CURRICULUM VITAE et STUDIORUM

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Academic degrees

28^{th} January 2002:
Ph.D. graduated in Mathematics at the University of Milano, thesis on "Analysis of numerical methods devoted to the advection-diffusion problem", advisor: Prof. Franco Brezzi;

15^{th} January 1997:
B.S. graduated (cum laude) in Mathematics at the University of Pavia.

Past and present positions

since 1/2016:
Full Professor in Numerical Analysis at the University of Pavia.

11/2005–1/2016:
Associate Professor in Numerical Analysis at the University of Pavia.

since 2005:
Research associate of the Instituto di Matematica Applicata e Tecnologie Informatiche "E. Magenes" – C.N.R., Pavia.

7/2001–10/2005:
Researcher, Instituto di Matematica Applicata e Tecnologie Informatiche "E. Magenes" – C.N.R., Pavia.

Temporary visiting positions (longer than one month)

- since 2004, I have visited many times the Institute for Computational Engineering and Sciences (ICES) in Austin (TX, USA) (including a 9 months visit in 2004-2005);
- I visited the Institute for Scientific Computation, Texas A.&M. University, College Station, TX (USA), in October 2001.
- I visited the Oxford University Computing Laboratory, Oxford (UK), in April-May 1999.

Participation to scientific committees and institutions

- since 2021: **director** of the Gruppo Nazionale Calcolo Scientifico (GNCS-INDAM);
- since 2020: member of Gruppo 2003 per la ricerca scientifica;
- since 2019: member of the European Academy of Sciences;
- since 2018: member of the RICAM Scientific Advisory Board;
- since 2017: member of the scientific committee of the Gruppo Nazionale Calcolo Scientifico (GNCS-INDAM);
- since 2015: member of the scientific committee of the Fondazione Alma Mater Ticinensis;
- since 2011: member of the ECCOMAS Computational Applied Mathematics Committee.

Institutional responsibilities

- 2020–2024: reference person for the Laurea Magistrale (Master) in Matematica, University of Pavia;
- since 2020: member of the Research Steering Committee, Deptartment of Mathematics, University of Pavia;
- since 2015: member of the teaching committee of the joint (University of Milano-Bicocca, University of Pavia and INdAM) Ph.D. program in Mathematics;
- since 2005: member of the IT Committee, Dept. of Mathematics, University of Pavia;

Research interests

- Isogeometric analysis
- Domain decomposition methods
- Convection-dominated problems
- Multiscale numerical methods

Research grants and contracts (selected)

- 2023–2025: principal investigator of the PRIN 2022 PNRRproject "Next generatiOn numerical Technologies for dEsign and Simulation - NOTES";
- 2022–2024: local (UNIPV) coordinator of the PNRR "Centro Nazionale di Ricerca in High Performance Computing, Big Data e Quantum Computing" for the Spoke 6 on "Multiscale Modeling and Engineering Applications";
- 2014–2020: principal investigator of the **ERC FP7 Consolidator Grant** "HIGEOM – Highly accurate Isogeometric Method";
- 2010–2014: principal investigator of the **FIRB** (highly-selective young investigator Italian MIUR grant) project "Isogeometric Discretizations in Continuum Mechanics";
- 2012–2016: principal investigator of the industrial research program TOTAL–DS–2753 "Isogeometric Analysis for large deformation incompressible problem" funded by Hutchinson S.A. – Total S.A. (France);

Awards

2021 Appointed Knight ("Cavaliere") of the "Order of Merit of the Italian Republic" by the President of the Italian Republic.

Organization of conferences and workshops (selected)

- 18–21/6/2023: member of the Steering Committee and Scientific Committee of IGA2023, in Lione;
- 29/5-1/6/2019: member of the Scientific Committee 9th International Workshop on High-Order Finite Element and Isogeometric Methods (HOFEIM-2023), in Larnaca, Cyprus;
- 6–9/11/2022: member of the Steering Committee and Scientific Committee of IGA2022, in Banff;
- 26–29/9/2021: member of the Steering Committee and Scientific Committee of VIGA2021 (hosted virtually due to COVID-19);
- 11–12/8/2020: member of the Steering Committee and Scientific Committee of IGA2020, in Banff (hosted virtually due to COVID-19);
- 18–20/9/2019: member of the Steering Committee and Scientific Committee of IGA2019, in Munich;
- 28–31/5/2019: chairman and member of the Scientific Committee of "Higher Order Finite Element and Isogeometric Methods" Workshop (HOFEIM 2019);
- 24/1–1/3/2019: co-organizer of the BIRS Workshop on "Isogeometric Splines: Theory and Applications" in Banff;
- 11–15/6/2018: member of the scientific committee of the ECCM–ECFD 2018 6th European Conference on Computational Mechanics and 7th European Conference on Computational Fluid Dynamics, Glasgow, UK;
- 10–13/9/2017 co-chairman and organizer of IGA2017 in Pavia;
- 20–25/7/2014: member of the scientific committee of the World Congress on Computational Mechanics XI – European Conference on Computational Mechanics V – European Conference on Computational Fluid Dynamics VI, Barcelona (Spain);
- 18–23/6/2012: co-organizer of the CIME School in "Isogeometric Analysis", Cetraro, Italy;
- 27-29/6/2011: member of the scientific committee of the ECCOMAS Thematic Conference "Higher Order Finite Element and Isogeometric Methods" (HOFEIM 2011) in Krakow, Poland;
- 29/6/2010-2/7/2010: co-organizer of the workshop "Non-Standard Numerical Methods for PDEs", in Pavia;
- 9/2009: member of the scientific committee and co-organizer of the international congress *Numerical Methods for Multi-material Fluids and Structures* in Pavia;
- co-organizer of several minisymposia at international congresses.

Teaching at graduate level

- 7/2017: CIME summer school on "Splines and PDEs: Recent Advances from Approximation Theory to Structured Numerical Linear Algebra", Cetraro (Italy);
- 2014 & 2016: ECCAM advanced school on "Isogeometric Analysis Fundamentals and Applications"
- 2013: EWM summer school on "Isogeometric Analysis", I.C.P.T. Trieste (Italy);
- 2007–2011: course on "Metodi numerici per le equazioni differenziali", for the PhD program in "Matematica per le Tecnologie Industriali e la Finanza", Scuola Normale Superiore di Pisa;
- since 2010 every two years: advanced school on "Nonlinear Computational Solid & Structural Mechanics" (lecturers: F. Auricchio, M. Bischoff, F. Brezzi, A. Reali, G. Sangalli and R.L. Taylor) in Pavia;

Teaching at undergraduate level

- 2018–2020: Advanced Numerical Methods for PDEs, for students in Mathematics at Pavia;
- 2015–present: Analisi Numerica 1 for students in Mathematics at Pavia;
- 2013–present: Elementi Finiti for students in Mathematics (Laurea Magistrale) at Pavia;
- 2010–present: Metodi Elementi Finiti ed Applicazioni for students in Engineering at Pavia;
- 2006–present: various courses of Mathematical Analysis and Calculus for students in Engineering at Pavia.

Selected lectures

- 24–28/6/2024: Plenary lecture at XXVIII Congress of Differential Equations and Applications / XVIII Congress of Applied Mathematics (CEDYA/CMA) in Bilbao;
- 28–31/1/2024: Plenary lecture at the 28 Int. Conference on Domain Decomposition Methods (DD28), KAUST, Saudi Arabia;
- 29–30/9/2022: Plenary lecture at GIMC-SIMAI young 2022 in Pavia;
- 9/3/2021: Australian Seminar on Computational Mathematics (hosted virtually due to COVID-19);
- 11–12/8/2020: Plenary lecture at the IGA2020, in Banff (hosted virtually due to COVID-19);
- 17–19/7/2017: Semi-plenary lecture at the "FoCM 2017: Workshop on Foundations of Numerical PDEs" Barcelona;
- 5–7/4/2017: Semi-plenary lecture at the "19h International Conference on Finite Elements in Flow Problems - FEF 2017" Roma;

- 5–10/6/2016: Semi-plenary lecture at the "ECCOMAS Congress 2016" Crete;
- 23–28/6/2016, Plenary lecture at the "9th International Conference on Mathematical Methods for Curves and Surfaces", in Tonsberg, Norway.
- 12–14/10/2015, Plenary lecture at GDSPM 2015, in Salt Lake City (USA).
- 24–27/2/2013: invited (keynote) lecture at the "Advances in Computational Mechanics (ACM 2013) – A Conference Celebrating the 70th Birthday of Thomas J.R. Hughes", San Diego, USA;
- 6–10/2/2012: invited (1h) lecture at the workshop "High-Order Numerical Approximation for Partial Differential Equations", Bonn, Germany;
- 19–23/9/2011: invited (1h) lecture at the conference "Modern Techniques in the Numerical Solution of Partial Differential Equations", Heraklion, Greece;
- 25–28/7/2011: (keynote) lecture at USNCCM-11, Minneapolis (USA);
- 7–9/4/2010: invited (1h) lecture at the international workshop: "Variational PDEs and level set methods in image processing and shape optimization", Obergurgl (Austria);

Bibliometrics

- 2019: Included in the list of **Highly Cited Researchers**, by Clarivate/ISI;
- `http://www.webofscience.com/wos/author/record/B-7186-2011` (H-index: 37)
- `https://scholar.google.it/citations?user=DTsd9jYAAAAJ&hl=en` (H-index: 41)

Published Papers

[1] K.-J. Bathe, D. Hendriana, F. Brezzi, and G. Sangalli. Inf-sup testing of upwind methods. *International Journal for Numerical Methods in Engineering*, 48(5):745–760, 2000. cited By 23.

[2] G. Sangalli. Numerical evaluation of finite element methods in convection-diffusion problems. *Calcolo*, 37(4):233–251, 2000. cited By 2.

[3] G. Sangalli. Global and local error analysis for the residual-free bubbles method applied to advection-dominated problems. *SIAM Journal on Numerical Analysis*, 38(5):1496–1522, 2001. cited By 37.

[4] G. Sangalli. A robust a posteriori estimator for the residual-free bubbles method applied to advection-diffusion problems. *Numerische Mathematik*, 89(2):379–399, 2001. cited By 24.

[5] G. Sangalli. Numerical evaluation of fem with application to the 1-d advection-diffusion problem. *Mathematical Models and Methods in Applied Sciences*, 12(2):205–228, 2002. cited By 4.

[6] F. Brezzi, G. Hauke, L.D. Marini, and G. Sangalli. Link-cutting bubbles for the stabilization of convection-diffusion-reaction problems. *Mathematical Models and Methods in Applied Sciences*, 13(3):445–461, 2003. cited By 50.

[7] G. Sangalli. Analisi di metodi numerici per il problema di diffusione-trasporto. *Bollettino della Unione Matematica Italiana A*, 6(2):319–321, 2003. cited By 0.

[8] G. Sangalli. Capturing small scales in elliptic problems using a residual-free bubbles finite element method. *Multiscale Modeling and Simulation*, 1(3):485–503, 2003. cited By 63.

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[15] G. Sangalli. Uniform estimates for linear singularly perturbed problems. 2004. cited By 0.

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[18] G. Sangalli. A uniform analysis of nonsymmetric and coercive linear operators. *SIAM Journal on Mathematical Analysis*, 36(6):2033–2048, 2005. cited By 15.

[19] Y. Bazilevs, L. Beirao Da Veiga, J.A. Cottrell, T.J.R. Hughes, and G. Sangalli. Isogeometric analysis: Approximation, stability and error estimates for h-refined meshes. *Mathematical Models and Methods in Applied Sciences*, 16(7):1031–1090, 2006. cited By 529.

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