
CURRICULUM VITAE ET STUDIORUM

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I. PERSONAL INFORMATION

Born in Milano, April 15, 1980.

Italian Citizenship.

Married, two daughters (maternity leaves: Oct. 5, 2012 - March 4, 2013 and Aug 17, 2017 - Jan 29, 2018).

II. 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.

III. CURRENT ACADEMIC POSITION

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

IV. PAST ACADEMIC 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.

V. NATIONAL SCIENTIFIC QUALIFICATION

March, 28, 2017. National Scientific Qualification as Full Professor, S.C. 01/A5 ANALISI NUMERICA (numerical analysis).

Dec. 16, 2013. National Scientific Qualification as Associate Professor, S.C. 01/A5 ANALISI NUMERICA (numerical analysis).

VI. HONORS AND AWARDS

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. Facciola, 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.
- 2015** “*Young researchers prize 2015*” awarded by Dipartimento di Matematica, Politecnico di Milano.
- 2013** “*Young researchers prize 2013*” awarded by Dipartimento di Matematica, Politecnico di Milano.
- 2011** “*Young researchers prize 2011*” awarded by Dipartimento di Matematica, Politecnico di Milano.
- 2008** “*Young researchers research grant 2008*” 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.

VII. RESEARCH FELLOWSHIPS

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

VIII. INTERNATIONAL BOARDS/SCIENTIFIC COMMITTEES

- 2019-2020.** Member of the Scientific Committee of the international conference “Finite Volumes for Complex Applications IV” (FVCA9) June 15-19, 2020 in Bergen, Norway.
- 2016-2019.** Member of ECCOMAS Young Investigators Committee (EYIC).

IX. EDITORIAL BOARDS

- 2020**→ Member of the Editorial Board of SIAM Journal on Scientific Computing
- 2018**→ Member of the Editorial Board of Mathematics in Engineering
- 2020.** Guest editor for the special volume on “*The Virtual Element Method ad its Applications*” in the SEMA-SIMAI Springer series1.
- 2017.** Guest editor for the special issue “*Advanced numerical methods: recent developments, analysis and application*” on Computational Methods in Applied Mathematics.

X. INTERVIEWS AND PRESS

- 28 Nov. 2016** Paola F. Antonietti, “*Measuring seismic phenomena*”, Platinum Il Sole 24 ore Business media, n. 26, pg. 91, Novembre 2016. ISSN: 2038-2596.
- 26 Oct. 2016** “*Paola Antonietti e... le onde sismiche.*” Maddmaths! - Matematica: Divulgazione e Didattica. <http://maddmaths.simai.eu/persona/paola-antonietti-e-le-onde-sismiche/>.
- 2010** P. F. Antonietti and M. Verani. “*Matematica applicata ai tessuti: uno stile tutto da dimostrare*”, Newton 2 (2010), pp. 94-95

XI. INVITED RESEARCH VISITS

1. University of Nottingham (16-19 March 2020). Invited by A. Cangiani, P. Houston (postponed)
2. University of Geneva (17-19 Feb. 2020). Invited by M. Gander, P. Lucero.
3. Technische Universität München (11 Jan. 2019). Invited by B. Wohlmuth.
4. University of Leiceser (14–17 Feb. 2017). Invited by M. Geourgolis.
5. University of Montpellier (23–25 Jan. 2017). Invited by D. Di Pietro.
6. EPFL Lausanne (5–6 July. 2016). Invited by L. Dedè, A. Quarteroni.
7. University of Vienna (26 Jan.–1 Feb 2014). Invited by I. Perugia.
8. Centre de Recerca Matemàtica, Barcelona (25 Jan.-3 Feb. 2012). Invited by B. Ayuso.
9. School of Mathematical Sciences, University of Nottingham (28 March-3 Apr. 2011). Invited by P. Houston.
10. Università degli Studi del Sannio di Benevento (13–16 Dec. 2010). Invited by A. Borzì.
11. Mathematisches Institut, Universität Bern, Bern (11–15 Oct. 2010). Invited by T. Whiler.
12. BCAM, Basque Center for Applied Mathematics, Bilbao (7–12 Feb. 2010). Invited by E. Zuazua.
13. Universidad Autònoma de Madrid, Madrid (22–26 May 2009). Invited by B. Ayuso.
14. IMDEA, Universidad Autònoma de Madrid, Madrid (9–15 Nov. 2008). Invited by A. Pratelli.
15. Department for Mathematics, UBC, Vancouver (1–5 Dec. 2007). Invited by D. Schötzau.
16. School of Mathematical Sciences, University of Nottingham (1 Oct.-1 Nov. 2007). Invited by P. Houston.
17. Department for Mathematics CCES RWTH - Aachen University, Aachen (5–10 Nov. 2006). Invited by J. Schoberl.
18. Fachbereich Mathematik und Informatik, Johannes Gutenberg-Universität, Mainz (10–20 Nov. 2005). Invited by di A. Juengel.

XII. INVITED LECTURES, CONFERENCE TALKS, SEMINARS

Plenary Lectures

1. Plenary lecture at the Swiss Numerics Day 2021, EPFL, Sept. 13, 2021, Lausanne (CH).
2. Plenary lecture at the “*Chemnitz Finite Element Symposium 2021*”, Sept. 6-8, 2021, Technische Universität Chemnitz.
3. Plenary lecture at the “*UKACM 2021 Conference*”, April 14-16, 2021. Loughborough University - online.
4. Plenary lecture at the “*European Conference on Numerical Mathematics and Advanced Applications*” – ENUMATH 2021, Lisbon (PT), September 4-8, 2023 (postponed from 2021).
5. Plenary lecture at the Swiss Numerics Day 2020, University of Bern, June 4, 2020, Bern (CH) (cancelled).
6. Plenary lecture at the XVIII Italian Meeting on Hyperbolic Equations (IperPA2019), Palermo (IT)
7. Plenary lecture at the bi-annual congress of the Italian Society of Industrial and Applied Mathematics (SIMAI 2016), Sept 13–16, 2016, Politecnico di Milano, Italy, “*2015 SIMAI Prize*” recipient lecture.

8. Plenary lecture at the International Conference on Spectral and High Order Methods (ICOSAHOM 2016), June 20-24, 2016, Rio de Janeiro, Brazil.
9. Invited plenary lecture at the Congress of Numerical Analysis (CANUM 2016), May 9–13, 2016, Obernai, France.
10. Plenary lecture at the 22nd International Conference on Domain Decomposition Methods (DDM22), Sept. 16-20, 2013, Lugano, Switzerland.
11. Plenary lecture at the 2010 SIMAI Annual Meeting (SIMAI 2010), Cagliari University, Cagliari, June 21-25, 2010 (“*Fausto Saleri prize*” recipient lecture).

Invited Lectures and Colloquia

1. Invited lecture at the Workshop “*RANAPDE - Recent Advances in the Numerical Approximation of Partial Differential Equations*”, Università degli Studi di Milano, June 24-25, 2021
2. Invited lecture at INdAM Workshop “*MACH2021 Mathematical modeling and Analysis of degradation and restoration in Cultural Heritage*”. Roma, September 13-15, 2021
3. Invited lecture at workshop “*Scattering by random heterogeneous media*”, University of Augsburg, September 13–15, 2021.
4. 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).
5. Invited lecture at the “*LIA COPDESC and Lions Magenes Days*”, Paris (FR), Nov 4–7, 2019.
6. Invited lecture at the workshop “*Seminari Padovani di Analisi Numerica*”, Padova, Italy May 6-7, 2020 (postponed).
7. 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.
8. 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).
9. 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.
10. 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).
11. 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.
12. Invited lecture at the workshop “*Calcolo scientifico e modelli matematici: alla ricerca delle cose nascoste attraverso le cose manifeste*”, Como, June 16–18, 2018.
13. Invited lecture at the workshop “*Nonconforming and DG methods*”, Jan. 27, 2017, Università degli Studi di Milano.
14. Invited lecture at the workshop “*Discontinuous Galerkin methods*”, June, 13, 2016, University of Reading.
15. Invited lecture at the GNCS meeting, Feb. 2–4, 2016, Montecatini.

16. Invited lecture at the workshop “*Polytopal Methods in Mathematics and Engineering*”, Oct., 26-28, 2015, Georgia Institute of Technology in Atlanta, GA (speaker: M. Verani).
17. Invited lecture at the workshop “*Discretization Methods for Polygonal and Polyhedral Meshes*”, Sept, 17-19, 2012, University of Milano-Bicocca.
18. Invited lecture within the Oberwolfach workshop “*Discontinuous Galerkin Methods*”, organized by S.C. Brenner, R.H.W. Hoppe and B. Riviere, Feb. 19–25, 2012.
19. Invited lecture at “*Journées Lions-Magenes*”, Université Pierre et Marie Curie, Laboratoire Jacques-Louis Lions, Paris, Dec. 14-15, 2011.
20. 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.
21. Invited lecture, 2nd MIDNAG Meeting on “*Iterative Methods for the Solution of Systems of Equations*”, Leicester University, May 24, 2007.
22. 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 “*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, August 30- September 3, 2021.
2. Invited talk within the minisymposium “*Advances in the numerical simulation of multi-scale seismic wave propagation*” organized by I. Mazziere, C. Smerzini and R. Paolucci at the “*2021 SIAM Conference on Mathematical and Computational Issues in Geosciences*”, Politecnico di Milano, June 21-24, 2021.
3. Invited talk within the minisymposium “*Advances in polygonal and polyhedral methods*”, organized by A. Borio, S. Lemaire, I. Mazziere, and G. Vacca, at WCCM-ECCOMAS 2020 conference, Paris, France, July 19-24, 2020 (rescheduled in January 2021).
4. 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.
5. 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).
6. 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.
7. 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.
8. 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.
9. 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.

10. 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 “*10th European Solid Mechanics Conference (ESMC 2018)*”, July 2-6, 2018, Bologna, Italy.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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).
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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.

Series of Lectures within International Doctoral Schools

1. 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.
2. *Modelli numerici per la simulazione di scenari di scuotimento del suolo e di rischio sismico*. Invited lecture within the doctoral course “*POLIMI4CasaItalia*”, Politecnico di Milano Doctoral School, May 2017.
3. Lecturer of the doctoral course “*Discontinuous Galerkin methods*”, International Doctoral School Gran Sasso Science Institute (GSSI), L’Aquila, May 2017.

4. 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 “*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.
2. Oberwolfach workshop “*Computational Engineering*”, organized by O. Allix, A. Buffa, C. Carstensen, J. Schroeder, Oct. 21–27, 2018.
3. Oberwolfach workshop “*Discontinuous Galerkin Methods*”, organized by S.C. Brenner, R.H.W. Hoppe and B. Riviere, Feb. 19–25, 2012.

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. “*Theoretical study and numerical simulation of textiles*”. 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, Université 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. “*Numerical models for earthquake ground motion and seismic risk assessment*”. University of Trento, April 15, 2021.
2. “*Fast solution techniques for high-order Discontinuous Galerkin methods on polygonal/polyhedral grids*”. University of Geneva, February 18, 2020.
3. “*Numerical modelling of earthquake ground motion*”. SISSA, Nov. 18, 2019.
4. “*Numerical modelling of earthquake ground motion*”. Technische Universität München, Jan. 11, 2019.
5. “*Numerical modeling of seismic waves by high-order Discontinuous Galerkin Methods*”. University of Montpellier Jan., 24, 2017.

6. “*Discontinuous Galerkin Spectral Element Methods for Earthquake Simulations*”, Seminaire du Laboratoire Jacques-Louis Lions, UPMC, Paris, Sept. 23, 2016.
7. “*Fast solution techniques for high order Discontinuous Galerkin methods*”, INRIA Paris, Sept. 22, 2016.
8. “*Fast solution techniques for high order Discontinuous Galerkin methods*”, EPFL, Lousanne, July 6, 2016.
9. “*Hierarchical a posteriori error estimate for the mimetic discretization of elliptic problems*”. Centre de Recerca Matemàtica, Barcelona, Jan. 31, 2012.
10. “*Domain decomposition preconditioning for discontinuous Galerkin methods*”. Computational Applied Mathematics Seminars, University of Nottingham, Mar. 28, 2011.
11. “*Domain decomposition preconditioning for the hp-version of the discontinuous Galerkin method*”. Mathematisches Institut, Universität Bern, Bern, Oct. 11, 2010.
12. “*A class of Schwarz preconditioners for the hp-version of the discontinuous Galerkin method*”. BCAM, Basque Center for Applied Mathematics, Bilbao, Feb. 11, 2010.
13. “*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.
14. “*A pre-processing moving mesh method for discontinuous Galerkin approximations of advection-diffusion-reaction problems*”. IMDEA Seminar, Universidad Autónoma de Madrid, Madrid, Nov. 12, 2008.
15. “*Domain decomposition preconditioners for discontinuous Galerkin finite element methods*”. MOX Seminar, Mathematics Department, Politecnico di Milano, May 27, 2008.
16. “*A class of two-level Schwarz preconditioners for discontinuous Galerkin methods*”. Computational Applied Mathematics Seminars, University of Nottingham, Oct. 18, 2007.
17. “*Class of Schwarz preconditioners for discontinuous Galerkin approximations of elliptic problems*”. Department for Mathematics CCES RWTH - Aachen University, Aachen, Nov. 7, 2006.
18. “*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.
19. “*Discontinuous Galerkin approximations of elliptic problems and some efficient preconditioners based on two-level discretizations*”. Oxford University Computing Laboratory, Oxford University, Feb. 28, 2006.
20. “*Discontinuous Galerkin methods for elliptic equations*”. Fachbereich Mathematik und Informatik Johannes Gutenberg-Universität, Mainz, Nov. 10, 2005.
21. “*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*”.
22. “*Discontinuous Galerkin Methods*”. IMATI-CNR, Pavia, May 27, 2004. Presented within the PhD course “*Programming numerical methods for PDE’s I*”.

XIII. TEACHING ACTIVITIES

A. Y. 2021/2022

- Lecturer. NUMERICAL MATHEMATICS. BSc in Mathematical Engineering. Politecnico di Milano.

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.

XIV. STUDENT ADVISING

Postdoctoral Students

1. 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.
2. 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.
3. 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.
4. I. Mazziere. 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. Mazziere: assistant professor at Dipartimento di Matematica, Politecnico di Milano.
5. I. Mazziere. 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.
6. I. Mazziere. 16/02/2014 - 15/02/2015. Supported by the project “*Non-conforming spectral element methods for elastodynamics*”. Advisors: P.F. Antonietti, A. Quarteroni.
7. I. Mazziere. 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.
8. 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.
9. T. Karvinen. 01/03/2010 - 31/08/2010. Supported by Tampere University of Technology, Finland. Advisors: P.F. Antonietti, M. Verani.

PhD Students

1. A. Artoni. 01/11/2020→. Topic: “*Multi-physics wave propagation phenomena*”. Advisor: N. Parolini. Co-Advisor: P.F. Antonietti, I. Mazziere.
2. S. Bonetti. 01/11/2020→. Topic: “*Multi-physics wave propagation phenomena*”. Advisor: P.F. Antonietti.
3. E. Manuzzi. 01/11/2019→. Topic: “*Deep learning for PDEs*”. Advisor: P.F. Antonietti.
4. 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.
5. F. Migliorini. 01/11/2017-05/02/2021. Topic: “*Space-time finite elements for seismic wave propagation*”. Advisors: I. Mazziere, P.F. Antonietti.
6. C. Facciola. 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.

7. G. Pennesi. 01/11/2015-12/2/2019. Topic: “*Discontinuous Galerkin methods on polytopical grids*”. Advisor: P.F. Antonietti.
8. 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
9. 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.
10. 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.
11. S. Stangalino. 01/01/2012-20/3/2015. Topic: “*Discontinuous Galerkin methods for Cahn-Hillard problems*”. Advisor: M. Verani, Co-Advisor: P.F. Antonietti.
12. N. Bigoni. 01/01/2011-18/02/2014. Topic: “*Mimetic Finite Difference methods methods for non-linear problems arising in computational fluidynamics*”. Advisors: P.F. Antonietti, M. Verani.
13. 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. Facciola, 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. B. Crippa, ongoing. “*Deep learning for partial differential equations*”, MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.
2. V. Castillo Chavez, ongoing. “*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.
3. 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.
4. 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.
5. 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
6. 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 Université.
7. 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.

8. 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.
9. S. Caldana, 6/6/2020. “*Machine Learning and PDEs*”. MSc in Mathematical Engineering, Politecnico di Milano. Advisors: L. Dedé. Co-advisor: P.F. Antonietti.
10. 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.
11. 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.
12. 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).
13. 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 .
14. 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.
15. 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. Formaggia. Co-advisors: P.F. Antonietti, A. Scotti.
16. 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 University, UK) and Aerospace Engineering, Politecnico di Milano.
17. L. Melas, “*Algebraic Multigrid Methods for Discontinuous Galerkin discretizations*”. 27/07/2017. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.
18. 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.
19. 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.
20. P. Gorlani, “*Discontinuous Galerkin methods on GPUs*”. Ongoing project. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: L. Bonaventura, Co-advisor: P.F. Antonietti.
21. 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.
22. 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.
23. 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.

24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. 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.
32. S. Bernocchi, “*Numerical methods for integration and applications*”, 24/02/2009, BSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.
33. 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.
34. 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.
35. 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.
36. 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.

XV. FUNDING ID

Funded Projects: Principal Investigator/Unit-coordinator

Total amount of funds: $\approx 1.708.000$ Euro.

1. Research project “*Mathematical and numerical modelling of the extrusion process*” funded within the Joint Research Center (JR) MATT – Metal And Transformation Technologies. Period: 2021-2022. Amount: 30.000,00 Euro.
2. 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.
3. 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.
4. 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.
5. SIR (Scientific Independence of young Researchers) grant. Project n. RBSI14VTOS: “*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%).**
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. Project “*HOT-FDI II: Numerical modeling of the deformation properties of a textile 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.
12. 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

Total amount of funds: \approx 1.390.000 Euro.

1. 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.
2. 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.

3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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

1. IS CRA C “*EQK-NOR: 3D physics-based numerical simulations of earthquake ground motion in Norcia basin during the October 2016 seismic sequence in Central Italy*”. Role: Investigator. Funded by CINECA. Amount: 89,6k of core hours on Marconi cluster, CINECA, Italy. Period: Nov. 2017–Aug. 2018.
2. IS CRA B “*URBSHAKE: Enhanced seismic hazard assessment at URBan scale based on physics-based high-performance broadband ground SHAKing scEnarios*”. Role: Investigator. Funded by CINECA. Amount: 375k of core hours on Marconi cluster, CINECA, Italy. Period: July 2016–July 2017.
3. LISA HPC resource allocation project n. HPL13DRA84, “*T-SPEED: Tetrahedral SPectral Elements with Discontinuous Galerkin*”. Role: Investigator. CINECA, Italy. Period: Aug., 2016–Aug., 2017. Amount: 25.000 core hours on CINECA cluster, CINECA, Italy.
4. IS CRA B HPC resource allocation project n. HP10BQK0HQ, “*URBSHAKE: Enhanced seismic hazard assessment at URBan scale based on physics-based high-performance broadband ground SHAKing scEnarios*”. Role: Investigator. CINECA, Italy. Period: Aug., 2016– Aug., 2017. Amount: 9 millions core hours on MARCONI cluster, CINECA, Italy.
5. IS CRA B HPC resource allocation project n. HP10BZGXQ3, “*PBES4HAS: Physics-based earthquake scenarios for hazard assessment in densely urbanized areas*”. Role: Investigator. CINECA, Italy. Period: May 18, 2015– May 17, 2016. Amount: 6 millions core hours on FERMI cluster, CINECA, Italy.
6. PRACE HPC resource allocation project “*DNS4RISC: Deterministic Numerical ground motion Simulations for RIsk hazard in Santiago de Chile*”. Role: Investigator. Funded by PRACE (Partnership for Advanced Computing in Europe). Period: Sept. 3, 2013–Sept. 3, 2014. Amount: 40 millions core hours on FERMI cluster, CINECA, Italy.
7. IS CRA-C resource allocation project “*SISMAURB: Generation of Earthquake scenarios for seismic hazard assessment in urban areas through a high performance numerical code*”. Role: Investigator. Funded by CINECA, Italy. Period: 2013-2014. Amount: 2 millions core hours on FERMI cluster, CINECA, Italy.
8. IS CRA project “*MAGNITUD: Massively pArallel Numerical sImulaTions of mUlti-scale seismic events*”. Role: Investigator. Funded by CINECA, Italy. Period: Oct. 4, 2012– Mar. 21, 2014. Amount: 50.000 core hours on FERMI cluster, CINECA, Italy.
9. LISA project “*Advanced numerical simulations for the evalutaion of the seismic risk in complex geophysical sites*”. Role: Investigator. Funded by CILEA supercomputing centre, Italy. Period: 2011.

XVI. 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/>

XVII. ORGANIZING ACTIVITIES

Organization of Conferences, Workshops and Scientific Events

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 workshop “*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 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.
2. 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.
3. 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
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.

9. 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. Mazzi, A. Quarteroni.
10. 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

XVIII. PROFESSIONAL AND SERVICE ACTIVITIES, COMMISSIONS OF TRUST

Service Activities and Commissions of Trust

- 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).
- 2020–2021** Panel member of the Research Council for Natural Sciences and Engineering at the Academy of Finland 2020
- 2021** → Panel member, National Research Program 2021-2027 (PNR 2021-2027), Ministry of Education.
- 2020** Invited mentor at the “*ECCOMAS Young Investigators Career Forum*”, within the WCCM-ECCOMAS 2020 conference. Organized by the ECCOMAS Young Investigators Committee (EYIC).
- 2018–onwards** Member of the board of economic auditors (collegio dei revisori dei conti) of SIMAI-Italian Society of Industrial and Applied Mathematics.

Service Activities at Politecnico di Milano

- 2020** → Member of the scientific board of the Department of Mathematics, Politecnico di Milano.
- 2018** → Head of the Admission Committee of the MSc program in Mathematical Engineering, Politecnico di Milano (chair since 2019).
- 2017** → **Member of permanent 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.
- 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.
- 2017** → Member of the Scientific Board of Doctoral program in Mathematical Models and Methods in Engineering, Politecnico di Milano.

Reviewer for Funding Agencies

Reviewer for the Australian Research Council (ARC)

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

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 United States - Israel Binational Science Foundation (BSF)

Referee

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

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

External Committees Member

- 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.

Hiring Committees for Faculty Members

- 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.

Hiring Committees for Research Fellows at Politecnico di Milano

Sept 2020. Member of the hiring committee for research fellows affiliated to the project “*Multiphysics numerical modeling of COVID-19 spread. Mathematical modeling of infectious disease.*”.

Dec 2016. Member of the hiring committee for research fellows affiliated to the project “*Numerical methods for the approximation of differential problems on polyhedral grids*”.

May 2016. Member of the hiring committee for research fellows affiliated to the project “*Modeling and simulation of continuous mixing systems using reduced models*”.

March 2016. Member of the hiring committee for research fellows affiliated to the project “*Non-conforming finite element methods for the approximation of differential problems on polytopic grids*”.

Nov. 2015. Member of the hiring committee for research fellows affiliated to the project “*Polyhedral numerical methods for differential problems*”.

Feb. 2015. Member of the hiring committee for research fellows affiliated to the project “*Advanced numerical methods for seismic wave propagation problems to estimate seismic hazard in large urban regions*”.

Jan. 2015. Member of the hiring committee for research fellows affiliated to the project “*Numerical modeling of the interaction between blood flow and heart electromechanics*”.

2014-2015. Member of the hiring committee for the selection of teaching assistants for the numerical analysis courses at the Mathematics Department.

Dec. 2013. Member of the hiring committee for research fellows affiliated to the project “*Development of 3D solvers for Darcy problems in heterogeneous and fractured media*”.

July 2012. Member of the hiring committee for research fellows affiliated to the project “*Mathematical and numerical modeling of multiphase flows in heterogeneous and fractured media*”.

Apr. 2012. Member of the hiring committee for research fellows affiliated to the project “*Spectral element methods for vibro-acoustic problems*”.

Feb. 2012. Member of the hiring committee for research fellows affiliated to the project “*Numerical modeling of heart electric activity*”.

Jan. 2012. Member of the hiring committee for research fellows affiliated to the project “*Numerical modeling of the heat extrusion process*”.

Nov. 2011. Member of the hiring committee for research fellows affiliated to the project “*Simulation of groundwater flows in heterogeneous porous media*”.

May 2011. Member of the hiring committee for research fellows affiliated to the project “*Mathematical and numerical modeling of the metallic foam process*”.

May 2011. Member of the hiring committee for research fellows affiliated to the project “*Optimal control models and efficient preconditioners for depth migration*”.

March 2011. Member of the hiring committee for research fellows affiliated to the project “*Mathematical and numerical modeling of high-tech textiles*”.

March 2011. Member of the hiring committee for research fellows affiliated to the project “*Validation and sensitivity analysis of a mathematical model for rowing boats*”.

2009-2010. Member of the hiring committee for the selection of teaching assistants for the numerical analysis courses at the Mathematics Department.

2009. Member of the Committee for the admission test to Politecnico di Milano (TOL - Test On Line).

2009-2010. Member of the hiring committee for the tutoring program for the course “Mathematical Analysis and Geometry I”. BSc in Aerospace, Energy and Mechanical Engineering.

Apr. 2009. Member of the hiring committee for research fellows affiliated to the project *Numerical methods for the simulation of the extrusion process*.

MSc/BSc Thesis Committees

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

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*.

XIX. PROFESSIONAL SOCIETIES

- Member of SIAM Society for Industrial and Applied Mathematics (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).

XX. FOREIGN LANGUAGES

- English. Good written and oral knowledge.

XXI. RESEARCH INTERESTS

Main research fields: Numerical analysis, scientific computing, discretization of partial differential equations.

Main keywords: Non-standard finite elements methods (Discontinuous Galerkin, Virtual Element methods, Mimetic Finite Differences); Polygonal finite element methods, Domain decomposition and preconditioning techniques; Numerical methods for wave propagation phenomena; Flows in fractured porous media; Mathematical modeling of high-tech textiles; Numerical methods for the simulation of polymer manufacturing technology.

XXII. PUBLICATIONS

Submitted Technical reports can be downloaded at <http://mox.polimi.it/~antonietti>

- [S1] ANTONIETTI, P. F., AND MANUZZI, E. Refinement of polygonal grids using Convolutional Neural Networks with applications to polygonal Discontinuous Galerkin and Virtual Element methods. <https://arxiv.org/abs/2102.05738>. MOX Report 08/2021, 2021
- [S2] DI MICHELE, F., MAY, J., PERA, D., KASTELIC, V., CARAFA, M., SMERZINI, C., MAZZIERI, I., RUBINO, B., ANTONIETTI, P. F., QUARTERONI, A., ALOISIO, R., AND MARCATI, P. Spectral elements numerical simulation of the 2009 L'Aquila earthquake on a detailed reconstructed domain. Submitted. arXiv:2102.01652. MOX Report 10/2021, 2021
- [S3] ANTONIETTI, P. F., MANZINI, G., MAZZIERI, I., SCACCHI, S., AND VERANI, M. The conforming virtual element method for polyharmonic and elastodynamics problems: a review. Submitted. arXiv:2102.01652. MOX Report 08/2021, 2021
- [S4] ANTONIETTI, P. F., MAZZIERI, I., AND MIGLIORINI, F. A discontinuous Galerkin time integration scheme for second order differential equations with applications to seismic wave propagation problems. Submitted, 2021
- [S5] ANTONIETTI, P. F., M., MASCOTTO, L., VERANI, M., AND ZONCA, S. Stability analysis of polytopic Discontinuous Galerkin approximations of the Stokes problem with applications to fluid-structure interaction problems. MOX-Report 81/2020. <http://arxiv.org/abs/2012.01898>, 2020
- [S6] ANTONIETTI, P. F., BOTTI, M., MAZZIERI, I., AND NATI POLTRI, S. A high-order discontinuous Galerkin method for the poro-elasto-acoustic problem on polygonal and polyhedral grids. MOX-Report 34/2020. arXiv:2006.16373v3., 2020

Book Chapters

- [BC1] ANTONIETTI, P. F., FACCIOLÀ, C., HOUSTON, P., MAZZIERI, I., PENNESI, G., AND VERANI, M. 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. Springer International Publishing, Cham, 2021, pp. 159–225
- [BC2] ANTONIETTI, P. F., CANGIANI, A., COLLIS, J., DONG, Z., GEORGOULIS, E. H., GIANI, S., AND HOUSTON, P. Review of discontinuous Galerkin finite element methods for partial differential equations on complicated domains. In *Building bridges: connections and challenges in modern approaches to numerical partial differential equations*, vol. 114 of *Lect. Notes Comput. Sci. Eng.* Springer, [Cham], 2016, pp. 279–308
- [BC3] ANTONIETTI, P. F., MAZZIERI, I., AND QUARTERONI, A. Improving seismic risk protection through mathematical modeling. In *Imaging Maths. Between culture and mathematics: 4*, M. V. E. M. Emmer, M. Abate, Ed. Unione Matematica Italiana, 2015, pp. 271–282

Peer-Reviewed Journal Papers

- [J1] PAROLINI, N., DEDÉ, L., ANTONIETTI, P. F., ARDENGHI, G., MANZONI, A., MIGLIO, E., PUGLIESE, A., VERANI, M., AND QUARTERONI, A. SUIHTER: A new mathematical model for COVID-19. Application to the analysis of the second epidemic outbreak in Italy. *Proc R Soc A*, in press, 2021
- [J2] ANTONIETTI, P. F., FACCIOLÀ, C., AND VERANI, M. Polytopic Discontinuous Galerkin methods for the numerical modelling of flow in porous media with networks of fractures. *Computers and Mathematics with Applications*, in press, 2021
- [J3] ANTONIETTI, P. F., MANZINI, G., SCACCHI, S., AND VERANI, M. A review on arbitrarily regular conforming virtual element methods for elliptic partial differential equations. *Math. Mod. Meth. Appl. S.*, in press, 2021

- [J4] ANTONIETTI, P. F., BERRONE, S., BORIO, A., D'AURIA, A., VERANI, M., AND WEISSER, S. Anisotropic a posteriori error estimate for the virtual element method. *IMA J. Numer. Anal.* (02 2021)
- [J5] ZONCA, S., ANTONIETTI, P. F., AND VERGARA, C. A Polygonal Discontinuous Galerkin formulation for contact mechanics in Fluid-Structure interaction problems. *Commun. Computat. Phys.* 30, 1 (2021), 1–33
- [J6] ANTONIETTI, P. F., DE PONTI, J., FORMAGGIA, L., AND SCOTTI, A. Preconditioning techniques for the numerical solution of flow in fractured porous media. *J. Sci. Comput.* 86 (2020), 3
- [J7] ANTONIETTI, P. F., BERTOLUZZA, S., PRADA, D., AND VERANI, M. The Virtual Element Method for a Minimal Surface Problem. *Calcolo* 57 (2020), 39
- [J8] ANTONIETTI, P. F., MANZINI, G., MOURAD, H., AND VERANI, M. The virtual element method for linear elastodynamics models. Design, analysis, and implementation. *Int. J. Numer. Meth. Eng.* (2021), 934–971
- [J9] ANTONIETTI, P. F., MAZZIERI, I., AND MIGLIORINI, F. A space–time discontinuous Galerkin method for the elastic wave equation. *J. Comput. Phys.* 419 (2020), 109685
- [J10] ANTONIETTI, P. F., MAZZIERI, I., MELAS, L., PAOLUCCI, R., QUARTERONI, A., SMERZINI, C., AND STUPAZZINI, M. Three-dimensional physics-based earthquake ground motion simulations for seismic risk assessment in densely populated urban areas. *Mathematics in Engineering* 3, 2 (2020), 1–31
- [J11] ANTONIETTI, P. F., MAZZIERI, I., MUHR, M., NIKOLIĆ, V., AND WOHLMUTH, B. A high-order discontinuous Galerkin method for nonlinear sound waves. *J. Comput. Phys.* 415 (2020), 109484
- [J12] ANTONIETTI, P. F., AND MELAS, L. Algebraic multigrid schemes for high-order Discontinuous Galerkin methods. *SIAM J. Sci. Comput.* 42 (2020), A1147–A1173
- [J13] ANTONIETTI, P. F., FACCIOLÀ, C., AND VERANI, M. Unified analysis of discontinuous Galerkin approximations of flows in fractured porous media on polygonal and polyhedral grids. *Mathematics in Engineering* 2, 2 (2020), 340–385
- [J14] ANTONIETTI, P. F., BONALDI, F., AND MAZZIERI, I. Simulation of 3D elasto-acoustic wave propagation based on a Discontinuous Galerkin Spectral Element method. *Int. J. Numer. Methods Eng.* 121 (2020), 2206–2226
- [J15] ANTONIETTI, P. F., HOUSTON, P., PENNESI, G., AND SÜLI, E. An agglomeration-based massively parallel non-overlapping additive Schwarz preconditioner for high-order discontinuous Galerkin methods on polytopic grids. *Math. Comp.* 89 (2020), 2047–2083
- [J16] ANTONIETTI, P. F., BONALDI, F., AND MAZZIERI, I. A high-order discontinuous Galerkin approach to the elasto-acoustic problem. *Comput. Methods Appl. Mech. Engrg.*, 358 (2020)
- [J17] ANTONIETTI, P. F., MANZINI, G., AND VERANI, M. The conforming virtual element method for polyharmonic problems. *Computers and Mathematics with Applications* 79 (2020), 2021–2034
- [J18] ANTONIETTI, P., VERANI, M., VERGARA, C., AND ZONCA, S. Numerical solution of fluid-structure interaction problems by means of a high order Discontinuous Galerkin method on polygonal grids. *Finite Elem. Anal. Des.* 159 (2019), 1–14
- [J19] ANTONIETTI, P. F., CANUTO, C., AND VERANI, M. An adaptive hp - DG-FE Method for elliptic problems: Convergence and optimality in the 1d case. *Communications on Applied Mathematics and Computation* 1 (2019), 309–331
- [J20] ANTONIETTI, P. F., FACCIOLÀ, C., RUSSO, A., AND VERANI, M. Discontinuous Galerkin Approximation of Flows in Fractured Porous Media on Polytopic Grids. *SIAM J. Sci. Comput.* 41, 1 (2019), A109–A138

- [J21] ANTONIETTI, P. F., AND PENNESI, G. V-cycle Multigrid Algorithms for Discontinuous Galerkin Methods on Non-nested Polytopic Meshes. *J. Sci. Comput.* 78, 1 (2019), 625–652
- [J22] ANTONIETTI, P. F., AND MAZZIERI, I. High-order discontinuous Galerkin methods for the elastodynamics equation on polygonal and polyhedral meshes. *Comput. Methods Appl. Mech. Engrg.* 342 (2018), 414–437
- [J23] ANTONIETTI, P. F., HOUSTON, P., AND PENNESI, G. Fast Numerical Integration on Polytopic Meshes with Applications to Discontinuous Galerkin Finite Element Methods. *J. Sci. Comput.* 77, 3 (2018), 1339–1370
- [J24] ANTONIETTI, P. F., DRONIOU, J., AND EYMARD, R. An eclectic view on numerical methods for pdes: Presentation of the special issue "advanced numerical methods: Recent developments, analysis and applications". *Comput. Methods Appl. Math.* 18, 3 (2018), 323–325
- [J25] ANTONIETTI, P. F., MASCOTTO, L., AND VERANI, M. A multigrid algorithm for the p -version of the Virtual Element method. *M2AN Math. Model. Numer. Anal.* 52, 1 (2018), 337–364
- [J26] ANTONIETTI, P. F., MANZINI, G., AND VERANI, M. The fully nonconforming Virtual Element method for biharmonic problems. *M3AS Math. Models Methods Appl. Sci.* 28, 2 (2018), 387–407
- [J27] ANTONIETTI, P. F., MAZZIERI, I., DAL SANTO, N., AND QUARTERONI, A. A high-order discontinuous Galerkin approximation to ordinary differential equations with applications to elastodynamics. *IMA J. Numer. Anal.* 38, 4 (2018), 1709–1734
- [J28] FERRONI, A., ANTONIETTI, P. F., MAZZIERI, I., AND QUARTERONI, A. Dispersion-dissipation analysis of 3-d continuous and discontinuous spectral element methods for the elastodynamics equation. *Geophys J Int* 211, 3 (2017), 1554–1574
- [J29] AGOSTI, A., ANTONIETTI, P. F., CIARLETTA, P., GRASSELLI, M., AND VERANI, M. A Cahn-Hilliard-type equation with application to tumor growth dynamics. *M2AS Math. Methods Appl. Sci.* 40, 18 (2017), 7598–7626
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