 2022.
2. Oberwolfach workshop "*Multiscale Coupled Models for Complex Media: From Analysis to Simulation in Geophysics and Medicine*", organized by M. Peszynska, S. Pop, B Wohlmuth, Z. Yosibash, Jan. 23–29, 2022. Talk: "*Discontinuous Galerkin approximation of flows in fractured porous media on polygonal and polyhedral grids*".
3. Oberwolfach workshop "*Computational Engineering*", organized by O. Allix, A. Buffa, C. Carstensen, J. Schroeder, Oct. 21–27, 2018.
4. Oberwolfach workshop "*Discontinuous Galerkin Methods*", organized by S.C. Brenner, R.H.W. Hoppe and B. Riviere, Feb. 19–25, 2012. Talk: "*Schwarz methods for a preconditioned WOPSIP method for elliptic problems*".

Invited Posters

1. Invited poster at IMA "Numerical Solutions of Partial Differential Equations: Fast Solution Techniques", Minneapolis MN, Nov. 29-Dec. 3, 2010, organized by S.C. Brenner, S.D. Falgout and Ricardo H. Nochetto.

Contributed Talks

1. Contributed talk at ICIAM 2011, 7th International Congress on Industrial and Applied Mathematics, Vancouver, July 18–22, 2011.
2. Workshop Prospettive di Sviluppo della Matematica Applicata e Industriale in Italia 2009, Roma, Oct. 9., 2009.
3. Contributed talk at IX SIMAI Congress, Roma, Sept. 15-19, 2008.
4. Contributed talk at 18th International Conference on Domain Decomposition Methods, Jerusalem, Jan. 12–17, 2008.
5. Contributed talk at the Workshop Numerical Analysis: Multiscale Methods, Adaptivity & Complexity, Bath Institute for Complex Systems, University of Bath, Sept. 4-7, 2007.
6. Contributed talk at IHP Breaking Complexity: Young Researchers Meeting, Laboratoire Jacques-Louis Lions, Universitè Pierre et Marie Curie, Paris, Sept. 20–21, 2006.
7. Contributed talk at IV European Finite Element Fair, ETH, Zurich, June 2-3, 2006.
8. Contributed talk at ENUMATH 2005, 6th European Conference on Numerical Mathematics and Advanced Applications, Santiago de Compostela, July 18–22.
9. Contributed talk at Breaking Complexity Workshop (Breaking Complexity IHP Network), Pavia, Dec. 9–10, 2004.

Invited Seminars

1. Università degli Studi di Pavia. Apr. 10, 2023
2. Università degli Studi di Bari . Jan 24, 2023
3. "*Numerical modeling of earthquake ground motion*" SIAM-GS webinar Sept. 13, 2023
4. "*High-order polyhedral Discontinuous Galerkin methods for multiphysics problems*". One World Numerical Analysis, Jan 30, 2023 [link]
5. "*Machine Learning–Enhanced Refinement and Agglomeration Strategies for Polygonal and Polyhedral Methods*". EPFL, Jan 26, 2023.

6. "*La matematica dei terremoti: modelli e algoritmi*". Fondazione Ambrosianeum, Feb. 1, 2023.
7. "*Numerical models for earthquake ground motion and seismic risk assessment*". University of Trento, April 15, 2021.
8. "*Fast solution techniques for high-order Discontinuous Galerkin methods on polygonal/polyhedral grids*". University of Geneva, February 18, 2020.
9. "*Numerical modelling of earthquake ground motion*". SISSA, Nov. 18, 2019.
10. "*Numerical modelling of earthquake ground motion*". Technische Universität München, Jan. 11, 2019.
11. "*Numerical modeling of seismic waves by high-order Discontinuous Galerkin Methods*". University of Montpellier Jan., 24, 2017.
12. "*Discontinuous Galerkin Spectral Element Methods for Earthquake Simulations*", Seminaire du Laboratoire Jacques-Louis Lions, UPMC, Paris, Sept. 23, 2016.
13. "*Fast solution techniques for high order Discontinuous Galerkin methods*", INRIA Paris, Sept. 22, 2016.
14. "*Fast solution techniques for high order Discontinuous Galerkin methods*", EPFL, Lousanne, July 6, 2016.
15. "*Hierarchical a posteriori error estimate for the mimetic discretization of elliptic problems*". Centre de Recerca Matemàtica, Barcelona, Jan. 31, 2012.
16. "*Domain decomposition preconditioning for discontinuous Galerkin methods*". Computational Applied Mathematics Seminars, University of Nottingham, Mar. 28, 2011.
17. "*Domain decomposition preconditioning for the hp-version of the discontinuous Galerkin method*". Mathematisches Institut, Universität Bern, Bern, Oct. 11, 2010.
18. "*A class of Schwarz preconditioners for the hp-version of the discontinuous Galerkin method*". BCAM, Basque Center for Applied Mathematics, Bilbao, Feb. 11, 2010.
19. "*A class of Schwarz preconditioners for the hp-version of the discontinuous Galerkin method*". Dipartimento di Matematica, Università degli Studi di Pavia, Oct. 6, 2009.
20. "*A pre-processing moving mesh method for discontinuous Galerkin approximations of advection-diffusion-reaction problems*". IMDEA Seminar, Universidad Autònoma de Madrid, Madrid, Nov. 12, 2008.
21. "*Domain decomposition preconditioners for discontinuous Galerkin finite element methods*". MOX Seminar, Mathematics Department, Politecnico di Milano, May 27, 2008.
22. "*A class of two-level Schwarz preconditioners for discontinuous Galerkin methods*". Computational Applied Mathematics Seminars, University of Nottingham, Oct. 18, 2007.
23. "*Class of Schwarz preconditioners for discontinuous Galerkin approximations of elliptic problems*". Department for Mathematics CCES RWTH - Aachen University, Aachen, Nov. 7, 2006.
24. "*Domain decomposition preconditioners for discontinuous Galerkin methods*". Oxford University Computing Laboratory, Oxford University, June 16, 2006. Presented within the PhD course "*Discontinuous Galerkin Finite Element Methods*", organized by E. Süli.
25. "*Discontinuous Galerkin approximations of elliptic problems and some efficient preconditioners based on two-level discretizations*". Oxford University Computing Laboratory, Oxford University, Feb. 28, 2006.
26. "*Discontinuous Galerkin methods for elliptic equations*". Fachbereich Mathematik und Informatik Johannes Gutenberg-Universität, Mainz, Nov. 10, 2005.

27. "*Metodi agli elementi finiti discontinui per problemi ellittici*". IMATI-CNR, Pavia, Jan. 13, 2005. Presented within the PhD course "*Programming numerical methods for PDE's II*".

28. "*Discontinuous Galerkin Methods*". IMATI-CNR, Pavia, May 27, 2004. Presented within the PhD course "*Programming numerical methods for PDE's I*".

XI. Teaching Activities

A.Y. 2023/2024

- Lecturer. Numerical analysis for Partial Differential Equations. MSc in Mathematical Engineering. Politecnico di Milano.
- Lecturer. Numerical Linear Algebra. MSc in High Performance Computing Engineering. Politecnico di Milano.

A.Y. 2022/2023

- Lecturer. Numerical Mathematics. BSc in Mathematical Engineering. Politecnico di Milano.
- Lecturer. Numerical Linear Algebra. MSc in High Performance Computing Engineering. Politecnico di Milano.

A.Y. 2021/2022

- Lecturer. Numerical Mathematics. BSc in Mathematical Engineering. Politecnico di Milano.
- Co-lecturer of the PhD course: High-order methods for PDEs. PhD in Mathematical Models and Methods for Engineering. Politecnico di Milano (with L. Dedé)

A.Y. 2020/2021

- Co-lecturer of the PhD course: High-order methods for PDEs. PhD in Mathematical Models and Methods for Engineering. Politecnico di Milano (with L. Dedé)
- Lecturer. Numerical Mathematics. BSc in Mathematical Engineering. Politecnico di Milano.
- Lecturer. Numerical Approximation of Mathematical Models and Applications. BSc in Management Engineering . Politecnico di Milano.

A.Y. 2019/2020

- Lecturer of the Phd course: Theory and Application of Discontinuous Galerkin Methods for PDEs, International Doctoral School Gran Sasso Science Institute (GSSI), L'Aquila.
- Lecturer. Numerical Mathematics. BSc in Mathematical Engineering. Politecnico di Milano.

A.Y. 2018/2019

- Lecturer. Numerical analysis for Partial Differential Equations. MSc in Mathematical Engineering. Politecnico di Milano.
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.

A.Y. 2017/2018

- Co-lecturer. Solution of Large Linear Systems stemming from PDE Discretization: Numerical Methods and HPC Techniques. PhD in Mathematical Models and Methods for Engineering. Politecnico di Milano (with L. Formaggia and C. de Falco).
- Lecturer. Numerical analysis for Partial Differential Equations. MSc in Mathematical Engineering. Politecnico di Milano.

A.Y. 2016/2017

- Lecturer of the doctoral course Discontinuous Galerkin methods, International Doctoral School Gran Sasso Science Institute (GSSI), L'Aquila, May, 2017.
- Lecturer. Numerical methods and fundamentals of calculus. BSc in Aerospace Engineering. Politecnico di Milano.
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.

A.Y. 2015/2016

- Lecturer of the doctoral course Discontinuous Galerkin methods, International Doctoral School Gran Sasso Science Institute (GSSI), L'Aquila, Feb. 2016.
- Co-lecturer and co-organizer of the PhD course Shape Optimization and Optimal Control Problems meet Polygonal Methods for PDEs. PhD in Mathematical Models and Methods for Engineering. Politecnico di Milano (with M. Verani)
- Lecturer. Numerical methods and fundamentals of calculus. BSc in Aerospace Engineering. Politecnico di Milano.
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.

A.Y. 2014/2015

- Lecturer. Numerical methods and fundamentals of calculus. BSc in Aerospace Engineering. Politecnico di Milano.
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.
- Co-organizer of the PhD course Advances in Numerical Analysis. PhD in Mathematical Models and Methods for Engineering. Politecnico di Milano (with N. Parolini)

A.Y. 2013/2014

- Lecturer. Numerical methods and fundamentals of calculus. BSc in Aerospace Engineering. Politecnico di Milano.
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.
- Lecturer. Functional analysis and numerics for PDEs. MSc in Energy Engineering for an Environmentally Sustainable World (in English). Politecnico di Milano.

A.Y. 2012/2013

- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.

A.Y. 2011/2012

- Lecturer. Advanced mathematical methods for energy engineering. MSc in Energy Engineering for an Environmentally Sustainable World (in English). Politecnico di Milano.
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.
- Lecturer. Analytical and numerical methods for Engineering (part of Numerical Analysis). BSc in Energy Engineering. Politecnico di Milano.

A.Y. 2010/2011

- Lecturer. Advanced mathematical methods for energy engineering. MSc in Energy Engineering for an Environmentally Sustainable World (in English). Politecnico di Milano.
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.

A.Y. 2009/2010

- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.
- Lecturer. Mathematical analysis and geometry I. BSc in Aerospace, Energy and Mechanical Engineering. Politecnico di Milano.

A.Y. 2008/2009

- Co-Lecturer. Reading course Numerical methods for non-linear problems. PhD in Mathematical Models and Methods for Engineering. Politecnico di Milano (with F. Nobile and M. Verani).
- Lecturer. Numerical methods. BSc in Biomedical Engineering. Politecnico di Milano.
- Lecturer. Mathematical analysis and geometry I. BSc in Aerospace, Energy and Mechanical Engineering.

A.Y. 2007/2008

- Lecturer. Linear algebra and numerical methods. MSc in Mechanical Engineering. Politecnico di Milano.
- Head Assistant. Mathematical analysis A (ii). BSc in Biomedical, Telecommunication, Computer and Electrical Engineering. Università degli Studi di Pavia. Lecturer: M.L. Bernardi.

A.Y. 2006/2007

- Head Assistant. Mathematical analysis 1. BSc in Architectural Engineering. Università degli Studi di Pavia. Lecturer: F. Brezzi.
- Head Assistant. Mathematical analysis and computer science. BSc in Biotechnology. Università degli Studi di Pavia. Lecturer: R. Carbone.

A.Y. 2005/2006

- Head Assistant. Mathematical analysis and computer science. BSc in Biotechnology. Università degli Studi di Pavia. Lecturer: F. Salvarani.

A.Y. 2004/2005

- Head Assistant. Mathematical analysis and computer Science. BSc in Biotechnology. Università degli Studi di Pavia. Lecturer: I. Perugia.

A.Y. 2002/2003 and 2003/2004

- Tutor. Mathematical analysis and computer science. BSc in Biotechnology. Università degli Studi di Pavia. Lecturer: I. Perugia.

XII. Mentoring Activities

Postdoctoral Students

1. S. Bonetti. 01/11/2023 –31/10/2024. Supported by PRIN n. `20204LN5N5` grant "*Advanced polyhedral discretisations of heterogeneous PDEs for multiphysics problems*". Advisors: P.F. Antonietti
2. I. Fumagalli. 01/12/2022 –09/02/2023. Supported by PRIN n. `20204LN5N5` grant "*Advanced polyhedral discretisations of heterogeneous PDEs for multiphysics problems*". Advisors: P.F. Antonietti
3. N. Ferro. 01/11/2022 –31/10/2023. Supported by PRIN n. `20204LN5N5` grant "*Advanced polyhedral discretisations of heterogeneous PDEs for multiphysics problems*". Advisors: P.F. Antonietti, S. Micheletti, N. Parolini, S. Perotto, M. Verani.
4. P. Matalon. 01/10/2021 –30/09/2022. Supported by PRIN grant n. `201744KLJL` "*Virtual Element Methods: Analysis and Applications*". Advisors: P.F. Antonietti, M. Verani.
5. M. Botti. 01/07/2020 –30/06/2022. Supported by H2020-MSCA-IF-2019 grant "*PDGeoFF:Polyhedral Discretisation Methods for Geomechanical Simulation of Faults and Fractures in Poroelastic Media*". Advisor: P.F. Antonietti.
6. S. Zonca. 01/02/2020 –30/11/2020. Supported by PRIN grant n. `201744KLJL` "*Virtual Element Methods: Analysis and Applications*". Advisors: P.F. Antonietti, M. Verani.

7. F. Bonaldi. 01/03/2017–28/02/2019. Supported by SIR starting grant "*PolyPDEs: Non-conforming polyhedral finite element methods for the approximation of PDEs*". Advisor: P.F. Antonietti.

8. I. Mazzieri. 16/02/2016–01/06/2016. Supported by SIR starting grant "*PolyPDEs: Non-conforming polyhedral finite element methods for the approximation of PDEs*". Advisor: P.F. Antonietti. Current position of Dr. Mazzieri: assistant professor at Dipartimento di Matematica, Politecnico di Milano.

9. I. Mazzieri. 16/02/2015 - 15/02/2016. Supported by the project "*Advanced numerical methods for seismic wave propagation problems to estimate seismic hazard in large urban regions*". Advisors: P.F. Antonietti, A. Quarteroni.

10. I. Mazzieri. 16/02/2014 - 15/02/2015. Supported by the project "*Non-conforming spectral element methods for elastodynamics*". Advisors: P.F. Antonietti, A. Quarteroni.

11. I. Mazzieri. 16/02/2012 - 15/02/2014. Supported by the project "*SEM: Spectral Element Methods*". Funded by Munich Re. Advisor: A. Quarteroni. Co-Advisor: P.F. Antonietti.

12. A. Tavakoli. 01/04/2011 - 31/03/2013. Supported by the project "*Mathematical and numerical modeling of the fluidynamics of high-tech textiles*". Advisors: P.F. Antonietti, M. Verani.

13. T. Karvinen: 01/03/2010 - 31/08/2010. Supported by Tampere University of Technology, Finland. Advisors: P.F. Antonietti, M. Verani.

PhD Students

1. C. B. Leimer Saglio. 01/11/2023⟶. Topic: "*Wave propagation within the brain*". Advisor: P.F. Antonietti. Co-Advisor: S. Pagani.

2. M. Corti. 01/11/2021⟶. Topic: "*Modelling neurodegenerative deseases*". Advisor: P.F. Antonietti. Co-Advisor: L. Dedé.

3. M. Caldana. 01/11/2021.⟶. Topic: "*Machine Learning-aided enhancement and acceleration techniques for polytopal finite element methods*". Advisor: L. Dedé. Co-Advisor: P.F. Antonietti, I. Mazzieri.

4. S. Bonetti, 01/11/2020⟶. Topic: "*Numerical modelling of multi-physics wave propagation phenomena*". Advisor: P.F. Antonietti, Co-Advisor: M. Botti.

5. A. Artoni. 01/11/2020⟶. Topic: "*Aeroacustic simulations*". Advisors: N. Parolini, D. Rocchi. Co-Advisors: P.F. Antonietti, R. Corradi, I. Mazzieri, P.Schito,

6. E. Manuzzi. 01/11/2019⟶ Topic: "*Machine Learning- enhanced refinement strategies for polyhedral grids with applications to Virtual Element and polyhedral Discontinuous Galerkin methods*". Advisor: P.F. Antonietti.

7. L. Melas. 01/11/2017-05/02/2021. Topic: "*Three-dimensional physics-based numerical simulations of earthquake ground motion for advances seismic risk assessment in Italian urban areas*". Advisor: P.F. Antonietti.

8. F. Migliorini. 01/11/2017-05/02/2021. Topic: "*Space-time finite elements for seismic wave propagation*". Advisors: I. Mazzieri, P.F. Antonietti.

9. C. Facciolà. 01/11/2016-21/02/2020. Topic: "*Discontinuous Galerkin methods on polytopic grids for flows in fractured porous media*". Advisor: P.F. Antonietti, Co-Advisor: M. Verani.

10. G. Pennesi. 01/11/2015-12/2/2019. Topic: "*Discontinuous Galerkin methods on polytopic grids*". Advisor: P.F. Antonietti.

11. A. Ferroni. 01/11/2013-30/01/2017. Topic: "*Discontinuous spectral element methods on d-simplicial elements*". Advisor: A. Quarteroni, P.F. Antonietti. Co-advisor: I. Mazzieri

12. P. Pacciarini. 01/11/2012-18/01/2016. Topic: "*Discontinuous Galerkin Reduced Basis Element methods for parametrized partial differential equations in partitioned domains*". Advisors: A. Quarteroni, P.F. Antonietti.

13. M. Sarti. 01/01/2012-20/3/2015. Topic: "*Efficient solution techniques for hp-version Discontinuous Galerkin approximations of elliptic problems*". Advisor: P.F. Antonietti. Co-advisor: M. Verani.

14. S. Stangalino. 01/01/2012–20/3/2015. Topic: "*Discontinuous Galerkin methods for Cahn-Hillard problems*". Advisor: M. Verani, Co-Advisor: P.F. Antonietti.

15. N. Bigoni. 01/01/2011-18/02/2014. Topic: "*Mimetic Finite Difference methods methods for nonlinear problems arising in computational fluidynamics*". Advisors: P.F. Antonietti, M. Verani.

16. I. Mazzieri. 01/01/2009-26/03/2012, "*Non-conforming high order methods for the elastodynamics equation*". Advisors: A. Quarteroni and F. Rapetti. Co-advisor: P.F. Antonietti

Post-Lauream Students

1. C. Facciolà, 16/3/2016-31/10/2016. Supported by SIR Starting Grant: "*PolyPDEs: Non-conforming polyhedral finite element methods for the approximation of PDEs*", funded by MIUR. Advisor: P.F. Antonietti.

2. D. Brunetto, 05/12/2011-05/01/2013, Supported by the project "*Numerical modeling of the extrusion process*", Contractor: Aristoncavi S.p.A. Advisors: P.F. Antonietti, M. Verani.

3. N. Fadel, 01/05/2009-31/10/2009, Supported by the project "*Numerical methods for the simulation of the extrusion process*", Fausto Saleri prize. Advisor: P.F. Antonietti.

Master/Bachelor Students

1. F. Cattaneo, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co-advisor: M. Botti, S. Bonetti.

2. G. Lorenzon, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co-advisor: M.Corti.

3. S. Fazio, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, A. Massing.

4. G. Bonalumi, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisor: P.F. Antonietti. Co-advisor: M.Corti.

5. E. Ravizza, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisor: P.F. Antonietti, Co-Advisors: M. Corti

6. V. Pederzoli, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisor: P.F. Antonietti, Co-Advisors: D. Riccobelli, M. Corti

7. D. Marino, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisor: P.F. Antonietti, Co-Advisors: F. Bonizzoni, M. Corti

8. G. Quarta, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisor: P.F. Antonietti.

9. D. Serra, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisor: P.F. Antonietti.

10. A. Cancrini, ongoing. MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, M. Botti, I. Mazzieri

11. G. Martinelli, 19/12/23. "*Agglomeration of Polytopal Grids through Geometrical Deep Learning*". MSc degree in Mathematical Engineering (Politecnico di Milano). Advisor: P.F. Antonietti. Co-advisor: E. Manuzzi.

12. N. De Giosa, 18/7/23, "*LYMPH3D: A new library to solve PDE problems with Discontinuous Galerkin methods on three-dimensional polytopic meshes*", MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co-Advisors: I. Mazzieri.

13. M. Da Monte, 18/7/23, "*Three-dimensional wave propagation analysis in SPEED through the Domain Reduction Method*". MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co-Advisors: I. Mazzieri.

14. C. B. Leimer Saglio, 04/05/23, "*An adaptive discontinuous Galerkin method for the numerical modeling of epileptic seizures*". MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co-Advisors: S. Pagani.

15. A. Dell'Oglio, 04/10/23, "*A physics–based model of the prion-like features of neurodegeneration in Alzheimer's, Parkinson's and AML's diseases*". MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co-Advisors: F: Bonizzoni, M. Corti.

16. I. De Vittori, 04/05/23, "*Numerical modelling of the cerebrospinal fluid flow in brain ventricles*". MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co: advisors: M. Corti, F. Regazzoni, I. Fumagalli.

17. S. Vanelli Tagliacane, 04/5/23, "*Algebraic Multigrid methods for arbitrarily regular Virtual Element discretizations*". MSc degree in Mathematical Engineering (Politecnico di Milano). Advisors: P.F. Antonietti, Co: advisors: D. Prada.

18. S. Pescuma, 04/5/23, "*A Trefftz Discontinuous Galerkin method with Absorbing Boundary Conditions for the numerical simulation of the Helmholtz problem*", Double MSc degree in Mathematical Engineering (Politecnico di Milano) and Mathematiques de la modelisation (Sorbonne Université). Advisor: P.F. Antonietti, Dr A. Modave (CNRS), Prof. G. Gabard (LAUM).

19. M. Trombini, ongoing, "*A Deep-learning approach for the SUPG discretization of advection-diffusion problems*", MSc in Aerospace Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, L. Dedé, N. Parolini, A. Zingaro.

20. A. Crippa, 06/10/2022. "*Non–conforming mesh adaptivity for Hybrid–High Order methods*", MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti. Co-Advisor: D. Di Pietro.

21. F. Ferri, 28/09/2022. "*Numerical modelling of the pathogenesis of Alzheimer's disease*", BSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.

22. B. Crippa, 21/12/2021. "*Deep learning for partial differential equations*", MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.

23. V. Castillo Chavez, 21/12/2021. "*Multilevel Monte Carlo method for uncertainty quantification of acoustic wave propagation*", MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti. Co-advisor: A. Manzoni.

24. L. Mombelli, 27/4/2021. "*Polygonal discontinuous Galerkin methods for the problem of Darcy's flow in porous media with complex fracture networks*", MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.

25. A. Viviani, 27/4/2021. "*A high-order discontinuous Galerkin approach to the nonlinear elasto-acoustic problem*" MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, Co-advisor: I. Mazzieri.

26. A. Herlin, 27/4/2021. "*A numerical approach to couple the simulation of earthquake ground motion with models for structural response at city level*" Double MSc in Mathematical and Civil Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, Co-advisor: C. Smerzini, I. Mazzieri

27. G. Parasiliti Rantone, 15/12/2020. "*Mathematical and numerical modelling of a gas flow for the transportation of liquefied natural gas*". MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, Co-advisor: Pierre-yves Lagree. MSc thesis based on an internship with Laboratoire Jacques-Louis Lions, Sorbonne Universitè.

28. S. Bonetti, 6/6/2020. "*Mathematical and numerical modelling of a gas flow for the transportation of liquefied natural gas*". MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, Co-advisor: L. Pareschi.

29. S. Picherri, 6/6/2020. "*Numerical analysis for a model of faults in an elastic medium: direct and inverse algorithms*". MSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti. Co-advisor: E. Beretta.

30. S. Caldana, 6/6/2020. "*Machine Learning and PDEs*". MSc in Mathematical Engineering, Politecnico di Milano. Advisors: L. Dedé. Co-advisor: P.F. Antonietti.

31. A. Artoni, 29/4/2020. "*Discontinuous Galerkin methods for the Poisson problem on polyhedral meshes*". MSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, C. Vergara Co-advisor: S. Zonca.

32. S. Nati Poltri, 29/4/2020. "*A high-order discontinuous Galerkin approach to the poro-elasto-acoustic problem*". MSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti. Co-advisor: I. Mazzieri.

33. S. Zaninelli, 03/10/2019. "*Numerical quadrature enhanced by Deep Learning.*" Double MSc Program in Mathematical Engineering between EPFL and Politecnico di Milano. Advisors: A. Buffa (EPFL) and P.F. Antonietti (Politecnico di MIlano).

34. E. Manuzzi, 03/10/2019. "*Artificial Neural Networks for earthquake broadband ground motions.*". MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, Co-advisors: I. Mazzieri, C. Smerzini .

35. M. Rivola. "*Discontinuous Galerkin methods for three-dimensional flow in porous media*". 21/03/2019. MSc in Mathematics, Università degli Studi di Milano-Bicocca. Advisor: A. Russo, Co-Advisors: P.F. Antonietti, L. Formaggia.

36. J. De Ponti. "*Preconditioning techniques for fractured porous media discretized by mimetic finite differences*". 26/07/2018. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: L. Formggia. Co-advisors: P.F. Antonietti, A. Scotti.

37. A. Zingaro. "*Discontinuous Galerkin Finite Element for compressible fluidynamics with applications to micro scale problems*". 19/04/2018. Double MSc degree in Computational Fluid Dynamics (Cranfield Univerisity, UK) and Aerospace Engineering, Politecnico di Milano.

38. L. Melas, "*Algebraic Mutligrid Methods for Discontinuous Galerkin discretizations*". 27/07/2017. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.

39. S. Mauri, "*Discontinuous Galerkin methods for the elasto-acoustic coupling*". 18/12/2015. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, Co-Advisor: I. Mazzieri.

40. A. Nicolò, "*Discontinuous Galerkin methods on polygonal grids for the elastodynamics equation*". 18/12/2015. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti, , Co-Advisor: I. Mazzieri.

41. P. Gorlani, "*Discontinuous Galerkin methods on GPUs*". Ongoing project. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: L. Bonaventura, Co-advisor: P.F. Antonietti.

42. C. Facciolà, "*Discontinuous Galerkin methods for flows in fractured porous media*". 26/11/2015. MSc in Mathematics, Università degli Studi di Milano-Bicocca. Advisors: P.F. Antonietti, A. Russo, M. Verani.

43. F. Calidonna, "*The one-dimensional wave equation and its application to the simulation of seismic wave propagation problems*". 19/09/2015. BSc in Civil Engineering, Politecnico di Milano. Advisor: D. Lupo, Co-advisor: P.F. Antonietti.

44. N. Dal Santo, "*An adaptive discontinuous Galerkin spectral element method for systems of ordinary differential equations with applications to elastodynamics*", 18/12/2014. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: A. Quarteroni. Co-advisors: P.F. Antonietti, I. Mazzieri.

45. N. Verzotti, "*Flows in fractured porous media: numerical approximation by mimetic finite difference methods*", 29/03/2014. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: A. Scotti. Co-advisors: P.F. Antonietti, L. Formaggia.

46. C. Marcati, "*High order discontinuous Galerkin methods on simplicial elements for the elastodynamics equation*", 03/10/2013. MSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, A. Quarteroni. Co-advisor: I Mazzieri.

47. D. Zaliani, "*Schwarz preconditioners for Plane Wave Discontinuous Galerkin approximations of the Helmholtz problem*", 24/09/2013. MSc in Mathematics, Università degli Studi di Pavia. Advisor: I. Perugia. Co-advisor: P.F. Antonietti.

48. E. Orso, "*Computational analysis of the fluid-structure interaction problem in the ascending aorta with stentless valve*", 23/07/2013. MSc in Biomedical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, C. Vergara. Co-advisors: E. Faggiano, R. Scrofani.

49. C. Ossola, "*Mimetic finite difference methods for elliptic problems with high contrasts.*", 22/04/2013. MSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.

50. M. Sarti, "*Two-level Schwarz preconditioners for finite element discretizations of elliptic equations*", 20/12/2011, MSc in Aerospace Engineering, Politecnico di Milano. Advisor: P.F. Antonietti. Co-advisor: L. Formaggia.

51. S. Stangalino, "*Multigrid methods for the solution of differential problems with mimetic finite difference methods*", 15/11/2011, MSc in Mathematics, Università degli Studi di Pavia. Advisors: P.F. Antonietti, I. Perugia, M. Verani.

52. R. Zanforlin, "*Moving mesh methods for the solution of partial differential equations*", 22/09/2010, BSc in Aerospace Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.

53. S. Bernocchi, "*Numerical methods for integration and applications*", 24/02/2009, BSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.

54. A. Rossi, "*Numerical methods for a lumped parameter model for the blood flow simulation in the carotid artery*", 22/09/2009, BSc in Biomedical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.

55. M. Sarti, "*Residual-based mesh adaption strategies for finite element methods*", 23/09/2009, BSc in Aerospace Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.

56. E. Sumatra, "*Residual-based mesh adaption strategies for finite element methods*", 23/09/2009, BSc in Aerospace Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.

57. A. Resmini, "*Moving mesh methods for the solution of partial differential equations*", 23/09/2009, BSc in Aerospace Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.

Reviewer of MSc Theses

1. Leo Diserens, 06/07/2016, MSc in Applied Mathematics, EPFL, Advisors: L. Dedè, A. Manzoni.

2. Christele Zbinden, 06/07/2016, MSc in Applied Mathematics, EPFL, Advisors: L. Dedè, A. Manzoni, A. Quarteroni.

3. A. Proverbio, 03/05/2010, MSc in Mathematical Engineering, Politecnico di Milano Advisors: L. Formaggia, J. Peirò.

XIII. Funding ID

Funded Projects: Principal Investigator/Unit-coordinator

Total amount of funds: $\approx$ 10.5 MEuro.

1. **ERC-2023-SyG "*NEMESIS: New generation methods for numerical simulations*". Role: PI (with L. Beirao da Veiga, D. Di Pietro, J. Droniou). Grant Agreement n.101115663, Funded by European Union. Period: 2024-2030. Amount: 7.818.782 Euro.**

2. Research project "*AI for the denim industry*". Role: Unit Coordinator. Coordinator: Daria Casciani, Dept. fo Desgin, Politecnico di Milano). Funded by OTB. Amount: 60.000,00 Euro.

3. Italian research project PRIN n. `20204LN5N5` "*Advanced polyhedral discretisations of heterogeneous PDEs for multiphysics problems*". Role: National Coordinator. Funded by MIUR (Italian Ministry of Education, Universities and Research). Period: 2022-2024. Amount: 683.000 Euro.

4. Research project "*Mathematical and numerical modelling of the extrusion process II*" funded within the Joint Research Center (JRC) MATT – Metal And Transformation Technologies. Period: 2022-2023. Amount: 30.000,00 Euro.

5. Research project "*Mathematical and numrical modelling of the extrusion process*" funded within the Joint Research Center (JRC) MATT – Metal And Transformation Technologies. Period: 2021-2022. Amount: 30.000,00 Euro.

6. ANR MRSEI Project "*NEMESIS: NEw MEthods for numerical SImulationS*". Funded by French National Research Agency (ANR). Role: Unit Coordinator. Coordinator: D. Di Pietro. Period: 2021-2022. Amount: 23.282,00 Euro.

7. H2020-MSCA-IF-2019 project "*PDGeoFF:Polyhedral Discretisation Methods for Geomechanical Simulation of Faults and Fractures in Poroelastic Media*". Project ID: 896616. Funded by European Union under the programme H2020. Role: Coordinator. Beneficiary: Dr. Michele Botti. Period: 2020-2022. Amount: 171.473,28 Euro.

8. Italian research project PRIN n. `201744KLJL` "*Virtual Element Methods: Analysis and Applications*". Role: Unit Coordinator. National Coordinator: L. Beirao da Veiga. Funded by MIUR (Italian Ministry of Education, Universities and Research). Period: 2019-2021. Amount: 673.188 Euro.

9. SIR (Scientific Independence of young Researchers) grant. Project n. `RBSI14VT0S`: "*PolyPDEs: Non-conforming polyhedral finite element methods for the approximation of partial differential equations*". Role: Principal Investigator. Funding agency: MIUR (Italian Ministry of Education, Universities and Research). Period: Sept. 18, 2015–Sept. 17, 2018. Amount: 340.400,00 Euro. **The SIR starting grant *PolyPDEs* is among the 144 selected projects out of 5252 grant proposals in all fields of Sciences and Humanities (success rate 2.7%).**

10. Fondazione Cariplo and Regione Lombardia grant. Project n. `2015-0182`: "*PolyNum: Polyhedral numerical methods for partial differential equations*". Role: Principal Investigator. Funding agency: Fondazione Cariplo and Regione Lombardia, Italy. Period: Sept. 18, 2015–Sept. 17, 2017. Amount: 190.227,00 Euro.

11. GNCS research project: "*Nonstandard numerical methods for geophysics*". Role: Principal Investigator. Funded by INdAM, Italy. Period: Feb. 9, 2015–Feb 8, 2016. Amount: 3200,00 Euro.

12. FARB project "*Diffuse interface tumor-growth models*". Role: co-Principal Investigator. Funded by Politecnico di Milano, Italy. Period: Apr. 1, 2014–Mar. 31, 2016. Amount: 68.939,00 Euro.

13. Project "*Numerical modeling of the extrusion process*". Role: co-Principal Investigator. Funded by Aristoncavi S.p.A., Italy. Period: Dec. 5, 2011–Jan. 4, 2013. Amount: 152.000,00 Euro.

14. Project "*Mathematical and numerical modeling of the fluidynamics of high-tech textiles*". Role: co-Principal Investigator. Funded by Carvico S.p.A. and Regione Lombardia, Italy. Period: May 5, 2010–Feb. 3, 2012. Amount: 46.000,00 Euro.

15. Project "*HOT-FDI II: Numerical modeling of the deformation properties of a texile subjected to an external load.*". Role: co-Principal Investigator. Funded by Fondazione Politecnico, Italy. Period: Sept. 1, 2010–March 30, 2011. Amount: 10.000,00 Euro.

16. INGENIO project n.A0000827 "*Numerical methods for the simulation of landslides*". Role: Principal Investigator. Funded by Regione Lombardia, Italy. Period: May 31, 2007–Dec. 31, 2007. Amount: mobility fellowship.

Funded Projects: Investigator

1. Italian research project PRIN n. P2022BH5CB "*Polyhedral Galerkin methods for engineering applications to improve disaster risk forecast and management: stabilization-free operator-preserving methods and optimal stabilization methods*". Role: Participant. National Coordinator: S. Berrone. Funded by MIUR (Italian Ministry of Education, Universities and Research). Period: 2023-2024. Amount: 230.449 Euro.

2. Research project"*Innovative discretization methods for Fluid-Structure Interaction problems on complicated domains*". Role: Investigator. Funded by INdAM, Italy. Period: March 2020-Feb 2021. Amount: 1.400 Euro. P.I.: M. Fedele.

3. Research project "*Virtual Element Methods for electromagnetic, elasticity and elastodynamics problems: theoretical properties and computational aspects*". Role: Investigator. Funded by INdAM, Italy. Period: Feb 2019-Jan 2020. Amount: 3.700 Euro. P.I.: M. Verani.

4. Industrial project "*Studio di fattibilità della modellizzazione del processo di calandratura e dei parametri reologici che ne determinano la criticità*". Role: Investigator. Funded by Pirelli S.p.A, Italy. Period: 2017-2018. Amount: 30.000 Euro. P.I.: N. Parolini.

5. Research project "*Advanced numerical methods for multiphysics/multiscale differential problems*", Period: Feb. 7, 2018–Feb. 06, 2019. Amount: 4.000 Euro. P.I. Ilario Mazzieri.

6. Research project "*SIGMA 2: Development of advanced physics–based numerical approaches for earthquake ground-motion prediction.*". Role: Unit Investigator. Funded by Swissnuclear, CH. Period: 2017–2021. Amount: 250.000,00 Euro.

7. GNCS project "*Numerical modeling of hydro/geomechanical phenomena for the simulation of seismic events*". Role: Investigator. Funded by INdAM, Italy. Period: Feb. 09, 2017–Feb. 08, 2018. Amount: 4.000 Euro. P.I. Luca Formaggia.

8. Industrial project "*Modellizzazione e simulazione del processo di miscelazione distributiva e dispersiva in sistemi di miscelazione in continuo*". Role: Investigator. Funded by Pirelli S.p.A, Italy. Period: March 2016-Feb. 2017. Amount: 50.000 Euro. P.I. Nicola Parolini.

9. Industrial project "*MRPMII: Spectral Element Methods for earthquake simulations*". Role: Investigator. Funded by Munich Reinsurance Company, Germany. Period: Apr. 30, 2015-Apr. 20, 2017. Amount: 150.000 Euro.

10. Vinci 2015 Program: "*High-order mixed numerical methods for the simulation of flow in fractured porous media*". Role: Investigator. Funded by Université Franco Italienne/Università Italo Francese (UFI/UIF). Period: 2015-2018. Amount: Research grant for a PhD student fellowship.

11. GNCS project "*Emerging topics in adaptive strategies for differential problems*". Role: Investigator. Funded by INdAM, Italy. Period: Jan. 23, 2013–Jan. 22, 2014. Amount: 8.000 Euro.

12. Industrial project "*Development of mathematical and numerical models to simulate the acoustic comfort of a motorcycle helmet*". Role: Investigator. Funded by OPTICOS s.r.l., Italy. Period: Jan. 26, 2012–Aug. 31, 2013. Amount: 310.000 Euro.

13. Industrial project "*MRPM: Spectral Element Methods*". Role: Investigator. Funded by Munich Reinsurance Company, Germany. Period: Jan. 1, 2012-Dec. 31, 2013. Amount: 150.000 Euro.

14. Argentina-Italy bilateral project "*Innovative numerical methods for industrial problems with complex and mobile geometries*". Role: Investigator. Funded by MIUR (Italian Ministry of Education, Universities and Research). Period: Jan. 1, 2011–Dec. 31, 2013. Amount: research mobility program to favor cooperation between Italian and Argentinean researchers.

15. GNCS project "*Non-standard numerical methods for PDE's*". Role: Investigator. Funded by INdAM, Italy. Period: Nov. 30, 2009– Nov. 30, 2010. Amount: 5.750,00 Euro.

16. Spain-Italy bilateral project "*Advanced numerical and shape-optimization techniques for fluidynamics problems*". Role: Investigator. Funded by MIUR (Italian Ministry of Education, Universities and Research). Period: Dec. 23, 2009–Dec. 17, 2011. Amount: 11.280,00 Euro.

17. Italian research project PRIN n. `200834WK7H_005` "*Analysis and development of advanced numerical methods for PDEs*". Role: Investigator. National Coordinator: F. Brezzi. Funded by MIUR (Italian Ministry of Education, Universities and Research). Period: Mar. 22, 2010–Mar. 22, 2012. Amount: 88.486,00 Euro.

18. Italian research project FIRB n. `RBIP06HF8S_006` "*MITIT: Materials and methods for the Italian textile industry*". Role: Investigator. National Coordinator: A. Cigada. Funded by MIUR (Italian Ministry of Education, Universities and Research). Period: Jul 18, 2007–Mar. 18, 2011. Amount: 253.476,00 Euro.

19. Project "*HOT-FDI : Hollow and transparent fibers design for industries*". Role: Investigator. Funded by Fondazione Politecnico, Italy. Period: Jul 1, 2008–June 30, 2010. Amount: 80.000,00 Euro.

Funded HPC Projects

I have been Investigator in several High Performance Computing grants funded by the Italian Super Computing Center (total amount: $\approx$ 60 million core-hours).

XIV. Research Software

2011-onwards Senior investigator in the project: "*SPEED: A discontinuous Galerkin spectral element code for the simulation of large scale seismic events*". Leading partners: MOX, Dipartimento di Matematica, Politecnico di Milano and Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano.
`http://speed.mox.polimi.it`.

2007 Contributor of the finite element software toolkit `AptoFEM`. `http://www.aptofem.com/`

XV. Organizing Activities

Organization of Conferences and Workshops

1. Member of the Organizing Committee of "*SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS21)*", Politecnico di Milano, June 21–25, 2021.

2. Organizer of the Workshop "*NEMESIS: New generation methods for numerical simulations*" June 14-15, 2021. Funded by ANR. Co-organizers: L. Beirao da Veiga (University of Milano-Bicocca), Daniele Di Pietro (University of Montpellier), and Jerome Droniou (Monash University).

3. Organizer of the INdAM worshop "*Polygonal methods for PDEs: theory and applications*", Roma, Italy, 2020. Funded by INdAM. Co-organizers: L. Beirao da Veiga (University of Milano-Bicocca) and S. Berrone (Politecnico di Torino) of the INdAM workshop.

4. Member of the Organizing Committee of the conference "*POEMS 2019: Polytopal Element Methods in Mathematics and Engineering*", Centre International de Rencontres Mathématiques (CIRM), Marseille, France. Apr. 29–May 3, 2019. Partially funded by CIRM.

5. Member of the Organizing Committee of the conference "*POEMS 2017: Polytopal Element Methods in Mathematics and Engineering*", Milano, Italy, July 2017.

6. Member of the Organizing Committee of the Thematic Quarter "*NPDEs@IHP: Numerical PDEs*", Institut Henri Poincaré, Sept.-Dec. 2016. Steering committee: D.A. Di Pietro (coordinator), A. Ern, L. Formaggia.

7. Member of the Organizing Committee of the Conference: "*Advanced numerical methods: recent developments, analysis, and applications*", Oct. 3–7, 2016, Institut Henri Poincaré, Paris, France. Co-organizers: J. Droniou, R. Eymard.

8. Co-Organizer of the Workshop "*SEiWAVE: Spectral Elements in Elastodynamics: Applications to Seismic Wave Propagation Problems*", MOX, Dipartimento di Matematica, Politecnico di Milano, April 9, 2015.

Organization of Minisymposia

1. Organizer of the minisimposium "*Numerical Methods for the Multiphysics Modeling of Brain Function*" within ECCOMAS 2024 conference, Lisbon (PT), June, 3-7, 2024. Co-organizers: F. Bonizzoni, I. Fumagalli, K. Mardal.

2. Organizer of the minisimposium "*Multiscale and reduced-order modeling for poroelasticity*" within ENUMATH 2023 conference, Lisbon (PT), Sept. 5-9, 2023. Co-organizers: D. Petersein, A. Caiazzo.

3. Organizer of the minisimposium "*Advances in Polytopal Methods for Multiphysics Problems*" within ENUMATH 2023 conference, Lisbon (PT), Sept. 5-9, 2023. Co-organizers: A. Fumagalli, I. Fumagalli, D. Prada.

4. Organizer of the minisimposium "*Structure preserving and adaptive polytopal methods*" within ECCOMAS 2022 conference, Oslo (NO), June 5-9, 2022. Co-organizers: A. Cangiani, Z. Dong, L. Mascotto.

5. Organizer of the minisymposium "*Effective solvers for innovative discretizations of partial differential equations and applications*", within SIMAI2020 Conference Parma (IT), August 30 - 3 September 2021. Co-organizers: L.F. Pavarino, S. Scacchi.

6. Organizer of the minisymposium "*Theoretical and computational advances in polygonal and polyhedral methods*", within The Mathematics of Finite Elements and Applications 2019 (MAFELAP 2019), London (UK), 17 - 21 June 2019. Co-organizers: A. Cangiani, F. Dassi, D. A. Di Pietro, S. Lemaire.

7. Organizer of the minisymposium "*Recent Advances in Nonconforming and Polygonal Methods for Partial Differential Equations*", within the bi-annual congress of the Italian Society of Applied and Industrial Mathematics (SIMAI 2018), Roma (Italy), July 2–6 2018. Co-organizers: S. Scialó, M. Verani, P. Zanotti

8. Organizer of the minisymposium "*Polyhedral methods and applications*", within The European Conference on Numerical Mathematics and Advanced Applications (ENUMATH 2017), Voss (Norway), September 25-29 2017. Co-organizers: S. Berrone, D. A. Di Pietro, M. Verani.

9. Organizer of the minisymposium "*Fast solvers for DG methods*", within the Twenty-fourth International Domain Decomposition Conference DDXXIV, Svalbard, Norway, Feb. 6–10, 2017. Co-organizers: P. Houston, I. Smears.

10. Organizer of the minisymposium "*Advances in polygonal and polyhedral methods*", within SIMAI 2016, Milano, Italy, September 13-16, 2016. Co-organizers: L. Beirao da Veiga, M. Verani.

11. Organizer of the minisymposium "*Polygonal and Polyhedral Methods*", within the eXtended Discretization Methods X-DMS 2015, Ferrara, Italy, September 9-11. Co-organizers: L. Beirao da Veiga, M. Verani.

12. Organizer of the minisymposium "*Computational models for natural hazards and extreme events simulation*", within the SIMAI 2014 Conference, Taormina, Italy, 7-10 July, 2014. Co-organizers: I. Mazzieri, A. Quarteroni.

13. Organizer of the minisymposium "*Recent Advances in Computational Seismology*", within the SIAM GS13 Conference on Mathematical & Computational Issues in the Geosciences, University of Padova, Italy, 17-20 June 2013. Co-organizers: I. Mazzieri, A. Quarteroni.

14. Organizer of the minisymposium "*Computational challenges in Discontinuous Galerkin methods*" within MAFELAP 2013, Brunel University, 11-14 June 2013. Co-organizers: P. Houston, I. Perugia.

Organization of PhD courses

1. Co-Organizer of the PhD course "*Recent Challenges in Numerical Analysis*", within the PhD program in "*Mathematical Models and Methods in Engineering*", Politecnico di Milano, A.Y. 2014-2015. Co-organizer: N. Parolini.

2. Organizer of the PhD course "*Multigrid Methods*", within the PhD program in "*Mathematical Models and Methods in Engineering*", Politecnico di Milano, June 23rd - July 4th 2013. Lecturer: Prof. L. Zikatanov

XVI. Professional Activities

Reviewer for Funding Agencies

Reviewer for ERC starting grants 2021 (ERC-2021-STG) and 2023 (ERC-2023-STG)

Reviewer for the Austrian Science foundation

Reviewer for the Australian Research Council (ARC)

Reviewer for the Chilean National Commission for Scientific and Technological Research (CONICYT)

Reviewer for Department of Energy Office of Science (DOE)

Reviewer for the French National Research Agency (ANR)

Reviewer for the Icelandic Research Fund (IRF)

Reviewer for the Swiss National Science Foundation (SNSF)

Reviewer for the SNSF Swiss Postdoctoral Fellowships

Reviewer for the United States - Israel Binational Science Foundation (BSF)

Hiring Committees for Director-level Staff

2022 Member of the Hiring Committee for the Director of the Institute for Applied Mathematics and Information Technology "*Enrico Magenes*" of the National Research Council (CNR), Italy.

Hiring Committees for Faculty Members

2022 Member of the Hiring Committee for n.1 fixed-term Assistant Professor Position (RTD-A) in Numerical Analysis at Politecnico di MIlano.

2022 Member of the Hiring Committee for n.1 tenured-track Assistant Professor Position (RTD-B) in Numerical Analysis at Università degli Studi di Cagliari.

2022 Member of the Hiring Committee for n.1 Associate Professor Position in Numerical Analysis at Università degli Studi di Pavia.

2021 Member of the Hiring Committee for n.1 tenured-track Assistant Professor Position (RTD-B) in Numerical Analysis at Università degli Studi di Bari "Aldo Moro".

2020 Member of the Hiring Committee for n.1 fixed-term Assistant Professor Position (RTD-A) in Numerical Analysis at Università degli Studi di Padova.

2020 Member of the Hiring Committee for n.1 fixed-term Assistant Professor Position (RTD-A) in Numerical Analysis at Politecnico di Milano.

2019 Member of the Hiring Committee for n.1 Associate Professor Position in Numerical Analysis at Università degli Studi di Pavia.

2019 Member of the Hiring Committee for n.1 tenured-track Assistant Professor Position (RTD-B) in Numerical Analysis at Politecnico di Milano.

2019 Member of the Hiring Committee for n.1 tenured-track Assistant Professor Position (RTD-B) in Numerical Analysis at Politecnico di Milano.

2019 Member of the Hiring Committee for n.2 fixed-term Assistant Professor Positions (RTD-A) in Numerical Analysis at Università degli Studi di Milano-Bicocca.

2016 Member of the Hiring Committee for a fixed-term Assistant Professor Position (RTD-A) in Numerical Analysis at Politecnico di Milano.

Hiring Committees for Research Fellows

2019 Member of the hiring committee for n.4 research fellow positions. Position funded by INdAM - the Italian Institute of High Mathematics.

2007$\longrightarrow$ Member of 26 Hiring Committees for Research Fellows at Politecnico di Milano

External PhD Committees Member

2023 Member of the PhD thesis committee of Morgane Stein, Ecole doctorale N. 532, Mathèmatiques et Sciences et Technologies de l'Information et de la Communication (MSTIC), Ecole des Ponts ParisTech, FR.

2023 Member of the PhD thesis committee of Eleonora Piersanti, PhD in Applied Mathematics, Simula Research Lab and University of Oslo, NO.

2022 Member of the PhD thesis committee of Ashild Telle, PhD in Applied Mathematics, Simula Research Lab and University of Oslo, NO.

2022 Member of the PhD thesis committee of Tommaso Sorgente, PhD in Mathematics and Applications, Università degli Studi di Genova, IT.

2021 *Rapporteur* and member of the *Jury de soutenance* of the Doctoral Thesis of P. Matalon, Université de Montpellier, FR.

2020 Member of the PhD thesis committee of Ani Miraçi, CERMICS - Centre d'Enseignement et de Recherche en Mathématiques et Calcul Scientifique, FR.

2018 *Rapporteur* and member of the *Jury de soutenance* of the Doctoral Thesis of L. Giret, Université Paris-Saclay, FR.

2017 External Referee of the Doctoral Theses of Y. Alnashri. Monash University, AU.

2016 Member of the MSc thesis committee in Applied Mathematics. EPFL Lausanne, CH.

2014 Member of the PhD thesis committee in Mathematics and Research Operation. Università degli Studi di Milano, IT.

2013 Member of the MSc thesis committee in Mathematics. Università degli Studi di Pavia, IT.

Service Activities at Politecnico di Milano

2023 Member of the Admission Committee (for positions supported by external funding) for the Doctoral program in Mathematical Models and Methods in Engineering (XXXIX cycle), Dipartimento di Matematica, Politecnico di Milano.

2018$\longrightarrow$ Admission Committee of the MSc program in Mathematical Engeneering, Politecnico di Milano (chair since 2019).

2017 Member of the Admission Committee for the Doctoral program in Mathematical Models and Methods in Engineering (XXXIII cycle), Dipartimento di Matematica, Politecnico di Milano.

MSc/BSc Thesis Committees

Since 2012 Member of the MSc thesis committees in Biomedical, Mathematical, Aerospace Engineering.

Referee

1. Acta Applicandae Mathematicae;
2. Advances Engineering Software;
3. Advances in Applied Mathematics and Mechanics;
4. Advances in Computational Mathematics;
5. Applied Mathematics Letters;
6. Applied Numerical Mathematics;
7. BIT Numerical Mathematics;
8. Calcolo;
9. Communications on Applied Mathematics and Computation
10. Computational and Applied Mathematics;
11. Computational Geosciences
12. Computers and Mathematics with Applications;
13. Computer Methods in Applied Mechanics and Engineering;
14. ESAIM: Mathematical Modelling and Numerical Analysis;
15. Express Polymer Letters;
16. Foundations of Computational Mathematics;
17. GEM - International Journal on Geomathematics;
18. Geophysics;
19. IMA Journal of Numerical Analysis;
20. International Journal for Numerical Methods in Fluids;
21. International Journal of Solids and Structures;
22. International Journal of Numerical Analysis and Modeling;
23. Journal of Computational and Applied Mathematics;
24. Journal of Computational Physics;
25. Journal of Scientific Computing;

26. Mathematical Models and Methods in Applied Sciences;
27. Mathematics of Computation;
28. Mathematics and Computer in Simulations;
29. Meccanica;
30. Numerical Linear Algebra with Applications;
31. Numerical Methods for Partial Differential Equations;
32. Numerische Mathematik;
33. SIAM Journal on Applied Mathematics;
34. SIAM Journal on Numerical Analysis;
35. SIAM Journal on Scientific Computing;
36. Vietnam Journal of Mathematics;
37. Lecture Notes in Computational Science and Engineering (proceedings of International Conference on Domain Decomposition Methods);
38. Proceedings of "12th International Conference of Numerical Analysis and Applied Mathematics";
39. Proceedings of "The 18th European Conference on Mathematics for Industry (ECMI 2014)".

Activity for Promoting Mathematics in High-Schools

1. Lecturer at "*Summer School at Politecnico 2013*" for high-school students.
2. Lecturer at "*Summer School at Politecnico 2012*" for high-school students.
3. Lecture "*On the organization of the studying activity at the University*" for students of last year of high school, Politecnico di Milano-Campus Piacenza, May 2012.
4. Tutor of the project "*A rush of blood to the head. When the blood flows to head*", developed by the students of Liceo Scientifico Respighi, Piacenza, for the participation to the contest Fast: I Giovani e le Scienze, 2012.
5. Lecturer at "*Summer School at Politecnico 2011*" for high-school students.

Other Activities

Oct. 2007 - March 2015 Reviewer of *American Mathematical Society.*

XVII. Professional Societies

- Member of AMS - The American Mathematical Society (since 2022).
- Member of SIAM Society for Industrial and Applied Mathematics (since 2021).
- Member of SIAM Acrivity Group on Geosciences (since 2021).
- Member of UMI Italian Mathematical Union (since 2004).
- Member of the GNCS-IndAM "Gruppo Nazionale per il Calcolo Scientifico" (since 2004).
- Member of SIMAI Society for Industrial and Applied Mathematics (since 2006).
- Member of EUROMECH-European Mechanics Society (since 2018).

XVIII. Publications

Submitted papers are available as (pre-print) reports here.

Books

[B1] P. F. Antonietti, L. Beirão da Veiga, and G. Manzini, *The Virtual Element Method and its Applications*. SEMA SIMAI Springer Series, 2022, vol. 31.

[B2] P. F. Antonietti, P. Bertola, A. Capone, B. M. Colosimo, D. Moscatelli, C. Pacchi, and S. Ronchi, *The Age of Science-Tech Universities: Responsibilities, Challenges and Strategies*. Routledge, 2022.

Book Chapters

[BC1] P. F. Antonietti, G. Manzini, I. Mazzieri, S. Scacchi, and M. Verani, "The conforming virtual element method for polyharmonic and elastodynamics problems: A review," in *The virtual element method and its applications*, ser. SEMA SIMAI Springer Ser. Vol. 31, Springer, Cham, 2022, pp. 411–451.

[BC2] P. F. Antonietti, C. Facciolà, P. Houston, I. Mazzieri, G. Pennesi, and M. Verani, "High–order Discontinuous Galerkin Methods on Polyhedral Grids for Geophysical Applications: Seismic Wave Propagation and Fractured Reservoir Simulations," in *Polyhedral Methods in Geosciences*, D. A. Di Pietro, L. Formaggia, and R. Masson, Eds., Cham: Springer International Publishing, 2021, pp. 159–225.

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