
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: Dr. 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 - onwards. Full 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

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-onwards.** Member of the Scientific Committee of the international conference “Finite Volumes for Complex Applications IV” (FVCA9) June 15-19, 2020 in Bergen, Norway. <http://inspire.norceresearch.no/fvca9/>
- 2016-onwards.** Member of ECCOMAS Young Investigators Committee (EYIC).

IX. EDITORIAL DUTIES

- 2018–onwards.** Members of the Editorial Board of Mathematics in Engineering
- 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. Technische Universität München (11 Jan. 2019). Invited by B. Wohlmuth.
2. University of Leiceser (14–17 Feb. 2017). Invited by M. Geourgolis.
3. University of Montpellier (23–25 Jan. 2017). Invited by D. Di Pietro.
4. EPFL Lausanne (5–6 July. 2016). Invited by L. Dedè, A. Quarteroni.
5. University of Vienna (26 Jan.–1 Feb 2014). Invited by I. Perugia.
6. Centre de Recerca Matemàtica, Barcelona (25 Jan.–3 Feb. 2012). Invited by B. Ayuso.
7. School of Mathematical Sciences, University of Nottingham (28 March–3 Apr. 2011). Invited by P. Houston.
8. Università degli Studi del Sannio di Benevento (13–16 Dec. 2010). Invited by A. Borzì.

9. Mathematisches Institut, Universität Bern, Bern (11–15 Oct. 2010). Invited by T. Whiler.
10. BCAM, Basque Center for Applied Mathematics, Bilbao (7–12 Feb. 2010). Invited by E. Zuazua.
11. Universidad Autònoma de Madrid, Madrid (22–26 May 2009). Invited by B. Ayuso.
12. IMDEA, Universidad Autònoma de Madrid, Madrid (9–15 Nov. 2008). Invited by A. Pratelli.
13. Department for Mathematics, UBC, Vancouver (1–5 Dec. 2007). Invited by D. Schötzau.
14. School of Mathematical Sciences, University of Nottingham (1 Oct.-1 Nov. 2007). Invited by P. Houston.
15. Department for Mathematics CCES RWTH - Aachen University, Aachen (5–10 Nov. 2006). Invited by J. Schoberl.
16. 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. Invited plenary lecture at the XVIII Italian Meeting on Hyperbolic Equations (IperPA2019), Palermo (IT) May 15-17, 2019 .
2. “*High-order Discontinuous Galerkin methods for seismic wave propagation problem*”. Invited 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.
3. “*High-order Discontinuous Galerkin approximations of the elastodynamics equation*”. Invited plenary lecture at the International Conference on Spectral and High Order Methods (ICOSAHOM 2016), June 20-24, 2016, Rio de Janeiro, Brazil.
4. “*High-order Discontinuous Galerkin approximations of the elastodynamics equation*”. Invited plenary lecture at the Congress of Numerical Analysis (CANUM 2016), May 9–13, 2016, Obernai, France.
5. “*Domain decomposition methods for high-order discontinuous Galerkin discretizations*”. Plenary lecture at the 22nd International Conference on Domain Decomposition Methods (DDM22), Sept. 16-20, 2013, Lugano, Switzerland.
6. “*Modelling and numerical simulation of the polymer extrusion process in textile products*”. Invited 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 “*Scientific Colloquia and Meeting of the Unione Matematica Italiana*”, Bologna, May 24, 2019, Italy. First talk given by a numerical analyst ever.
2. Invited lecture at the “*Introductory Workshop*”, within the Isaac Newton Institute programme 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 (Programme organisers), University of Cambridge, UK, July 8-12, 2019 (forthcoming).
3. “*Numerical modeling of earthquake ground motion*”. Invited lecture at the workshop “*Calcolo scientifico e modelli matematici: alla ricerca delle cose nascoste attraverso le cose manifeste*”, Como, June 16–18, 2018.

4. “*Numerical modelling of seismic waves by high-order Discontinuous Galerkin methods*”. Invited lecture at the workshop “*Nonconforming and DG methods*”, Jan. 27, 2017, Università degli Studi di Milano.
5. “*Fast solution techniques for high order Discontinuous Galerkin methods*”. Invited lecture at the workshop “*Discontinuous Galerkin methods*”, June, 13, 2016, University of Reading.
6. “*Non-standard numerical methods for geophysics*”. Invited lecture at the GNCS meeting, Feb. 2–4, 2016, Montecatini.
7. “*Multigrid algorithms for hp-discontinuous Galerkin methods on polygonal and polyhedral grids*”. 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).
8. “*Hierarchical a posteriori error estimators for the mimetic discretization of elliptic problems*”. Invited lecture at the workshop “*Discretization Methods for Polygonal and Polyhedral Meshes*”, Sept, 17–19, 2012, University of Milano-Bicocca.
9. “*Schwarz methods for a preconditioned WOPSIP discretization of elliptic problems*”. 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.
10. “*Non-conforming high order approximations of the elastodynamics equation*”. Invited lecture at “*Journées Lions-Magenes*”, Université Pierre et Marie Curie, Laboratoire Jacques-Louis Lions, Paris, Dec. 14–15, 2011.
11. “*Preconditioning discontinuous Galerkin approximations of elliptic problems*”. 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.
12. “*Domain decomposition techniques for discontinuous Galerkin finite element methods*”. Invited lecture, 2nd MIDNAG Meeting on “*Iterative Methods for the Solution of Systems of Equations*”, Leicester University, May 24, 2007.
13. “*Additive and multiplicative Schwarz preconditioners for discontinuous Galerkin approximations of elliptic problems*”. 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 “*Polygonal and polyhedral methods in Applied Mathematics*”, organized by D. Mora, and M. Verani at “*The International Congress on Industrial and Applied Mathematics 2019 (ICTIAM 2019)*”, Valencia, Spain, July 15–19, 2019 (forthcoming).
2. 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 (forthcoming).
3. 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 (forthcoming).
4. 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 (forthcoming).

5. 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.
6. 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.
7. “*Agglomeration-based multigrid algorithms for high-order Discontinuous Galerkin methods*”. 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.
8. “*A high-order discontinuous Galerkin method for time integration of second order ordinary differential equations*”. 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.
9. “*Discontinuous Galerkin methods for the elastodynamics equation on polygonal and polyhedral meshes*”. 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.
10. “*Multigrid algorithms for hp-discontinuous Galerkin methods*”. 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).
11. “*A two-level method for Mimetic Finite Difference discretizations of elliptic problems*”. 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.
12. “*Schwarz methods for a preconditioned WOPSIP discretization of elliptic problems*”. 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.
13. “*Schwarz Preconditioners for the hp-version of the Discontinuous Galerkin Method*”. 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.
14. “*A class of Schwarz preconditioners for the hp-version of the discontinuous Galerkin method*”. 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.
15. “*Bubble stabilization of the Baumann-Oden discontinuous Galerkin formulation*”. 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.
16. “*Multiplicative Schwarz methods for discontinuous Galerkin approximations of elliptic problems*”. 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. *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.
2. Lecturer of the doctoral course “*Discontinuous Galerkin methods*”, International Doctoral School Gran Sasso Science Institute (GSSI), L’Aquila, May 2017.
3. 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 “*Computational Engineering*”, organized by O. Allix, A. Buffa, C. Carstensen, J. Schroeder, Oct. 21–27, 2018.
2. Oberwolfach workshop “*Discontinuous Galerkin Methods*”, organized by S.C. Brenner, R.H.W. Hoppe and B. Riviere, Feb. 19–25, 2012.

Invited Posters

1. “*Domain decomposition preconditioning for the hp-version of the discontinuous Galerkin method*”. 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. “*A mimetic discretization of elliptic obstacle problems*”. 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. “*A pre-processing moving mesh method for discontinuous Galerkin approximations of advection-diffusion-reaction problems*”. IX SIMAI Congress, Roma, Sept. 15–19, 2008.
4. “*Two-level Schwarz preconditioners for super penalty discontinuous Galerkin methods*”. 18th International Conference on Domain Decomposition Methods, Jerusalem, Jan. 12–17, 2008.
5. “*Efficient preconditioners based on two-level discretizations for discontinuous Galerkin methods*”. Workshop Numerical Analysis: Multiscale Methods, Adaptivity & Complexity, Bath Institute for Complex Systems, University of Bath, Sept. 4–7, 2007.
6. “*Schwarz preconditioners for discontinuous Galerkin approximations of elliptic problems*”. IHP Breaking Complexity: Young Researchers Meeting, Laboratoire Jacques-Louis Lions, Université Pierre et Marie Curie, Paris, Sept. 20–21, 2006.
7. “*Schwarz methods for discontinuous Galerkin approximations of elliptic problems*”. IV European Finite Element Fair, ETH, Zurich, June 2–3, 2006.
8. “*Schwarz domain decomposition preconditioners for discontinuous Galerkin approximations of elliptic problems*”. ENUMATH 2005, 6th European Conference on Numerical Mathematics and Advanced Applications, Santiago de Compostela, July 18–22.
9. “*A domain decomposition preconditioner for discontinuous Galerkin approximations of elliptic problems*”. Workshop Breaking Complexity (Breaking Complexity IHP Network), Pavia, Dec. 9–10, 2004.

Invited Seminars

1. “*Numerical modelling of earthquake ground motion*”. Technische Universität München, Jan. 11, 2019.
2. “*Numerical modeling of seismic waves by high-order Discontinuous Galerkin Methods*”. University of Montpellier Jan., 24, 2017.
3. “*Discontinuous Galerkin Spectral Element Methods for Earthquake Simulations*”, Seminaire du Laboratoire Jacques-Louis Lions, UPMC, Paris, Sept. 23, 2016.
4. “*Fast solution techniques for high order Discontinuous Galerkin methods*”, INRIA Paris, Sept. 22, 2016.
5. “*Fast solution techniques for high order Discontinuous Galerkin methods*”, EPFL, Lousanne, July 6, 2016.
6. “*Hierarchical a posteriori error estimate for the mimetic discretization of elliptic problems*”. Centre de Recerca Matemàtica, Barcelona, Jan. 31, 2012.
7. “*Domain decomposition preconditioning for discontinuous Galerkin methods*”. Computational Applied Mathematics Seminars, University of Nottingham, Mar. 28, 2011.
8. “*Domain decomposition preconditioning for the hp-version of the discontinuous Galerkin method*”. Mathematisches Institut, Universität Bern, Bern, Oct. 11, 2010.
9. “*A class of Schwarz preconditioners for the hp-version of the discontinuous Galerkin method*”. BCAM, Basque Center for Applied Mathematics, Bilbao, Feb. 11, 2010.
10. “*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.
11. “*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.
12. “*Domain decomposition preconditioners for discontinuous Galerkin finite element methods*”. MOX Seminar, Mathematics Department, Politecnico di Milano, May 27, 2008.
13. “*A class of two-level Schwarz preconditioners for discontinuous Galerkin methods*”. Computational Applied Mathematics Seminars, University of Nottingham, Oct. 18, 2007.
14. “*Class of Schwarz preconditioners for discontinuous Galerkin approximations of elliptic problems*”. Department for Mathematics CCES RWTH - Aachen University, Aachen, Nov. 7, 2006.
15. “*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.
16. “*Discontinuous Galerkin approximations of elliptic problems and some efficient preconditioners based on two-level discretizations*”. Oxford University Computing Laboratory, Oxford University, Feb. 28, 2006.
17. “*Discontinuous Galerkin methods for elliptic equations*”. Fachbereich Mathematik und Informatik Johannes Gutenberg-Universität, Mainz, Nov. 10, 2005.
18. “*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*”.
19. “*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. 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 clo-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. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. T. Karvinen: 01/03/2010 - 31/08/2010. Supported by Tampere University of Technology, Finland. Advisors: P.F. Antonietti, M. Verani.

PhD Students

1. L. Melas. 01/11/2017–. Topic: “*Three-dimensional physics-based numerical simulations of earthquake ground motion for advances seismic risk assessment in Italian urban areas*”. Advisor: P.F. Antonietti.
2. F. Migliorini. 01/11/2017–. Topic: “*Space-time finite elements for seismic wave propagation*”. Advisors: I. Mazzieri, P.F. Antonietti.
3. C. Facciola. 01/11/2016-onwards. Topic: “*Discontinuous Galerkin methods on polytopic grids for flows in fractured porous media*”. Advisor: P.F. Antonietti, Co-Advisor: M. Verani.
4. G. Pennesi. 01/11/2015-12/2/2019. Topic: “*Discontinuous Galerkin methods on polytopic grids*”. Advisor: P.F. Antonietti.
5. 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
6. 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.
7. 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.
8. S. Stangalino. 01/01/2012–20/3/2015. Topic: “*Discontinuous Galerkin methods for Cahn-Hillard problems*”. Advisor: M. Verani, Co-Advisor: P.F. Antonietti.
9. 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.
10. 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.

Bachelor/Master Students

1. S. Zaninelli, “*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) (ongoing).
2. E. Manuzzi, “*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 (ongoing).
3. 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.
4. 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.
5. 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.
6. L. Melas, “*Algebraic Multigrid Methods for Discontinuous Galerkin discretizations.*” 27/07/2017. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: P.F. Antonietti.
7. 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.
8. 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.
9. P. Gorlani, “*Discontinuous Galerkin methods on GPUs.*” Ongoing project. MSc in Mathematical Engineering, Politecnico di Milano. Advisor: L. Bonaventura, Co-advisor: P.F. Antonietti.
10. C. Facciola, “*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.
11. 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.
12. 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.
13. 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.

14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. S. Bernocchi, “*Numerical methods for integration and applications*”, 24/02/2009, BSc in Mathematical Engineering, Politecnico di Milano. Advisors: P.F. Antonietti, M. Verani.
22. 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.
23. 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.
24. 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.
25. 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 Investigator7 Unit-coordinator

Total amount of funds: \approx 1.483.000 Euro.

1. 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.

2. 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%).**
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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 “*advanced numerical methods for multiscale / multiphysics problems*”. Role: Investigator. Funded by INdAM, Italy. Period: 2018. Amount: 4.000 Euro. P.I.: I. Mazzieri.
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. Organizer together with L. Beirao da Veiga (University of Milano-Bicocca) and S. Berrone (Politecnico di Torino) of the INdAM workshop “*Polygonal methods for PDEs: theory and applications*”, Roma, Italy, 2020. Funded by INdAM. (forthcoming)
2. 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. The conference will be partially supported by CIRM.
3. Member of the Organizing Committee of the conference “*POEMS 2017: Polytopal Element Methods in Mathematics and Engineering*”, Milano, Italy, July 2017.
4. 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. Website: <http://www.i3m.univ-montp2.fr/evenements/22-evenements/134-nmpdes>.
5. 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.
6. 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 (<https://www.eko.polimi.it/index.php/SEiWAVE>).

Organization of Minisymposia

1. 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. (forthcoming)
2. 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
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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 ACTIVITIES

Institutional Activities

Since Feb.1, 2017. Member of permanent working group PoLiMI2040 at Politecnico di Milano: a Strategic Planning Advisory Board supporting the Institutional Bodies in developing strategic plans and medium-term visions on teaching and research.

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

Since 2018. Member of the Admission Committee of the MSc programme in Mathematical Engineering, Politecnico di Milano.

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

Since 2017. Member of the Scientific Board of Doctoral Programme 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 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. Computational and Applied Mathematics;
9. Computers and Mathematics with Applications;
10. Computer Methods in Applied Mechanics and Engineering;
11. ESAIM: Mathematical Modelling and Numerical Analysis;
12. Express Polymer Letters;
13. GEM - International Journal on Geomathematics;
14. Geophysics;
15. IMA Journal of Numerical Analysis;
16. International Journal for Numerical Methods in Fluids;
17. International Journal of Solids and Structures;
18. International Journal of Numerical Analysis and Modeling;
19. Journal of Computational and Applied Mathematics;
20. Journal of Computational Physics;
21. Journal of Scientific Computing;
22. Mathematical Models and Methods in Applied Sciences;
23. Mathematics of Computation;
24. Mathematics and Computer in Simulations;

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

External Committees Member

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

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

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

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

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

Hiring Committees for Faculty Members

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 at Politecnico di Milano

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 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] P. F. Antonietti, P. Houston, G. Pennesi, and E. Süli. An agglomeration-based massively parallel non-overlapping additive Schwarz preconditioner for high-order discontinuous Galerkin methods on polytopic grids. arXiv:1903.11357. Submitted, 2019
- [S2] P. F. Antonietti, C. Facciola, and M. Verani. Unified analysis of Discontinuous Galerkin approximations of flows in fractured porous media on polygonal and polyhedral grids. MOX report 09/2019. Submitted, 2019
- [S3] P. F. Antonietti, G. Manzini, and M. Verani. The conforming virtual element method for polyharmonic problems. ArXiv:1811.04317v1. Submitted, 2018
- [S4] P. F. Antonietti and L. Melas. Algebraic multigrid schemes for high-order Discontinuous Galerkin methods. MOX Report 42/2018. Submitted, 2018
- [S5] P. F. Antonietti, F. Bonaldi, and I. Mazzieri. A high-order Discontinuous Galerkin approach to the elasto-acoustic problem. MOX Report 18/2018. Submitted, 2018

Book Chapters

- [BC1] P. F. Antonietti, A. Cangiani, J. Collis, Z. Dong, E. H. Georgoulis, S. Giani, and P. Houston. 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*, volume 114 of *Lect. Notes Comput. Sci. Eng.*, pages 279–308. Springer, [Cham], 2016

- [BC2] P. F. Antonietti, I. Mazzieri, and A. Quarteroni. Improving seismic risk protection through mathematical modeling. In M. V. E. M. Emmer, M. Abate, editor, *Imaging Maths. Between culture and mathematics: 4*, pages 271–282. Unione Matematica Italiana, 2015

Peer-Reviewed Journal Papers

- [J1] P. Antonietti, M. Verani, C. Vergara, and S. Zonca. Numerical solution of fluid-structure interaction problems by means of a high order Discontinuous Galerkin method on polygonal grids. *Finite Elem. Anal. Des.*, 159:1–14, 2019
- [J2] P. F. Antonietti, C. Canuto, and M. Verani. An adaptive hp -DG-FE Method for Elliptic Problems. Convergence and Optimality in the 1D Case. *Communications on Applied Mathematics and Computation*, in press, 2019
- [J3] 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, 2019
- [J4] P. F. Antonietti and G. Pennesi. V -cycle Multigrid Algorithms for Discontinuous Galerkin Methods on Non-nested Polytopic Meshes. *J. Sci. Comput.*, 78(1):625–652, 2019
- [J5] P. F. Antonietti and I. Mazzieri. High-order discontinuous Galerkin methods for the elastodynamics equation on polygonal and polyhedral meshes. *Comput. Methods Appl. Mech. Engrg.*, 342:414–437, 2018
- [J6] P. F. Antonietti, P. Houston, and G. Pennesi. Fast Numerical Integration on Polytopic Meshes with Applications to Discontinuous Galerkin Finite Element Methods. *J. Sci. Comput.*, 77(3):1339–1370, 2018
- [J7] P. F. Antonietti, J. Droniou, and R. Eymard. 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):323–325, 2018
- [J8] P. F. Antonietti, L. Mascotto, and M. Verani. A multigrid algorithm for the p -version of the Virtual Element method. *M2AN Math. Model. Numer. Anal.*, 52(1):337–364, 2018
- [J9] P. F. Antonietti, G. Manzini, and M. Verani. The fully nonconforming Virtual Element method for biharmonic problems. *M3AS Math. Models Methods Appl. Sci.*, 28(2):387–407, 2018
- [J10] P. F. Antonietti, I. Mazzieri, N. Dal Santo, and A. Quarteroni. A high-order discontinuous Galerkin approximation to ordinary differential equations with applications to elastodynamics. *IMA J. Numer. Anal.*, 38(4):1709–1734, 2018
- [J11] A. Ferroni, P. F. Antonietti, I. Mazzieri, and A. Quarteroni. Dispersion-dissipation analysis of 3-d continuous and discontinuous spectral element methods for the elastodynamics equation. *Geophys J Int*, 211(3):1554–1574, 2017
- [J12] A. Agosti, P. F. Antonietti, P. Ciarletta, M. Grasselli, and M. Verani. A Cahn-Hilliard-type equation with application to tumor growth dynamics. *M2AS Math. Methods Appl. Sci.*, 40(18):7598–7626, 2017
- [J13] P. F. Antonietti, M. Bruggi, S. Scacchi, and M. Verani. On the Virtual Element Method for topology optimization on polygonal meshes: A numerical study. *Comput. Math. Appl.*, 74(5):1091–1109, 2017
- [J14] P. F. Antonietti, P. Houston, X. Hu, M. Sarti, and M. Verani. Multigrid algorithms for hp -version interior penalty Discontinuous Galerkin methods on polygonal and polyhedral meshes. *Calcolo*, 54(4):1169–1198, 2017
- [J15] P. F. Antonietti, B. Merlet, M. Pierre, and M. Verani. Convergence to equilibrium for a second-order time semi-discretization of the Cahn-Hilliard equation. *AIMS Mathematics*, 1(3):178–194, 2016

- [J16] P. F. Antonietti, M. Sarti, M. Verani, and L. T. Zikatanov. A uniform additive schwarz preconditioner for high-order Discontinuous Galerkin approximations of elliptic problems. *J. Sci. Comput.*, 70(2):608–630, 2017
- [J17] P. F. Antonietti, P. Houston, and I. Smears. A note on optimal spectral bounds for nonoverlapping domain decomposition preconditioners for hp -version Discontinuous Galerkin methods. *Int. J. Numer. Anal. Model.*, 13(4):513–524, 2016
- [J18] P. F. Antonietti, P. Pacciarini, and A. Quarteroni. A Discontinuous Galerkin Reduced Basis Element method for elliptic problems. *M2AN Math. Model. Numer. Anal.*, 50:337–360, 2016
- [J19] P. F. Antonietti, B. Ayuso de Dios, I. Mazzieri, and A. Quarteroni. Stability analysis of Discontinuous Galerkin approximations to the elastodynamics problem. *J. Sci. Comput.*, 68:143–170, 2016
- [J20] P. F. Antonietti, L. Formaggia, A. Scotti, M. Verani, and N. Verzotti. Mimetic finite difference approximation of flows in fractured porous media. *M2AN Math. Model. Numer. Anal.*, 50(3):809–832, 2016
- [J21] P. F. Antonietti, L. Beirão da Veiga, S. Scacchi, and M. Verani. A C^1 Virtual Element Method for the Cahn–Hilliard Equation with Polygonal Meshes. *SIAM J. Numer. Anal.*, 54(1):34–56, 2016
- [J22] P. F. Antonietti, M. Verani, and L. Zikatanov. A two-level method for mimetic finite difference discretizations of elliptic problems. *Comput. Math. Appl.*, 70:2674–2687, 2015
- [J23] P. F. Antonietti, M. Grasselli, S. Stangalino, and M. Verani. Discontinuous Galerkin approximation of linear parabolic problems with dynamic boundary conditions. *J. Sci. Comput.*, 66:1260–1280, 2016
- [J24] P. F. Antonietti, C. Marcati, I. Mazzieri, and A. Quarteroni. High order Discontinuous Galerkin methods on simplicial elements for the elastodynamics equation. *Numer. Algorithms*, 71(1):181–206, 2016
- [J25] P. F. Antonietti, M. Sarti, and M. Verani. Multigrid algorithms for hp -Discontinuous Galerkin discretizations of elliptic problems. *SIAM J. Numer. Anal.*, 53(1):598–618, 2015
- [J26] P. F. Antonietti, A. Dedner, P. Madhavan, S. Stangalino, B. Stinner, and M. Verani. High Order Discontinuous Galerkin Methods for Elliptic Problems on Surfaces. *SIAM J. Numer. Anal.*, 53(2):1145–1171, 2015
- [J27] P. F. Antonietti, B. Ayuso de Dios, S. Bertoluzza, and M. Pennacchio. Substructuring preconditioners for an h - p domain decomposition method with interior penalty mortar. *Calcolo*, 52(3):289–316, 2015
- [J28] P. F. Antonietti, N. Bigoni, and M. Verani. Mimetic finite difference approximation of quasilinear elliptic problems. *Calcolo*, 52(1):45–67, 2015
- [J29] P. F. Antonietti, L. Beirão da Veiga, N. Bigoni, and M. Verani. Mimetic finite differences for nonlinear and control problems. *M3AS Math. Models Methods Appl. Sci.*, 24(8):1457–1493, 2014
- [J30] P. F. Antonietti, L. Beirão da Veiga, D. Mora, and M. Verani. A stream virtual element formulation of the Stokes problem on polygonal meshes. *SIAM J. Numer. Anal.*, 52(1):386–404, 2014
- [J31] P. F. Antonietti, S. Giani, and P. Houston. Domain decomposition preconditioners for Discontinuous Galerkin methods for elliptic problems on complicated domains. *J. Sci. Comput.*, 60(1):203–227, 2014
- [J32] P. F. Antonietti, S. Giani, and P. Houston. hp -version composite Discontinuous Galerkin methods for elliptic problems on complicated domains. *SIAM J. Sci. Comput.*, 35(3):A1417–A1439, 2013
- [J33] P. F. Antonietti, A. Borzì, and M. Verani. Multigrid shape optimization governed by elliptic PDEs. *SIAM J. Control Optim.*, 51(2):1417–1440, 2013

- [J34] P. F. Antonietti, L. Beirão da Veiga, C. Lovadina, and M. Verani. Hierarchical a posteriori error estimators for the mimetic discretization of elliptic problems. *SIAM J. Numer. Anal.*, 51(1):654–675, 2013
- [J35] P. F. Antonietti, L. Beirão da Veiga, and M. Verani. A mimetic discretization of elliptic obstacle problems. *Math. Comp.*, 82(283):1379–1400, 2013
- [J36] P. F. Antonietti, N. Bigoni, and M. Verani. Mimetic Discretizations of Elliptic Control Problems. *J. Sci. Comput.*, 56(1):14–27, 2013
- [J37] P. F. Antonietti, B. Ayuso de Dios, S. Brenner, and L.-Y. Sung. Schwarz methods for a preconditioned WOPSIP method for elliptic problems. *Comput. Methods Appl. Math.*, 12(3):241–272, 2012
- [J38] P. F. Antonietti, I. Mazzieri, A. Quarteroni, and F. Rapetti. Non-conforming high order approximations of the elastodynamics equation. *Comput. Methods Appl. Mech. Engrg.*, 209-212:212–238, 2012
- [J39] P. F. Antonietti and A. Pratelli. Finite element approximation of the Sobolev constant. *Numer. Math.*, 117(1):37–64, 2011
- [J40] P. F. Antonietti and P. Houston. A class of domain decomposition preconditioners for hp -Discontinuous Galerkin finite element methods. *J. Sci. Comput.*, 46(1):124–149, 2011
- [J41] P. F. Antonietti, P. Biscari, A. Tavakoli, M. Verani, and M. Vianello. Theoretical study and numerical simulation of textiles. *Appl. Math. Model.*, 35(6):2669–2681, 2011
- [J42] P. F. Antonietti, N. Fadel, and M. Verani. Modelling and numerical simulation of the polymeric extrusion process in textile products. *Commun. Appl. Ind. Math.*, 1(2):1–13, 2010
- [J43] P. F. Antonietti, F. Brezzi, and L. Marini. Bubble stabilization of Discontinuous Galerkin methods. *Comput. Methods Appl. Mech. Engrg.*, 198(21-26):1651–1659, 2009
- [J44] P. F. Antonietti and B. Ayuso. Two-level Schwarz preconditioners for super penalty Discontinuous Galerkin methods. *Commun. Comput. Phys.*, 5(2-4):398–412, 2009
- [J45] P. F. Antonietti and P. Houston. A pre-processing moving mesh method for Discontinuous Galerkin approximations of advection-diffusion-reaction problems. *Int. J. Numer. Anal. Model.*, 5(4):704–728, 2008
- [J46] P. F. Antonietti, F. Brezzi, and L. Marini. Stabilizations of the Baumann-Oden DG formulation: the 3D case. *Boll. Unione Mat. Ital. (9)*, 1(3):629–643, 2008
- [J47] P. F. Antonietti and B. Ayuso. Multiplicative Schwarz methods for Discontinuous Galerkin approximations of elliptic problems. *M2AN Math. Model. Numer. Anal.*, 42(3):443–469, 2008
- [J48] P. F. Antonietti. Tecniche di decomposizione di dominio, correttezza spettrale e prestazioni numeriche dei metodi Discontinuous Galerkin. *La Matematica nella Società e nella Cultura, Rivista della Unione Matematica Italiana, Serie I*, 1(2):211–214, 2008
- [J49] P. F. Antonietti and L. Heltai. Numerical validation of a class of mixed Discontinuous Galerkin methods for Darcy flow. *Comput. Methods Appl. Mech. Engrg.*, 196(45-48):4505–4520, 2007
- [J50] P. F. Antonietti and B. Ayuso. Schwarz domain decomposition preconditioners for Discontinuous Galerkin approximations of elliptic problems: non-overlapping case. *M2AN Math. Model. Numer. Anal.*, 41(1):21–54, 2007
- [J51] P. F. Antonietti, A. Buffa, and I. Perugia. Discontinuous Galerkin approximation of the Laplace eigenproblem. *Comput. Methods Appl. Mech. Engrg.*, 195(25-28):3483–3503, 2006

Peer-Reviewed Conference Proceedings

- [C1] P. F. Antonietti, C. Facciola, and M. Verani. Mixed-primal Discontinuous Galerkin approximation of flows in fractured porous media on polygonal and polyhedral grids. *Proceedings in Applied Mathematics and Mechanics - 90th GAMM Annual Meeting - 2019*, 2019
- [C2] P. F. Antonietti, S. Berrone, M. Verani, and S. Weißer. The virtual element method on anisotropic polygonal discretizations. In F. A. Radu, K. Kumar, I. Berre, J. M. Nordbotten, and I. S. Pop, editors, *Numerical Mathematics and Advanced Applications ENUMATH 2017*, pages 725–733, Cham, 2019. Springer International Publishing
- [C3] P. F. Antonietti, A. Ferroni, I. Mazzieri, R. Paolucci, A. Quarteroni, C. Smerzini, and M. Stupazzini. Numerical modeling of seismic waves by discontinuous spectral element methods. In *43-ème Congrès National d'Analyse Numérique, CANUM2016*, volume 61 of *ESAIM Proc. Surveys*, pages 1–37. EDP Sci., Les Ulis, 2018
- [C4] P. F. Antonietti, A. Ferroni, I. Mazzieri, and A. Quarteroni. *hp*-version discontinuous Galerkin approximations of the elastodynamics equation. In *Spectral and high order methods for partial differential equations—ICOSAHOM 2016*, volume 119 of *Lect. Notes Comput. Sci. Eng.*, pages 3–19. Springer, Cham, 2017
- [C5] P. Antonietti, M. Bruggi, S. Scacchi, and M. Verani. Vem and topology optimization on polygonal meshes. In *ECCOMAS Congress 2016 - Proceedings of the 7th European Congress on Computational Methods in Applied Sciences and Engineering*, volume 2, pages 2941–2952, 2016
- [C6] P. Antonietti, P. Panfili, A. Scotti, L. Turconi, M. Verani, A. Cominelli, and L. Formaggia. Optimal techniques to simulate flow in fractured reservoir. *14th European Conference on the Mathematics of Oil Recovery 2014, ECMOR 2014*, 2014. Article n. B31
- [C7] P. F. Antonietti, M. Sarti, and M. Verani. Multigrid algorithms for high order discontinuous Galerkin methods. In *Domain decomposition methods in science and engineering XXII*, volume 104 of *Lect. Notes Comput. Sci. Eng.*, pages 3–13. Springer, Cham, 2016
- [C8] P. F. Antonietti, I. Perugia, and D. Zaliani. Schwarz domain decomposition preconditioners for plane wave discontinuous Galerkin methods. In *Numerical mathematics and advanced applications—ENUMATH 2013*, volume 103 of *Lect. Notes Comput. Sci. Eng.*, pages 557–572. Springer, Cham, 2015
- [C9] P. F. Antonietti, N. Bigoni, and M. Verani. Mimetic finite difference method for shape optimization problems. In *Numerical mathematics and advanced applications—ENUMATH 2013*, volume 103 of *Lect. Notes Comput. Sci. Eng.*, pages 125–132. Springer, Cham, 2015
- [C10] R. Paolucci, M. Stupazzini, P. F. Antonietti, R. Guidotti, I. Mazzieri, C. Smerzini, and M. Beretta. Deterministic seismic scenarios from 3d numerical simulations. In *Vienna Congress on Recent Advances in Earthquake Engineering and Structural Dynamics 2013 (VEESD 2013)*. C. Adam, R. Heuer, W. Lenhardt & C. Schranz (eds), 2013. 28-30 August 2013, Vienna, Austria, Paper No. 255. ISBN: 978-3-902749-04-8
- [C11] P. F. Antonietti, I. Mazzieri, A. Quarteroni, and F. Rapetti. High order space-time discretization for elastic wave propagation problems. In *Spectral and high order methods for partial differential equations—ICOSAHOM 2012*, volume 95 of *Lect. Notes Comput. Sci. Eng.*, pages 87–97. Springer, Cham, 2014
- [C12] P. F. Antonietti, L. Beirão da Veiga, and M. Verani. An adaptive MFD method for the obstacle problem. In *Numerical Mathematics and Advanced Applications 2011*, pages 3–12, Berlin, 2013. Springer
- [C13] P. F. Antonietti and P. Houston. Preconditioning high-order discontinuous Galerkin discretizations of elliptic problems. In *Domain decomposition methods in science and engineering XX*, volume 91 of *Lect. Notes Comput. Sci. Eng.*, pages 231–238. Springer, Heidelberg, 2013

- [C14] P. F. Antonietti and A. Quarteroni. Numerical performance of Discontinuous and stabilized continuous Galerkin methods for convection-diffusion problems. In *Numerical Methods for Hyperbolic Equations: Theory and Appl., An Int. Conf. to Honour Professor E.F. Toro - Proc. of the Int. Conf. on Numerical Methods for Hyperbolic Equations: Theory and Appl.*, pages 75–85, 2013
- [C15] I. Mazziari, C. Smerzini, P. F. Antonietti, F. Rapetti, M. Stupazzini, R. Paolucci, and A. Quarteroni. Non-conforming spectral approximations for the elasticwave equation in heterogeneous media. In *ECCOMAS Thematic Conference - COMPDYN 2011: 3rd International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, 2011
- [C16] P. F. Antonietti and E. Süli. Domain decomposition preconditioning for discontinuous Galerkin approximations of convection-diffusion problems. In *Domain decomposition methods in science and engineering XVIII*, volume 70 of *Lect. Notes Comput. Sci. Eng.*, pages 259–266. Springer, Berlin, 2009
- [C17] P. F. Antonietti and P. Houston. An hr-adaptive Discontinuous Galerkin method for advection-diffusion problems. In *Communications to SIMAI Congress*, Rome, Italy, 2009. Vol. 3
- [C18] P. F. Antonietti and B. Ayuso. Class of preconditioners for discontinuous Galerkin approximations of elliptic problems. In *Domain decomposition methods in science and engineering XVII*, volume 60 of *Lect. Notes Comput. Sci. Eng.*, pages 185–192. Springer, Berlin, 2008
- [C19] P. F. Antonietti and B. Ayuso. Multiplicative Schwarz algorithms for symmetric Discontinuous Galerkin methods. In *Applied and industrial mathematics in Italy II. Selected Contributions from the 8th SIMAI Conference*, volume 75 of *Series on Advances in Mathematics for Applied Sciences*, pages 66–77. World Sci. Publ., Hackensack, NJ, 2007
- [C20] P. F. Antonietti, B. Ayuso, and L. Heltai. Schwarz domain decomposition preconditioners for interior penalty approximations of elliptic problems. In *Numerical mathematics and advanced applications*, pages 423–431. Springer, Berlin, 2006

Papers for Popularization of Mathematics

1. P. F. Antonietti and M. Verani. Simulation de produits textiles, Images des Mathématiques, 2012
2. P. F. Antonietti and M. Verani. Simulation of polymeric textile products. In L. Thibaut, M. Primicerio, M. Esteban, M. Fontes, M. Maday, V. Mehrmann, G. Quadros, W. Schilders, A. Schuppert, and H. Tewkesbury, editors, *European Success Stories in Industrial Mathematics*, pages 83–83. Springer, 2011
3. P. F. Antonietti and M. Verani. Matematica applicata ai tessuti: uno stile tutto da dimostrare, *Newton* 2 (2010), pp. 94-95

Other Publications

1. A. Tavakoli, P. F. Antonietti, and M. Verani. Automatic computation of the impermeability of woven fabrics through image processing. MOX Report 34/2013
2. P. F. Antonietti and B. Ayuso. Multiplicative Schwarz methods for Discontinuous Galerkin approximations of elliptic problems. In *Communications to SIMAI Congress*, 2006. Vol. 1
3. P. F. Antonietti and B. Ayuso. Schwarz methods for interior penalty approximations to elliptic problems. In *Proceeding of the XIX CEDYA, Conference on Differential Equations and Applications*, 2005. Electronic

Theses

- [Th1] P. F. Antonietti. *Domain Decomposition, Spectral Correctness and Numerical Testing of Discontinuous Galerkin Methods*. PhD Thesis, Università degli Studi di Pavia, 2007
- [Th2] P. F. Antonietti. *Il metodo Interior Penalty per il problema di Poisson*. Laurea in Matematica, Università degli Studi di Pavia, 2003

Milano, May 28, 2019

Paola F. Antonietti