CURRICULUM VITAE

LORENZO TAMELLINI

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CV Last update: October 8, 2020

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1. Current position

December 30, 2016 - today: Researcher, Istituto di Matematica Applicata e Tecnologie Informatiche "Enrico Magenes" (IMATI), Pavia, Italy.

August 31, 2018 - August 31, 2024: Abilitazione Fascia II Settore Concorsuale 01/A5 "Analisi Numerica".

July 2019 - today: SIMAI representative in the ECCOMAS Young Investigators Committee (EYIC).

2. Professional Experience

February 15, 2016 - December 29, 2016: Researcher (non-permanent position), Istituto di Matematica Applicata e Tecnologie Informatiche "Enrico Magenes" (IMATI), Pavia, Italy.

May 2015 - February 14, 2016: Postdoctoral fellowship at Department of Mathematics, Università di Pavia, Italy, prof. G. Sangalli. Research theme "Isogeometric Method".

May 2012 - April 2015: Postdoctoral fellowship at the CSQI lab at École Polytechnique Fédérale de Lausanne, Switzerland, prof. F. Nobile, chair of "Scientific computing and Uncertainty Quantification".

January 2009 - March 2012: Ph.D. Student at the MOX lab at Department of Mathematics, Politecnico di Milano, Italy, prof. F. Nobile.

3. Education

March 26, 2012: Ph. D. "cum laude" at the Ph.D. school in "Mathematical Models and Methods in Engineering", Politecnico di Milano, with "Doctor Europaeus" certification. Thesis title: "Polynomial approximation of PDEs with stochastic coefficients". Advisor: prof. F. Nobile.

June 2010: Master of Science in Mathematical Engineering (110/110), at Politecnico di Torino, Academic Year 2009/2010.

June 2009: Alta Scuola Politecnica Diploma. Thesis title: "VICHEM - Virtual Chemistry". Advisors: E. Benfenati (Istituto Mario Negri), prof. G. Gini, prof. E. Vismara (Politecnico di Milano), prof. B. Montrucchio (Politecnico di Torino).

December 2008: Master of Science in Mathematical Engineering (110/110), at Politecnico di Milano, Academic Year 2007/2008. Thesis title: "A numerical model for scull floating". Advisor prof. Luca Formaggia, co-advisor doct. Edie Miglio.

September 2006: Bachelor in Mathematical Engineering (110/110 cum laude), Politecnico di Milano, Academic Year 2005/2006. Thesis title: "An application of the Lattice Boltzmann Method to two-dimensional flow". Advisor prof. Fausto Saleri.

July 2003: Scientific High School Diploma (98/100), Academic Year 2002/2003. Liceo Scientifico Sperimentazione P.N.I., "L.S.S. Girolamo Fracastoro", Verona.

4. Participation to projects

August 19, 2019 - August 18, 2022: Italian PRIN 2017 project "Numerical Analysis for Full and Reduced Order Methods for the efficient and accurate solution of complex systems governed by Partial Differential Equations (NA-FROM-PDEs)" (PI prof. G. Rozza) - **IMATI-CNR research unit leader** (research unit funding: 75000 EUR)

January 1, 2020 - December 31, 2021: GNCS Project "Aspetti teorici e numerici di tecniche innovative per la risoluzione efficiente di PDE". **Project Leader**

January 1, 2019 - December 31, 2019: GNCS Project "Metodi numerici non-standard per PDEs: efficienza, robustezza e affidabilità" (resp. A. Moiola).

January 1, 2018 - December 31, 2018: GNCS Project "Metodi non conformi per equazioni alle derivate parziali" (resp. A. Veeser).

January 1, 2017 - December 31, 2017: GNCS Project "Simulazione numerica di problemi di Interazione Fluido-Struttura (FSI) con metodi agli elementi finiti ed isogeometrici" (resp. D. Boffi).

February 15, 2016 - August 31, 2018: Horizon 2020 project "Computer Aided Technologies for Additive Manifacturing" (CAxMan), see `www.caxman.eu`. **Leader of Task T2.5** "Tools for optimization", 25 person-month

5. Post-doc supervision

Chiara Piazzola, March 1, 2020 - today.

Federico Marini, November 2, 2017 - October 31, 2018.

6. Prizes

November 6, 2015. *Finanziamento Giovani Ricercatori GNCS 2015* (1000 EUR) for the project *Tecniche di Quantificazione dell'Incertezza e applicazione a problemi di compattazione geochimica.*

7. Visiting stays

University of Colorado Boulder, *USA. Department of Aerospace Engineering Sciences, prof. A. Doostan and J. Evans.* February 3-21, 2020 (Aerospace Engineering Visiting Scholar Program); March 15-22, 2019; April 20-27, 2018.

University of Nottingham, *UK. School of Mathematical Sciences, Matteo Icardi, Ph.D.* June 18-20, 2019.

École Polytechnique Fédérale de Lausanne, *Switzerland. CSQI (Calcul Scientifique et Quantification de l'Incertitude), prof. F. Nobile.* July 1-5 2019; April 11-15, 2016; August 17-22, 2015.

Simon Fraser University, *Canada. Department of Mathematics, prof. B. Adcock.* March 4-8, 2019; April 6-15, 2018.

King Abdullah University of Science and Technology, *Thuwal, Saudi Arabia. Applied Mathematics and Computational Science Department, prof. R. Tempone.* September 16-30, 2018; August 16-30, 2016; January 4-15, 2016; January 4-16, 2015; February 11-25, 2014; January 3-14, 2012; February 18-26, 2010; November 15-22, 2009.

Newton Institute for the Mathematical Sciences, *Cambridge, UK. Semester on Uncertainty quantification for complex systems: theory and methodologies.* Organizers P. Challenor, M. Gunzburger, C. Powell, H. Wynn, January 28, 2018 - February 18, 2018.

Banff International Research Station, *Canada. Workshop "Computational Uncertainty Quantification".* Organizers S. Prudhomme, R. Ghanem, M. Motamed, R. Tempone, October 8-13, 2017.

TU Chemnitz, *Germany. Mathematics Department, prof. O. Ernst.* June 22-24, 2016.

University of Texas at Austin, *USA. ICES (Institute for Computational Engineering and Sciences), prof. R. Tempone.* June 28 - July 6, 2014 ; July 15-31, 2010; July 30 - August 14, 2009.

LIMSI-CNRS *(Laboratoire d'Informatique pour la Mécanique et les Sciences de l'Ingénieur) – Orsay, France, doct. O. P. Le Maître.* December 2, 2010 - February 28, 2011.

8. Scientific Interests

- Numerical methods for high-dimensional problems in uncertainty quantification;
- Isogeometric method;
- Computational fluid dynamics;
- Computational geophysics.

9. Publications

Bibliometric data - updated October 8, 2020

Google Scholar:	928 Citations, H-Index = 16
ISI:	284 Citations, H-Index = 9
Scopus:	410 Citations, H-Index = 10

Peer-reviewed Journal Articles

[1] L. Tamellini, M. Chiumenti, C. Altenhofen, M. Attene, O. Barrowclough, M. Livesu, F. Marini, M. Martinelli, and V. Skytt. Parametric Shape Optimization for Combined Additive–Subtractive Manufacturing. *JOM - The Journal of The Minerals, Metals & Materials Society*, 72:448–457, 2020

[2] J. Beck, L. Tamellini, and R. Tempone. IGA-based Multi-Index Stochastic Collocation for random PDEs on arbitrary domains. *Computer Methods in Applied Mechanics and Engineering*, 351:330 – 350, 2019

[3] O. G. Ernst, B. Sprungk, and L. Tamellini. Convergence of Sparse Collocation for Functions of Countably Many Gaussian Random Variables (with Application to Lognormal Elliptic Diffusion Problems). *SIAM Journal on Numerical Analysis*, 56(2):877–905, 2018

[4] I. Colombo, F. Nobile, G. Porta, A. Scotti, and L. Tamellini. Uncertainty Quantification of geochemical and mechanical compaction in layered sedimentary basins. *Computer Methods in Applied Mechanics and Engineering*, 328:122–146, 2018

[5] J. Beck, G. Sangalli, and L. Tamellini. A sparse-grid isogeometric solver. *Computer Methods in Applied Mechanics and Engineering*, 335(–):128–151, 2018

[6] M. Montardini, G. Sangalli, and L. Tamellini. Optimal-order isogeometric collocation at Galerkin superconvergent points. *Computer Methods in Applied Mechanics and Engineering*, 316(–):741 – 757, 2017. Special Issue on Isogeometric Analysis: Progress and Challenges.

[7] F. Nobile, L. Tamellini, and R. Tempone. Convergence of quasi-optimal sparse-grid approximation of Hilbert-space-valued functions: application to random elliptic PDEs. *Numerische Mathematik*, 134(2):343–388, 2016.

[8] A.-L. Haji-Ali, F. Nobile, L. Tamellini, and R. Tempone. Multi-Index Stochastic Collocation for random PDEs. *Computer Methods in Applied Mechanics and Engineering*, 306(–):95 – 122, 2016.

[9] A.-L. Haji-Ali, F. Nobile, L. Tamellini, and R. Tempone. Multi-index Stochastic Collocation convergence rates for random PDEs with parametric regularity. *Foundations of Computational Mathematics*, 16(6):1555–1605, 2016.

[10] L. Tamellini, O. Maître, and A. Nouy. Model reduction based on proper generalized decomposition for the stochastic steady incompressible Navier–Stokes equations. *SIAM Journal on Scientific Computing*, 36(3):A1089–A1117, 2014.

[11] G. Porta, L. Tamellini, V. Lever, and M. Riva. Inverse modeling of geochemical and mechanical compaction in sedimentary basins through polynomial chaos expansion. *Water Resources Research*, 50(12):9414–9431, 2014.

[12] J. Beck, F. Nobile, L. Tamellini, and R. Tempone. Convergence of quasi-optimal Stochastic Galerkin methods for a class of PDEs with random coefficients. *Computers & Mathematics with Applications*, 67(4):732 – 751, 2014.

[13] L. Formaggia, A. Guadagnini, I. Imperiali, V. Lever, G. Porta, M. Riva, A. Scotti, and L. Tamellini. Global sensitivity analysis through polynomial chaos expansion of a basin-scale geochemical compaction model. *Computational Geosciences*, 17(1):25–42, 2013.

[14] L. Tamellini, L. Formaggia, E. Miglio, and A. Scotti. An Uzawa iterative scheme for the simulation of floating bodies. *Computers and Fluids*, 68:148–158, 2012.

[15] J. Beck, F. Nobile, L. Tamellini, and R. Tempone. On the optimal polynomial approximation of stochastic PDEs by Galerkin and collocation methods. *Mathematical Models and Methods in Applied Sciences (M3AS)*, 22(9), 2012.

Peer-Reviewed Book Chapters

[16] O. G. Ernst, B. Sprungk, and L. Tamellini. On Expansions and Nodes for Sparse Grid Collocation of Lognormal Elliptic PDEs. *Arxiv e-prints*, (1906.01252), 2019. Accepted. To appear on the Springer book "Sparse grids and application - Munich 2018" proceedings. Also available as IMATI report 19-02

[17] F. Nobile, L. Tamellini, F. Tesei, and R. Tempone. An adaptive sparse grid algorithm for elliptic PDEs with lognormal diffusion coefficient. In J. Garcke and D. Pflüger, editors, *Sparse Grids and Applications – Stuttgart 2014*, volume 109 of *Lecture Notes in Computational Science and Engineering*, pages 191–220. Springer International Publishing Switzerland, 2016

[18] F. Nobile, L. Tamellini, and R. Tempone. Comparison of Clenshaw–Curtis and Leja Quasi-Optimal Sparse Grids for the Approximation of Random PDEs. In R. M. Kirby, M. Berzins, and J. S. Hesthaven, editors, *Spectral and High Order Methods for Partial Differential Equations - ICOSAHOM '14*, volume 106 of *Lecture Notes in Computational Science and Engineering*, pages 475–482. Springer International Publishing, 2015

[19] J. Beck, F. Nobile, L. Tamellini, and R. Tempone. A quasi-optimal sparse grids procedure for groundwater flows. In M. Azaiez, H. El Fekih, and J. S. Hesthaven, editors, *Spectral and High Order Methods for Partial Differential Equations - ICOSAHOM 2012*, Lecture Notes in Computational Science and Engineering. Springer, 2014

[20] J. Bäck, F. Nobile, L. Tamellini, and R. Tempone. Stochastic spectral Galerkin and collocation methods for PDEs with random coefficients: a numerical comparison. In J.S. Hesthaven and E.M. Ronquist, editors, *Spectral and High Order Methods for Partial Differential Equations*, volume 76 of *Lecture Notes in Computational Science and Engineering*, pages 43–62. Springer, 2011.

Conference Proceedings

[21] C. Piazzola, L. Tamellini, R. Pellegrini, R. Broglia, A. Serani, and M. Diez. Uncertainty Quantification of Ship Resistance via Multi-Index Stochastic Collocation and Radial Basis Function Surrogates: A Comparison. *Proceedings of the AIAA Aviation Forum 2020*, 2020. http://doi.org/10.2514/6.2020-3160. Also available as arXiv e-prints, 2005.07405

[22] J. Beck, F. Nobile, L. Tamellini, and R. Tempone. Implementation of optimal Galerkin and Collocation approximations of PDEs with Random Coefficients. *ESAIM: Proc.*, 33, 2011. Proceedings of CANUM 2010 conference

Submitted / In review

[23] C. Piazzola, L. Tamellini, and R. Tempone. A note on tools for prediction under uncertainty and identifiability of SIR-like dynamical systems for epidemiology. *Arxiv e-prints*, (2008.01400), 2020. Submitted

[24] M. Eigel, O. G. Ernst, B. Sprungk, and L. Tamellini. On the convergence of adaptive stochastic collocation for elliptic partial differential equations with affine diffusion. *Arxiv e-prints*, (2008.07186), 2020

[25] S. Brugiapaglia, L. Tamellini, and M. Tani. Compressive isogeometric analysis. *Arxiv e-prints*, (2003.06475), 2020. Submitted

Technical Reports

[26] L. Tamellini, M. Attene, M. Martinelli, M. Chiumenti, F. Marini, M. Livesu, P. Pietra, M. Pennacchio, S. Bertoluzza, V. Skytt, O. Barrowclough, and C. Altenhofen. Analysis based optimization tools. Deliverable D2.6, CAxMan consortium (H2020-FoF-2015-680448), 2018.

[27] S. Ellero, T. Zerbi, L. Bouffin, J.-C. Morel, T. Ventura Traverset, J. Haenisch, L. Tamellini, M. Martinelli, P. Pietra, M. Pennacchio, S. Bertoluzza, F. Marini, B. Ellingsen, and D. Sorlie. Cost-performance analysis of the demonstrators. Deliverable D7.5, CAxMan consortium (H2020-FoF-2015-680448), 2018. Available at `http://www.caxman.eu`

[28] T. Dokken, R. Woitsch, D. Weber, S. Bergweiler, L. Tamellini, M. Martinelli, M. Attene, M. Spagnuolo, P. Pietra, M. Pennacchio, S. Bertoluzza, M. Chiumenti, N. Bat, J.-C. Morel, J. Haenisch, S. Ellero, T. Ventura Traverset, D. Sorlie, B. Ellingsen, L. Bouffin, and S. Pena Serna. Business process model set. Deliverable D8.4, CAxMan consortium (H2020-FoF-2015-680448), 2018.

[29] T. Dokken, R. Woitsch, D. Weber, S. Bergweiler, L. Tamellini, M. Martinelli, M. Attene, M. Spagnuolo, P. Pietra, M. Pennacchio, S. Bertoluzza, M. Chiumenti, N. Bat, J.-C. Morel, J. Haenisch, S. Ellero, T. Ventura Traverset, D. Sorlie, B. Ellingsen, L. Bouffin, and S. Pena Serna. CAxMan Exploitation plans. Deliverable D8.5, CAxMan consortium (H2020-FoF-2015-680448), 2018.

[30] C. Altenhofen, O. Andersen, O. Barrowclough, S. Bertoluzza, S. Briseid, F. Fuchs, F. Marini, M. Martinelli, M. Pennacchio, P. Pietra, V. Skytt, and L. Tamellini. Interactive design and design workflows for AM. Deliverable D2.7, CAxMan consortium (H2020-FoF-2015-680448), 2018. Available at `http://www.caxman.eu`

[31] L. Tamellini, R. Vazquez, M. Martinelli, F. Marini, P. Pietra, M. Pennacchio, S. Bertoluzza, M. Attene, M. Livesu, V. Skytt, O. Barrowclough, and M. Chiumenti. Analysis tools for AM, non-linear setting. Deliverable D2.5, CAxMan consortium (H2020-FoF-2015-680448), 2017. Available at `http://www.caxman.eu`

[32] V. Skytt, O. Barrowclough, C. Altenhofen, L. Tamellini, M. Attene, S. Ellero, and J. Haenisch. Shape representation for AM. Deliverable D2.4, CAxMan consortium (H2020-FoF-2015-680448), 2017. Available at `http://www.caxman.eu`

[33] R. Vazquez, L. Tamellini, M. Martinelli, H. Kang, F. Marini, P. Pietra, V. Skytt, J. Hjelmervik, O. Barrowclough, C. Altenhofen, S. Ellero, T. Zerbi, U. Battista, J.-C. Morel, and L. Bouffin. Analysis tools for AM, linear setting. Deliverable D2.3, CAxMan consortium (H2020-FoF-2015-680448), 2016. Available at `http://www.caxman.eu`

[34] V. Skytt, O. Barrowclough, R. Vazquez, L. Tamellini, M. Martinelli, and C. Altenhofen. Iga based shape representation, initial version. Deliverable D2.2, CAxMan consortium (H2020-FoF-2015-680448), 2016. Available at `http://www.caxman.eu`

[35] O. Barrowclough, V. Skytt, R. Vazquez, A. Buffa, M. Martinelli, L. Tamellini, G. Sangalli, M. Spagnuolo, M. Attene, M. Chiumenti, J. Haenisch, S. Ellero, R. Landò, T. Zerbi, R. Perez, C. Altenhofen, D. Weber, S. Canard, and Morel J.-C. Requirements: Design for additive manufacturing. Deliverable D2.1, CAxMan consortium (H2020-FoF-2015-680448), 2015. Available at `http://www.caxman.eu`

Theses

[36] L. Tamellini. Polynomial approximation of PDEs with stochastic coefficients. PhD Thesis, Politecnico di Milano, 2012

[37] L. Tamellini. Un modello numerico per il galleggiamento di imbarcazioni. Master Thesis, Politecnico di Milano, 2008

[38] L. Bertagna and L. Tamellini. Il metodo Lattice Boltzmann ed una sua applicazione nella simulazione di flussi bidimensionali. Bachelor Thesis, Politecnico di Milano, 2006

Software

[39] L. Tamellini, F. Nobile, B. Sprungk, G. Porta, D. Guignard, and F. Tesei. *Sparse Grids Matlab kit* v.18-10 "Esperanza". `https://sites.google.com/view/sparse-grids-kit`, 2011-2018. Main developer and maintainer. Available free of charge under BSD-2 Clause Licence

Dissemination Articles

[40] R. Broglia, M. Diez, and L. Tamellini. Computational approaches for uncertainty quantification of naval engineering problems, 2020. ERCIM News 123. Special theme: Blue Growth. https://ercim-news.ercim.eu

10. Organization of conferences and minisymposia

Conferences

1. VI ECCOMAS Young Investigators Conference YIC 2021 July 7-9, 2021. Valencia. Member of the scientific committee. `https://yic2021.upv.es`

2. ECCOMAS Thematic conference COUPLED 2021 June 13-16, 2021. Chia Laguna. Member of the scientific committee. `https://congress.cimne.com/Coupled2021/frontal/default.asp`

3. UQ@DIITET/CNR - Workshop on Methods and applications of computational Uncertainty Quantification: experiences and perspectives within DIITET CNR. October 1-2, 2020, online workshop. `https://sites.google.com/view/uq-diitet-cnr-2020`

4. Workshop Approximation of high-dimensional parametric PDEs in forward UQ. June 2-5, 2020. Vienna. Member of the scientific committee (postponed to 2022 due to COVID-19). `https://www.esi.ac.at/activities/events/2020`

5. SIAM Conference on Uncertainty Quantification (SIAM UQ20) March 24-27, 2020. Munich. Member of the organizing committee and GAMM-AG-UQ representative (canceled due to COVID-19). `https://www.siam.org/Conferences/CM/Conference/uq20`

6. FrontUQ 19 - Workshop on Frontiers of Uncertainty Quantification in Computational Fluid Dynamics. September 11-13, 2019, Pisa. Member of the local organizing committee and of the scientific committee. `https://frontuq19.com`

7. UMI 2019 - XXI Congresso dell'Unione Matematica Italiana. September 2-7, 2019, Pavia. Member of the local organizing committee. `http://umi.dm.unibo.it/congresso2019/`

8. HOFEIM 19 - High-Order Finite Element and Isogeometric Methods. May 27-31, 2019, Pavia. Webmaster and head of the local organizing committee. `http://hofeim2019.org`

9. TiciNUM 2019 - Third Young Numerical Analysts Meeting in Lombardy. May 10, 2019, Pavia. Member of the scientific and local organizing committee. `https://sites.google.com/view/ticinum-2019`

10. FrontUQ 18 - Workshop on Frontiers of Uncertainty Quantification in Subsurface Environment. September 5-7, 2018, Pavia. Member of the local organizing committee and of the scientific committee, `https://frontuq18.org`

11. IGA 2017 - V International Conference on Isogeometric Analysis. September 11-13, 2017, Pavia. Member of the local organizing committee, `http://congress.cimne.com/iga2017/frontal/Organizing.asp`

Minisymposia

1. D. Allaire, A. Doostan, J. Jakeman, L. Tamellini, *Uncertainty quantification for coupled multi-physics, multi-scale and multi-fidelity modeling*, COUPLED 2021, June 13-16, 2021, Chia Laguna.

2. F. Bonizzoni, A. Manzoni, L. Tamellini, *Trending topics in Uncertainty Quantification*, SIMAI Biannual meeting 2020, January 25-29, 2021, Parma (12 speakers).

3. M. Diez, M.V. Salvetti, L. Tamellini, *UQ for complex fluid dynamics problems in realistic applications*, SIAM Conference on Uncertainty Quantification, March 24-27, 2020, Munich (8 speakers - canceled due to COVID-19).

4. G. Sangalli, L. Tamellini, *High-order Isogeometric Solvers*, ICOSAHOM - International Conference on Spectral and High Order Methods, July 9-13, 2018, London (8 speakers).

5. J. Beck, L. Tamellini, *IGA and other spline-based methods in UQ and high-dimensional problems*, SIAM Conference on Uncertainty Quantification, April 16-19, 2018, Garden Grove, CA (8 speakers).

6. G. Sangalli, L. Tamellini, *Isogeometric Methods: theoretical and computational aspects*, SIMAI Biannual meeting 2016, September 13-16, 2016, Milano (12 speakers).

7. A. Manzoni, L. Tamellini, *Large-scale and Data-driven PDE problems: Uncertainty Quantification & Reduced Order Modeling*, SIMAI Biannual meeting 2016, September 13-16, 2016, Milano (18 speakers).

8. A. Guadagnini, G. Porta, M. Riva, L. Tamellini, *Uncertainty Quantification in subsurface environments*, SIAM Conference on Uncertainty Quantification, April 5-8, 2016, Lausanne (11 speakers).

9. C. Schwab, L. Tamellini, E. Ullmann, D. Xiu, *High Order Methods for High-Dimensional problems: Applications in UQ*, ICOSAHOM - International Conference on Spectral and High Order Methods, June 23-27, 2014, Salt Lake City (16 speakers).

10. A. Manzoni, L. Tamellini, *Reduced and polynomial approximation strategies for parametrized and stochastic PDEs*, SIMAI Biannual meeting 2012, June 25-28, 2012, Torino (8 speakers).

11. Invited talks

1. *Title TBA*, Workshop Calcolo scientifico e modelli matematici: alla ricerca delle cose nascoste attraverso le cose manifeste, April 28-30, 2021, Roma.

2. *Title TBA*, Workshop on Sparse Grids and Applications, September 7-11, 2020, Bonn. Workshop moved to 2021 due to COVID-19.

3. *Title TBA*, Workshop Multilevel and multifidelity sampling methods in UQ for PDEs, May 4-8, 2020, Erwin Schroedinger Institute, Vienna. Within the Thematic Programme "Computational Uncertainty Quantification: Mathematical Foundations, Methodology & Data". Workshop moved to 2022 due to COVID-19.

4. *IMATI and INM joint study: Uncertainty quantification for ship hydrodynamics via multi-fidelity methods with multi-grid RANS computations*, Online Seminar CNR-INM, July 10, 2020

5. *Parametric shape optimization for combined additive-subtractive manufacturing*, INdAM Workshop on Mathematical Methods for Objects Reconstruction: from 3D Vision to 3D Printing, June 22-26, 2020, Roma. Workshop moved to 2021 due to COVID-19.

6. *Sparse-grids-based Uncertainty Quantification of geochemical compaction of sedimentary basins*, Applied Mathematics Colloquium, Columbia University New York, February 24, 2020

7. *Sparse-grids-based Uncertainty Quantification of geochemical compaction of sedimentary basins*, FSM Seminar, University of Colorado Boulder, February 19, 2020

8. *IGA-based Multi-Index Stochastic Collocation (MISC) for Elliptic PDEs with random data*, October 17, 2019, Consiglio delle Ricerche, Institute of Marine Engineering (CNR-INM), Roma.

9. *IGA-based Multi-Index Stochastic Collocation (MISC) for Elliptic PDEs with random data*, LIA COPDESC and Lions Magenes Days, November 4-7, 2019, Laboratoire Jacques-Louis Lions, Paris.

10. *Metodi numerici per la quantificazione dell'incertezza di PDE con parametri aleatori*, One-day meeting for Ph.D. students on Uncertainty Quantification in Modern Sciences Theory, University of Pisa, September 10, 2019 (2 hours).

11. *Uncertainty Quantification of PDEs with random coefficients I: introduction and theoretical foundations + Uncertainty Quantification of PDEs with random coefficients II: IGA-based Multi-Index Stochastic Collocation (MISC) for Elliptic PDEs with random data*, "Industrial and Applied Mathematics" and "Scientific Computing" seminars, University of Nottingham, June 19, 2019 (2 hours).

12. *Sparse grids technologies for UQ in subsurface environments*, International Workshop on Non-linear Problems and Uncertainty Quantification, March 26-28, 2019, NORCE (Norwegian Research Centre).

13. *Computational techniques for uncertainty quantification of partial differential equations with random parameters*, Conferenza DIITET-CNR Area Strategica Matematica Applicata, January 21, 2019, Roma.

14. *Sparse-grids-based Uncertainty Quantification of geochemical compaction of sedimentary basins*, AMCS Seminars, September 18, 2018, King Abdullah University of Science and Technology.

15. *Metodi numerici per Quantificazione dell'Incertezza di PDE con parametri aleatori*, seminars University of Bologna, May 24, 2018 (2 hours).

16. *Isogeometric-analysis-based Multi-Index Stochastic Collocation for Elliptic PDEs with random data*, MOX seminars, March 20, 2018, Department of Mathematics, Politecnico di Milano.

17. *Multi-Index Stochastic Collocation (MISC) for Elliptic PDEs with random data*, Workshop Surrogate models for UQ in complex systems February 5-9, 2018, Isaac Newton Institute for Mathematical Sciences, Cambridge.

18. *Multi-Index Stochastic Collocation (MISC) for Elliptic PDEs*, Workshop Uncertainty Modeling for Engineering Applications (UMEMA 2017) November 23-24, 2017, Torino.

19. *Uncertainty Quantification of geochemical and mechanical compaction in layered sedimentary basins*, Workshop Computational Uncertainty Quantification October 8-13, 2017, Banff International Research Station.

20. *Sparse grid approximation of elliptic PDEs with lognormal diffusion coefficient*, Workshop Quantification of Uncertainty: Improving Efficiency and Technology (QUIET 2017) July 18-21, 2017, SISSA, Trieste.

21. *Sparse grids and Multi-Index Stochastic Collocation for random PDEs*, Applied Mathematics Seminars of the Department of Mathematics of the Technische Universität Chemnitz, June 24, 2016, Chemnitz.

22. *Quasi optimal and adaptive sparse grids with control variates for PDEs with random diffusion coefficient*, SRI-UQ Annual Workshop 2016, January 5-10, 2016, King Abdullah University of Science and Technology, Saudi Arabia.

23. *Polynomial approximation of PDEs with stochastic coefficients*, Applied Mathematics Seminars of the Department of Mathematics of Pavia University, April 21, 2015, Pavia.

24. *Polynomial approximation of elliptic PDEs with stochastic coefficients*, Journées Lions-Magenes, December 14-15, 2011, Laboratoire Jacques-Louis Lions, Université Pierre et Marie Curie - Paris VI.

25. *Optimal sparse grids for linear elliptic PDEs with random coefficients*, Workshop Sparse grids and applications, May 16-20, 2011, HIM - Hausdorff Research Institute for Mathematics, Universität Bonn.

Invited talks in minisymposia

1. *Uncertainty Quantification of Ship Resistance via Multi-Index Stochastic Collocation and Radial Basis Function Surrogates: A Comparison*, SIAM Conference on Computational Science and Engineering, March 1-5, 2021, Forth Worth.
Minisymposium: Multilevel and Multifidelity approaches for forward and inverse UQ, optimization and control – Algorithms and Applications, organized by A. Gorodetsky, G. Geraci, T. Portone, J. Jakeman, M. Eldred

2. *Uncertainty Quantification for PDEs with random data using the Multi-Index Stochastic Collocation method*, 50th Scientific Meeting of the Italian Statistical Society, June 22-24, 2020, Pisa.
Minisymposium: Data Science: when different expertise meet, organized by F. Ruggeri, Conference cancelled due to COVID-19.

3. *Recent Advances on IGA-based Multi-Index Stochastic Collocation*, SIAM Conference on Uncertainty Quantification, March 24-27, 2020, Munich.
Minisymposium: Multilevel and Multifidelity approaches for forward/inverse Uncertainty Quantification and optimization under uncertainty, organized by P. Tsilifis, G. Geraci, A. Gorodetsky, J. Jakeman, J. P. Madrigal Cianci, M. Eldred Conference cancelled due to COVID-19.

4. *CossIGA: using compressive sensing to solve PDEs with isogeometric analysis*, International Conference on Isogeometric Analysis 2019, September 19-20, 2019, Munich.
Minisymposium: Efficient Algorithms and Large Scale IGA Applications, organized by G. Sangalli, V. Calo

5. *Metodo "multi-index stochastic collocation" con solutore isogeometrico per EDP ellittiche con dati aleatori*, Congresso Unione Matematica Italiana 2019, September 2-7, 2019, Pavia.
Minisymposium: Teoria dell'approssimazione ed applicazioni, organized by G. Sangalli, H. Speleers

6. *IGA-based Multi-Index Stochastic Collocation for random PDEs on arbitrary domains*, International Congress on Industrial and Applied Mathematics, July 15-19, 2019, Valencia.
Minisymposium: Multifidelity methods for uncertainty quantification, optimization, and control of complex systems, organized by A. Gorodetsky, M. Eldred, G. Geraci, J. Jakeman

7. *Sparse grid approximation of elliptic PDEs with lognormal diffusion coefficient*, SIAM Conference on Computational Issues in the Geosciences, March 11-14, 2019, Houston.
Minisymposium: Advanced Models and Methods for Underground Flows in Complex Geometries with Applications, organized by A. Fumagalli, A. Scotti, S.Scialò

8. *Sparse grid approximation of elliptic PDEs with lognormal diffusion coefficient*, SIAM Conference on Computational Science and Engineering, February 25, 2019 - March 1, 2019, Spokane.
Minisymposium: Model Reduction, Adaptivity, and High Dimensionality in Uncertainty Quantification, organized by A. Narayan, J. D. Jakeman

9. *A new procedure for solving PDEs on trimmed surfaces and its application to shape optimization (keynote talk)*, Conference ECCM-ECFD 2018 June 11-15, 2018, Glasgow.

Minisymposium: Mathematical aspects of Isogeometric Analysis, organized by C. Manni, H. Speleers

10. *A Sparse-grid version of IGA methods*, Conference ENUMATH 2017 September 25-29, 2017, Voss.
Minisymposium: Numerical methods for PDEs: Theory and Computation, organized by R. Nochetto, A. Veeser

11. *Multi-Index Stochastic Collocation (MISC) for Elliptic PDEs*, Conference Marine 2017, May 15-17, 2017, Nantes.
Minisymposium: Deterministic and stochastic simulation-based design analysis and optimization in marine engineering organized by C. Hirsch, M. Diez

12. Other talks

1. *The Multi-index Stochastic Collocation method for uncertainty quantification of partial differential equations with random parameters*, Workshop on methods and applications of computational Uncertainty Quantification: experiences and perspectives within DIITET CNR, October 1-2, 2020, online workshop.

2. *Sparse Grids Matlab Kit*, 5th Workshop on Sparse Grids and Application, July 23-27, 2018, Munich.

3. *Dealing with discontinuities in Uncertainty Quantification of layered sedimentary basins compaction*, 5th Workshop on Sparse Grids and Application, July 23-27, 2018, Munich.

4. *Combining Isogeometric solvers and sparse grids technology*, ICOSAHOM 2018, July 9-13, 2018, London.

5. *Isogeometric Analysis and Coating Optimization for 3D Printing*, PLM Conference, July 2-4, 2018, Torino.

6. *CAxMan - Computer Aided technologies for Additive Manufacturing*, April 25, 2018. University of Colorado Boulder.

7. *IGA-Based Multi-Index Stochastic Collocation*, SIAM Conference on Uncertainty Quantification, April 16-19, 2018, Garden Grove (California).

8. *Uncertainty Quantification of geochemical and mechanical compaction in layered sedimentary basins*, Semester program Uncertainty Quantification for complex systems: theory and methodologies. February 14, 2018, Isaac Newton Institute for Mathematical Sciences, Cambridge.

9. *A sparse-grid version of IGA methods*, YIC 2017 - IV ECCOMAS Young Investigator Conference, September 13-15, 2017, Politecnico di Milano.

10. *IGA-based multi-level and multi-index methods for Uncertainty Quantification*, V International Conference on Isogeometric Analysis - IGA 2017, September 11-13, 2017, Pavia.

11. *On Isogeometric Analysis and Control Variates in Multi-level methods for Uncertainty Quantification*, INdAM Workshop on Innovative Mathematical Models and Methods for Industrial Applications, May 15-19, 2017, Roma.

12. *A sparse-grid version of IGA methods*, USACM Conference on Isogeometric analysis and Meshfree methods, October 10-12, 2016, La Jolla (California).

13. *A sparse-grid version of IGA methods*, 4th Workshop on Sparse Grids and Applications, October 4-7, 2016, Miami.

14. *A sparse-grid version of IGA methods*, SIMAI 2016, September 13-16, 2016, Politecnico di Milano.

15. *Multi-Index Stochastic Collocation (MISC) for random elliptic PDEs*, SIMAI 2016, September 13-16, 2016, Politecnico di Milano.

16. *An Adaptive Sparse Grid Algorithm for Darcy Problems with Log-normal Permeability*, SIAM Conference on Uncertainty Quantification, April 5-8, 2016, EPFL campus, Lausanne.

17. *An adaptive sparse grid algorithm for elliptic PDEs with lognormal diffusion coefficient*, Swiss Numerical Analysis Day 2015, April 17, 2015, Geneva.

18. *Quasi Optimal Sparse-Grid Approximation of Random Elliptic PDEs*, SIAM Conference on Computational Science and Engineering, March 14-18, 2015, Salt Lake City.

19. *Quasi-optimal sparse grid approximations for elliptic PDES with stochastic coefficients*, SIAM Annual Meeting, July 7-11, 2014, Chicago.

20. *Quasi-optimal sparse grid approximations for elliptic PDES with stochastic coefficients*, International Conference on Spectral and High-Order Methods – ICOSAHOM'14, June 23-27, 2014, Salt Lake City.

21. *Proper Generalized Decomposition for Stochastic Navier–Stokes Equations*, Workshop on Uncertainty Quantification in Computational Fluid Dynamics, May 26-27, 2014, Università di Pisa.

22. *Quasi-optimal polynomial approximation for elliptic PDEs with random coefficients*, ENUMATH 2013, August 26-30, 2013, EPFL Campus, Lausanne.

23. *Convergence of quasi-optimal Stochastic Galerkin methods for a class of PDEs with random coefficients*, Swiss numerics colloquium 2013, April 6, 2013, EPFL Campus, Lausanne.

24. *Proper Generalized Decomposition for Stochastic Navier–Stokes Equations*, WCCM 2012, July 8-13, 2012, São Paulo.

25. *Polynomial approximation of Stochastic PDEs*, SIMAI Biannual meeting 2012, June 25-28, 2012, Torino.

26. *Uncertainty analysis of basin scale compaction processes*, European Geosciences Union General Assembly 2012, April 24, 2012, Vienna.

27. *Proper Generalized Decomposition for Stochastic Navier–Stokes equations*, SIAM Conference on Uncertainty Quantification, April 2-5, 2012, Raleigh (NC) USA.

28. *Approssimazione polinomiale di EDP ellittiche con coefficienti stocastici*, XIX Congresso dell'Unione Matematica Italiana, September 12-17, 2011, Bologna.

29. *Strategies for optimal polynomial approximation of elliptic PDEs with stochastic coefficients*, USNCCM - United States National Congress on Computational Mechanics, July 25-28, 2011, Minneapolis.

30. *Polynomial approximation for stochastic subsurface flow models*, European Geosciences Union General Assembly 2011, April 2-8, 2011, Vienna.

31. *Strategies for optimal polynomial approximation of stochastic elliptic PDEs*, workshop Reduction Strategies for the Simulation of Complex Problems, January 19-21, 2011, Politecnico di Milano.

32. *Stochastic Galerkin and Collocation methods for PDEs with random coefficients: a numerical comparison*, ECCM 2010 - IV European Conference on Computational Mechanics, May 16-22, 2010, Paris.

33. *A Numerical Comparison between Stochastic Galerkin and Collocation techniques for elliptic equations with uniform and lognormal random variables*, Workshop Numerical Solution of Stochastic Partial Differential Equations, May 10-13, 2010 Politecnico di Torino.

13. Editorial activity

Editor activity

- Co-editor with M. Diez and M.V. Salvetti of the special issue on "Methods and Applications of Uncertainty Quantification in Engineering and Science" for the journal *Algorithm*, MDPI (11 papers). `https://www.mdpi.com/journal/algorithms/special_issues/uncertainty_quant`
- Co-editor with O. Ernst and G. Porta of a topical issue on Uncertainty Quantification in the Geosciences for the journal *GEM - International Journal on Geomathematics*, Springer (9 papers). `https://link.springer.com/journal/volumesAndIssues/13137?tabName=topicalCollections`

Referee activity

1. Computer Methods in Applied Mathematics and Engineering (CMAME)
2. Advances in Computational Mathematics (ACOM)
3. Computer and Fluids (CAF)
4. SIAM Journal on Control and Optimization (SICON)
5. Numerical Algorithms (NUMA)
6. International Journal for Uncertainty Quantification (IJUQ)
7. Communications in Computational Physics (CICP)
8. Stochastic Environmental Research and Risk Assessment (SERR)
9. Journal of Scientific Computing (JOMP)
10. International Conference on Geometric Modeling and processing (GMP)
11. Annali di Matematica Pura ed Applicata (AMPA)
12. Stochastic Partial Differential Equations: Analysis and Computations (SPDE)
13. International Journal for Numerical Methods in Engineering (IJNME)
14. ESAIM: Mathematical Modelling and Numerical Analysis (M2AN)
15. SIAM Journal of Numerical Analysis (SINUM)
16. Water Resources Research (WRR)
17. SIAM Journal on Scientific Computing (SISC)
18. SIAM Journal on Uncertainty Quantification (JUQ)
19. Journal of Computational Physics (JCP)
20. Mathematics and Computers in Simulation (MATCOM)
21. International Journal of Greenhouse Gas Control (JGGC)
22. Journal of Algorithms and Computational Technology (JACT)

14. Teaching

1. *Applied Mathematics:* 6 CFU, 45 hours, part of the Master of Science program "Civil Engineering for mitigation of risk from natural hazards". Fall semesters 2018, 2019, 2020. Department of Civil Engineering and Architecture, Università di Pavia, course held in English.
   `https://sites.google.com/view/tamellini-applied-mathematics`

2. *Uncertainty Quantification of PDEs with random coefficients:* Minicourse (6 hours), in the context of the "Primer on Data Science 2019" Summer school. September 9, 2019, Università di Trento, course held in English.
   `http://datascience.maths.unitn.it/events/pds2019/`

3. *Uncertainty Quantification of PDEs with random coefficients:* Minicourse (4 hours), in the context of the PIMS Collaborative Reseach Group initiative "High Dimensional Data Analysis". March 4-5, 2019, Simon Fraser University, course held in English.
   `https://www.pims.math.ca/scientific-event/190304-pmchdduqp`

4. *Numerical techniques for Uncertainty Quantification in random PDEs*: Lecture (3 hours), part of the PhD course "Computational Mechanics for scientific problems'.' December 11-15, 2017, Department of Mathematics, Università di Pavia, course held in Italian.

5. *Numerical techniques for Uncertainty Quantification in random PDEs:* Minicourse (8 hours) as a part of the workshop "Applications and New Frontiers For the Finite Element Method", Université Laval, Québec, May 9-13, 2016, course held in English.
   http://www.crm.umontreal.ca/2016/Element16/index.php

6. *Numerical techniques for Uncertainty Quantification in random PDEs*: Lecture (2 hours) as a part of the course "Propagation of Uncertainty" (10 hours), within the Louis Bachelier Excellence Lab Thematic Semester on "Monte–Carlo: Uncertainty Quantification, particle methods, stochastic algorithms for Big Data". October 16, 2015, Institut Henri Poincaré, Paris. course held in English.
   https://www.ceremade.dauphine.fr/montecarlo/lectures_and_workops.html

Teaching assistance

1. "Analysis II for Building Engineers" (Università di Pavia), fall semester 2016 (5 hours). Dott.ssa L. Spinolo. Bachelor level, course held in Italian.

2. "The Finite Elements Method and applications" (Università di Pavia), fall semester 2016 (12 hours). Prof. G. Sangalli. Master level, course held in Italian.

3. "The Finite Elements Method and applications" (Università di Pavia), fall semester 2015 (12 hours). Prof. G. Sangalli. Master level, course held in Italian.

4. Lab assistant (9 hours) as a part of the course *Mathematical and Algorithmic Aspects of Uncertainty Quantification*, (Politecnico di Milano), June 3-10, 2015, Prof. F. Nobile, course held in English.

5. Teaching Assistant in "Computational finance" (École Polytechnique Fédérale de Lausanne), fall semester 2014, Proff. F. Nobile e D. Kressner, doct. S. Pulido. Master level, course held in English.

6. Teaching Assistant in "Numerical analysis" (École Polytechnique Fédérale de Lausanne), fall semester 2013, Prof. F. Nobile. Bachelor level, course held in French.

7. Teaching Assistant in "Numerical analysis of Partial Differential Equations" (École Polytechnique Fédérale de Lausanne), fall semester 2012, Prof. F. Nobile. Master level, course held in English.

8. Teaching Assistant in "Numerical analysis of Partial Differential Equations" (École Polytechnique Fédérale de Lausanne), spring semester 2012, Prof. F. Nobile. Master level, course held in English.

9. Teaching Assistant in "Numerical analysis" (Politecnico di Milano), spring semester 2011, Prof. S. Micheletti. Bachelor level, course held in Italian.

10. Teaching Assistant in "Numerical analysis" (Politecnico di Milano), spring semester 2010, Prof. A. Quarteroni. Bachelor level, course held in Italian.

11. Teaching Assistant in "Numerical analysis" (Politecnico di Milano), spring semester 2009, Prof. S. Perotto. Bachelor level, course held in Italian.

15. Theses supervision

Coadvisor of the following students:

- *Master Students*: F. Abbadini (2017, Università di Milano) M. Montardini (2016, Università di Pavia), R. Wang (2012, École Polytechnique Fédérale de Lausanne), F. Tesei, (2011, Politecnico di Milano), F. Franchi (2010, Politecnico di Milano);
- *Bachelor Students*: M. Aletti (2011, Politecnico di Milano);
- *Semester Projects (École Polytechnique Fédérale de Lausanne)*: M. Gambara (2014, M.Sc.), L. Feuilloy (2014, B.Sc.), B. Jollien (2014, M.Sc.), N. Gaon (2015, B. Sc.).

16. Committees

1. Member of the PostDoc hiring committee for the call number IMATI-013-2019-PV, "PRIN 2017 - Numerical Analysis for Full and Reduced Order Methods for the efficient and accurate solution of complex systems governed by Partial Differential Equations (NA-FROM-PDEs)" e "Analysis-based design for 3d printing applications"
2. Member of the PostDoc hiring committee for the call number IMATI-002-2019-PV, "Analisi Numerica e Calcolo Scientifico" e "Analysis-based design for 3D printing applications".
3. Member of the PostDoc hiring committee for the call number IMATI-008-2017-PV, "CAxMan Computer Aided Technologies for Additive Manufacturing"
4. Member of the PostDoc hiring committee for the call number 34, April 5, 2017, "Analisi Isogeometrica (Isogeometric Analysis)", dip. Matematica, Università di Pavia, prof. G. Sangalli
5. Member of the Ph.D. committee of A. Benvenuti (2017, Università di Pavia)
6. Member of the PostDoc hiring committee for the call number IMATI-007-2016-PV, "Development of isogeometric methods and the related software for non linear mechanics, with applications to rubber problems."

17. Membership in Professional Societies and Activity Groups

- Society for Industrial and Applied mathematics (SIAM)
- SIAM Activity Group on Uncertainty Quantification (SIAG-UQ)
- SIAM Activity Group on Computational Science and Engineering (SIAG-CSE)
- Gruppo Nazionale Calcolo Scientifico (GNCS)
- Società Italiana Matematica Applicata e Industriale (SIMAI)
- GAMM Activity Group on Uncertainty Quantification (GAMM-UQ)

18. Languages

- English: advanced level:
  - Computer – Based TOEFL, 267/300 (autumn 2004);
  - First Certificate of English, grade A (December 2002).
- French: intermediate level.
- Italian: mother-tongue.

19. Informatics skills

Operative Systems: Unix/Linux, Windows.

Programming Language: Matlab, C/C++, Fortran90, R, FreeFem, Python; basics of MySQL, AMPL, HTML.

Software: LaTeX, Microsoft Office - OpenOffice, SVN, GIT.