Matteo Santacesaria

Curriculum Vitae

PERSONAL INFORMATION

Work address: Department of Mathematics, University of Genoa, Via Dodecaneso 35, 16146, Genova, Italy.

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ORCID: orcid.org/0000-0001-7257-604X

Google Scholar: scholar.google.com/citations?user=iVlCw_gAAAAJ

CURRENT POSITION

Oct 2024 – Present	Associate Professor in Mathematical Analysis *Department of Mathematics, University of Genoa, Italy.*

RESEARCH EXPERIENCE

Oct 2021 – Sep 2024	Assistant Professor (Ricercatore A Tempo Determinato B) *Department of Mathematics, University of Genoa, Italy.*
Sep 2018 – Sep 2021	Assistant Professor (Ricercatore A Tempo Determinato A) *Department of Mathematics, University of Genoa, Italy.*
Dec 2017 – Aug 2018	Postdoctoral Researcher *Department of Mathematics and Statistics, University of Helsinki, Finland.*
Nov 2015 – Oct 2017	Postdoctoral Researcher – Polimi International Fellowship *Department of Mathematics, Politecnico di Milano, Italy.*
Sep 2014 – Oct 2015	Postdoctoral Researcher *Department of Mathematics and Statistics, University of Helsinki, Finland.*
Sep 2013 – Aug 2014	Postdoctoral Researcher *Laboratoire Jean Kuntzmann, University Joseph Fourier, Grenoble, France.*

EDUCATION

Sep 2010 – Aug 2013	Ph.D. summa cum laude in Applied Mathematics. Defense: November 30, 2012. *Advisor*: Roman Novikov (DR CNRS, École Polytechnique). *Centre de Mathématiques Appliquées, École Polytechnique – Palaiseau, France.*
Sep 2008 – Jun 2010	Master's Degree magna cum laude (*très bien*) in Pure Mathematics. *University Pierre and Marie Curie – Paris 6, France.*
Sep 2005 – Jul 2008	Bachelor's Degree in Mathematics. Score of 110/110 cum laude. *University of Florence, Italy.*

NATIONAL SCIENTIFIC QUALIFICATIONS

- Italian qualification to become Full Professor in Mathematical Analysis (SSD MAT/05), 2023 – 2033.
- Italian qualification to become Associate Professor in Mathematical Analysis (SSD MAT/05), 2020 – 2029.

AWARDS AND HONORS

- Eurasian Association of Inverse Problems Young Scientist Award 2026.
- Ph.D. Thesis Prize 2013 – École Polytechnique.
- Young researcher award at the 53rd Conference of MIPT, Moscow, Russia, November 2010.

- Best student of the Faculty of Science («Scienze Matematiche, Fisiche e Naturali») of the academic year 2007/2008, of the University of Florence.

FUNDED PROJECTS: PRINCIPAL INVESTIGATOR, UNIT P.I. OR CO-P.I.

Mar 2026 – Feb 2029 HORIZON-JU-RIA Grant 101251004 – NEREUS, *Next-Generation Scalable AEM Electrolyzers as Sustainable Hydrogen Production System*. Role: P.I. of the University of Genoa unit. Coordinator: Antares Electrolysis S.r.l. Total Amount: 3,999,785.64 EUR. UniGe Amount: 246,105.63 EUR.

Sep 2025 – Dec 2026 MASE "Mission Innovation 2.0", Grant MI_ERE_00192 - *Il Sole non tramonta mai: l'autonomia energetica basata su idrogeno*. Role: P.I. of the University of Genoa unit. Coordinator: R. Cestaro S.r.l. Total Amount: 2,109,391.25 EUR. UniGe Amount: 280,312.50 EUR.

Nov 2023 – Feb 2026 PRIN PNRR 2022, Grant P2022XT498 - *Next generation electrical impedance tomography for non-destructive monitoring of tissue engineered constructs*. Role: P.I. of the University of Genoa unit. P.I.: Marco Crescentini (University of Bologna). Total Amount: 245,566 EUR. UniGe Amount: 73,363 EUR.

Oct 2023 – Sep 2026 AFOSR (Air Force Office of Scientific Research) Grant FA8655-23-1-7083, Generative Models for Inverse Problems. Role: Principal Investigator. Amount: 240,000 USD.

Apr 2023 – Mar 2025 Royal Society, International Exchanges 2022 Grant IESR3223061, *Sparsity promoting algorithms for statistical inverse learning problems (SPA4SIL)*. Role: Co-P.I. P.I.: Tatiana Bubba (University of Bath). Amount: 12,000 GBP.

Apr 2022 – Mar 2023 INdAM, GNAMPA 2022 Grant, *Problemi inversi per equazioni alle derivate parziali*. Role: Principal Investigator. Amount: 3,500 EUR.

Sep 2020 – Aug 2023 AFOSR (Air Force Office of Scientific Research) Grant FA8655-20-1-7027, *Machine Learning for Inverse Problems.* Role: Principal Investigator. Amount: 252,590 USD.

FUNDED PROJECTS: INVESTIGATOR

Apr 2024 – Sep 2025 Member of the project "Harmonic Analysis and Optimization in Infinite-Dimensional Statistical Learning" (PNRR FAIR, Cascade call, funded by European Union – next generation EU). P.I.: Ernesto De Vito (University of Genoa).

Nov 2023 – Feb 2026 Member of the project "Inverse problems in PDE: theoretical and numerical analysis" (PRIN 2022, Italian Minister of Research). P.I.: Giovanni S. Alberti (University of Genoa).

Apr 2023 – May 2024 Member of the project "Analisi armonica applicata a problemi inversi e di machine learning" ("Progetti GNAMPA 2023", Indam). P.I.: Luca Ratti (University of Bologna).

Apr 2021 – Dec 2023 Member of the project "Harmonic analysis, machine learning and optimal transport" ("Progetti FRA 2020", University of Genoa).
P.I.: Simone Di Marino (University of Genoa).

Apr 2019 – Dec 2020 Member of the project "Harmonic analysis, signal processing and machine learning for generalized Radon transforms" ("Progetti FRA 2018", University of Genoa).
P.I.: Giovanni S. Alberti (University of Genoa).

Apr 2019 – Dec 2020 Member of the project "Proprietà delle soluzioni di equazioni alle derivate parziali e applicazioni ai problemi inversi" ("Progetti GNAMPA 2019", Indam). P.I.: Luca Rondi (University of Milan).

Mar 2017 – Feb 2020 Member of the project "Stroke classification and monitoring using Electrical Impedance Tomography" (Jane and Aatos Erkko Foundation) 2017 – 2020. P.I.: Samuli Siltanen (University of Helsinki).

Jan 2018 – Aug 2018 Member of the Finnish Center of Excellence in Inverse Modelling and Imaging 2018 – 2025. Director: Matti Lassas (University of Helsinki).

Apr 2017 – Mar 2018 Member of the project "Analisi di problemi inversi: stabilità e ricostruzione" ("Progetti GNAMPA 2017", Indam). P.I.: Luca Rondi (University of Trieste).

Apr 2016 – Mar 2017 Member of the project "Problemi Inversi per Equazioni Differenziali" ("Progetti GNAMPA 2016", Indam). P.I.: Michele Di Cristo (Politecnico di Milano).

Sep 2014 – Oct 2015 Member of the Finnish Center of Excellence in Inverse Problems Research 2013 – 2017. Director: Matti Lassas (University of Helsinki).

Sep 2013 – Aug 2014 Member of OPTIFORM, a research project financed by ANR (French National Research Agency) 2012 – 2016. P.I.: Antoine Henrot (Université de Lorraine).

FELLOWSHIPS

- Postdoctoral Fellowship funded by the project "Stroke classification and monitoring using Electrical Impedance Tomography" (Jane and Aatos Erkko Foundation), December 2017 – December 2018.
- Polimi International Fellowship, Politecnico di Milano, November 2015 – October 2017, 70,000 €.
- Postdoctoral Fellowship funded by Finnish Center of Excellence in Inverse Problems Research and by FiDiPro project of Academy of Finland, number 263235, September 2014 – October 2015.
- Postdoctoral Fellowship funded by OPTIFORM, a research project financed by ANR (French National Research Agency), September 2013 – August 2014.
- Gaspard Monge Ph.D. Fellowship – École Polytechnique, September 2010 – August 2013.
- INDAM Fellowship, National Institute for Advanced Mathematics 'F. Severi', for introduction to research, for master students, 2009, 4,000 €.

TRAVEL GRANTS AND VISITS

- Department of Mathematics and Statistics, University of Helsinki, Finland, December 2019.
- Department of Mathematics and Statistics, University of Helsinki, Finland, April 2019.
- Department of Mathematics, University of Aveiro, Portugal, September 2017.
- Department of Mathematics, New York University Abu Dhabi, UAE, May 2017.
- Department of Mathematics and Statistics, University of Helsinki, Finland, March 2017.
- Department of Computational and Applied Mathematics, Rice University, Houston, USA, June 2016.
- Department of Mathematics and Statistics, University of Helsinki, Finland, June 2016.
- Department of Mathematics and Statistics, University of Helsinki, Finland, December 2015.
- BCAM – Basque Center for Applied Mathematics, Bilbao, Spain, October 2015.
- Henri Poincaré Institute, Paris, France. Program on Inverse Problems, April 2015.
- Moscow Institute of Physics and Technology, Moscow, Russia, July 2011.
- The Euler International Mathematical Institute, Saint-Petersburg, Russia, July 2011.

OTHER GRANTS

- University of Genoa cofunding for organizing *Summer School on Applied Harmonic Analysis and Machine Learning* (September 2019), 2000 €.
- University of Genoa cofunding for organizing *Summer School on Applied Harmonic Analysis and Machine Learning* (September 2022), 2000 €.
- INdAM cofunding for organizing *Summer School on Applied Harmonic Analysis and Machine Learning* (September 2022), 3000 €.
- University of Genoa cofunding for organizing *Summer School on Applied Harmonic Analysis and Machine Learning* (September 2024), 3000 €.

SCIENTIFIC IMPACT OF RESEARCH

- Over 40 peer-reviewed publications in international journals and conference proceedings.
- Over 75 talks, including 45 invited conference talks.

EDITORIAL DUTIES

2023 Editor of the conference proceedings "Scale Space and Variational Methods in Computer Vision", 9th International Conference, SSVM 2023, Santa Margherita di Pula, Italy, May 21–25, 2023. Lecture Notes in Computer Science, volume 14009, Springer.

2024 Editor of the special issue of Journal of Mathematical Imaging and Vision "SSVM 2023" together with S. Morigi (University of Bologna, lead editor), L. Calatroni (CNRS), M. Donatelli (University of Insubria) and M. Prato (University of Modena Reggio Emilia).

PUBLICATIONS IN PEER-REVIEWED INTERNATIONAL JOURNALS

[1] On an inverse problem for anisotropic conductivity in the plane, *Inverse Problems* **26** (2010), 095011 (with G. Henkin).

[2] A global stability estimate for the Gel'fand-Calderón inverse problem in two dimensions, *J. Inverse Ill-Posed Probl.* **18** (2010), no. 7, pp. 765—785 (with R. Novikov).

[3] Global uniqueness and reconstruction for the multi-channel Gel'fand-Calderón inverse problem in two dimensions, *Bull. Sci. Math.* **135** (2011), no.5, pp. 421—434 (with R. Novikov).

[4] Gel'fand-Calderón's inverse problem for anisotropic conductivities on bordered surfaces in $\mathbf{R}^3$, *Int. Math. Res. Notices* **2012** (2012), no. 4, pp. 781—809 (with G. Henkin).

[5] Global stability for the multi-channel Gel'fand-Calderón inverse problem in two dimensions, *Bull. Sci. Math.* **136** (2012), no. 7, pp. 731—744.

[6] Monochromatic reconstruction algorithms for two-dimensional multi-channel inverse problems, *Int. Math. Res. Notices* **2013** (2013), no. 6, pp. 1205—1229 (with R. Novikov).

[7] New global stability estimates for the Calderón problem in two dimensions, *J. Inst. Math. Jussieu* **12** (2013), no. 3, pp. 553—569.

[8] Stability estimates for an inverse problem for the Schrödinger equation at negative energy in two dimensions, *Applicable Analysis* **92** (2013), no. 8, pp. 1666—1681.

[9] A Hölder-logarithmic stability estimate for an inverse problem in two dimensions, *J. Inverse Ill-Posed Probl.* **23** (2015), no. 1, pp. 51—73.

[10] Positive energy D-bar method for acoustic tomography: a computational study, *Inverse Problems* **32(2)** (2016), 025003 (with J.P. Tamminen, M.V. de Hoop, M. Lassas and S. Siltanen).

[11] Direct inversion from partial-boundary data in electrical impedance tomography, *Inverse Problems* **33(2)** (2017), 025009 (with A. Hauptmann and S. Siltanen).

[12] Reconstruction of a piecewise constant conductivity on a polygonal partition via shape optimization in EIT, *Journal of Computational Physics* **353** (2018), pp. 264—280. (with E. Beretta, S. Micheletti and S. Perotto).

[13] Propagation and recovery of singularities in the inverse conductivity problem, *Analysis & PDE* **11** (2018), no. 8, pp. 1901 – 1943 (with A. Greenleaf, M. Lassas, S. Siltanen and G. Uhlmann).

[14] Note on Calderón's inverse problem for measurable conductivities, *Inverse Problems & Imaging* **13** (2019), no. 1, pp. 149 – 157.

[15] Infinite dimensional compressed sensing from anisotropic measurements and applications to inverse problems in PDE, *Applied and Computational Harmonic Analysis* **50** (2021), pp. 105-146 (with G.S. Alberti).

[16] Calderón's Inverse Problem with a Finite Number of Measurements, *Forum of Mathematics, Sigma* **7** (2019) e35 (with G.S. Alberti).

[17] On an inverse Robin spectral problem, *Inverse Problems,* **36(7)** (2020) 075004 (with T. Yachimura).

[18] Calderón's Inverse Problem with a Finite Number of Measurements II: Independent Data, *Applicable Analysis,* DOI:10.1080/00036811.2020.1745192 (with G.S. Alberti).

[19] Classification of stroke using Neural Networks in electrical impedance tomography, *Inverse Problems,* **36** (2020) 115008 (with J.P. Agnelli, A. Çöl, M. Lassas, R. Murthy and S. Siltanen).

[20] Compressed sensing photoacoustic tomography reduces to compressed sensing for undersampled Fourier measurements, *SIAM Journal on Imaging Sciences* **14(3)** (2021), pp. 1039–1077 (with G.S. Alberti and P.

Campodonico).

[21] Neural networks for classification of strokes in electrical impedance tomography on a 3D head model, *Mathematics in Engineering* **4(4)** (2022), pp. 1–22 (with V. Candiani).

[22] Infinite-dimensional inverse problems with finite measurements, *Archive for Rational Mechanics and Analysis* **243** (2021), pp.1-31 (with G.S. Alberti).

[23] Inverse problems on low-dimensional manifolds, *Nonlinearity,* **36**(1) (2023), pp. 734-808 (with G.S. Alberti and A. Arroyo).

[24] Market Areas in General Equilibrium, *Journal of Economic Theory,* **211** (2023), 105675 (with G. Lanzara).

[25] Manifold Learning by Mixture Models of VAEs for Inverse Problems, *Journal on Machine Learning Research,* **25(202)** (2024), pp. 1-35 (with G.S. Alberti, J. Hertrich and S. Sciutto).

[26] Localization of point scatterers via sparse optimization on measures, *SIAM Journal on Imaging Sciences,* **17(3)** (2024), pp.1619-1649 (with G.S. Alberti and R. Petit).

[27] Continuous Generative Neural Networks: A Wavelet-Based Architecture in Function Spaces, *Numerical Functional Analysis and Optimization,* 2024, https://doi.org/10.1080/01630563.2024.2422064 (with G.S. Alberti and S. Sciutto).

[28] Compressed sensing for inverse problems and the sample complexity of the sparse Radon transform, *Journal of the European Mathematical Society,* 2025, DOI 10.4171/JEMS/1617 (with G.S. Alberti, A. Felisi, and S.I. Trapasso).

[29] Learning a Gaussian Mixture for Sparsity Regularization in Inverse Problems, *IMA Journal of Numerical Analysis,* 2025, https://doi.org/10.1093/imanum/draf037 (with G.S. Alberti, L. Ratti and S. Sciutto).

[30] Learning sparsity-promoting regularizers for linear inverse problems, *SIAM Journal on Mathematics of Data Science*, 8 (1), 167-199, 2026 (with G.S. Alberti, E. De Vito, T. Helin, M. Lassas and L. Ratti).

[31] DIMA: DIffusing Motion Artifacts for unsupervised correction in brain MRI images, *IEEE Access*, 2025, https://doi.org/10.1109/ACCESS.2025.3634749 (with P. Angella, L. Balbi, F. Ferrando, P. Traverso, R. Varriale and V.P. Pastore).

[32] Deep Unfolding Network for Nonlinear Multi-Frequency Electrical Impedance Tomography, *Journal of Computational Physics* 567, 115293, 2026 (with G.S. Alberti, D. Lazzaro, S. Morigi, L. Ratti).

PUBLICATIONS IN PEER-REVIEWED CONFERENCE PROCEEDINGS

[33] Learning the optimal Tikhonov regularizer for inverse problems. *Advances in Neural Information Processing Systems*, **34** (2021) (with G.S. Alberti, E. De Vito, M. Lassas and L. Ratti).

[34] Is in-domain data beneficial in transfer learning for landmarks detection in x-ray images? *ISBI 2024* (with R. Di Via, F. Odone and V.P. Pastore).

[35] In Domain Transfer Learning for Prostate MRI Segmentation, *ICPRS 2024* (with L. Touijer, F. Odone and V.P. Pastore).

[36] Assessing the use of Diffusion models for motion artifact correction in brain MRI, *ISBI 2025* (with P. Angella and V.P. Pastore).

[37] TomoSelfDEQ: Self-Supervised Deep Equilibrium Learning for Sparse-Angle CT Reconstruction, *SSVM 2025* (with T.A. Bubba and A. Sebastiani).

[38] Are X-ray Landmark Detection Models Fair? A Preliminary Assessment and Mitigation Strategy, *ICCV 2025* (with R. Di Via, M. Ciranni, D. Marinelli, A. Clement, N. Patel, J. Wyatt, F. Odone, I. Voiculescu, V.P. Pastore).

[39] MAD: Manifold Attracted Diffusion *Forty-third International Conference on Machine Learning,* 2026 (with D. Elbrächter and G.S. Alberti).

OTHER PUBLICATIONS

[40] A global stability estimate for the Gel'fand-Calderón inverse problem in two dimensions, *Proceedings of the 53rd International Conference of MIPT, 2010.*

[41] New global stability estimates for the Calderón problem in two dimensions, *Proceedings of the 54th International Conference of MIPT*, 2011.

[42] Stability estimates for an inverse problem for the Schrödinger equation at negative energy in two dimensions, *Proceedings of the 55th International Conference of MIPT*, 2012.

PREPRINTS

[43] Compressed sensing for inverse problems II: applications to deconvolution, source recovery, and MRI (with G.S. Alberti, A. Felisi, and S.I. Trapasso), arXiv preprint arXiv:2501.01929.

[44] On spatial systems of cities (with G. Lanzara), arXiv preprint arXiv:2504.21819.

[45] Inverse problems for quasi-linear elliptic systems modeling electrolysers (with G.S. Alberti, W. Gerner), arXiv preprint arXiv:2602.16906.

[46] Infinite dimensional generative sensing (with P. Angella, V.P. Pastore) arXiv preprint arXiv:2603.03196.

[47] Diffusion Graph Posterior Sampling for Nonlinear Inverse Problems with Application to Electrical Impedance Tomography (with G.S. Alberti, D. Lazzaro, S. Morigi, and S. Wang) arXiv preprint arXiv:2605.19621.

[48] Stochastic Generalized Sampling (with L. Finotti) arXiv preprint arXiv:2605.23421.

[49] PIKS: Universal Physics-Informed Kernel Methods (with J. Bona-Pellissier, G. Meanti, L. Rosasco) arXiv preprint arXiv:2607.27062.

[50] Analytic inverse problems with finitely many random measurements (with G.S. Alberti, D. Poletti, S. Sanna) arXiv preprint arXiv:2608.14324.

INVITED TALKS

1. 53rd MIPT Conference, Moscow (27/11/2010).
2. Inverse Problems and Applications Conference, CMAP, École Polytechnique, Palaiseau (28/09/2011).
3. 6th International Conference Inverse Problems: Modeling and Simulation, Antalya, Turkey (23/05/2012).
4. Inverse Problems and Nonlinear Equations Conference, CMAP, École Polytechnique, Palaiseau (22/05/2013).
5. Applied Inverse Problems Conference, KAIST, Daejeon, Korea (01/07/2013).
6. Inverse Problems IPTA 2014 Conference, Bristol (28/08/2014).
7. Meeting “Numerical Resolution for Inverse Problems”, BCAM, Bilbao (9/01/2015).
8. Applied Inverse Problems Conference, University of Helsinki, Helsinki (25/05/2015).
9. Stability and Reconstruction Issues in Inverse Problems, Henri Poincaré Institute, Paris (02/07/2015).
10. Meeting for Young Mathematicians in Finland, Helsinki (27/08/2015).
11. Inverse Days 2015, Lappeenranta University of Technology, Lappeenranta (08/12/2015).
12. Meeting on Tomography, Politecnico di Milano (22/03/2016).
13. SIAM Imaging Science 2016, Albuquerque, USA (25/05/2016).
14. Applied Inverse Problems Conference, Zhejiang University, Hangzhou (02/06/2017).
15. ADMOS 2017 Conference, Verbania (27/06/2017).
16. Inverse Days 2017, University of Oulu (14/12/2017).
17. 7th International Conference on Computational Harmonic Analysis, Nashville (14/05/2018).
18. Reconstruction Methods for Inverse Problems Conference, INdAM, Rome (28/05/2018).
19. SIAM Imaging Science 2018, Bologna (6/06/2018).
20. Workshop on Inverse problems and Machine Learning, CRM Montreal (27/05/2019).
21. Workshop Reconstruction Methods in Inverse Problems, BIRS, Banff (24/06/2019).
22. Applied Inverse Problems 2019 Conference, Grenoble (12/07/2019).
23. International Workshop on Operator Theory and its Applications, Lisbon (22/07/2019).
24. Inverse Days 2019, University of Jyväskylä (18/12/2019).

25. Inverse Problems for PDEs: A one day webinar for the 65th birthday of Sergio Vessella (11/12/2020).
26. Inverse Days 2020, University of Helsinki (15/12/2020).
27. SIAM Imaging Science 2022, online conference (03/2022).
28. Workshop “Inverse Problems in the Desert”, NYU Abu Dhabi (12/2022).
29. Workshop “Rich and non-linear tomography in medical imaging, materials and non destructive testing”, Isaac Newton Institute, Cambridge (03/2023).
30. BIRS Workshop “Leveraging Model- and Data-Driven Methods in Medical Imaging”, UBCO, Kelowna (06/2023).
31. Applied Inverse Problems 2023 Conference, Göttingen (09/2023).
32. Italian Mathematical Union (UMI) Conference, Pisa (09/2023).
33. Quasilinear Equations, Inverse Problems and their Applications, online conference (5/12/2023).
34. Workshop "Some approaches on ill-posed problems - theory and practice", RIMS, Kyoto (10/01/2024).
35. SIAM Uncertainty Quantification 2024, Trieste (27/02/2024).
36. Workshop “Imaging inverse problems and generating models: sparsity and robustness versus expressivity”, ICMS, Edinburgh (8/04/2024).
37. SIAM Imaging Sciences 2024, Atlanta (30/05/2024).
38. AMS-UMI Joint Meeting, Palermo (25/07/2024).
39. Workshop “Machine learning in infinite dimensions”, University of Bath (6/08/2024).
40. Quasilinear Equations, Inverse Problems and their Applications 2024, online conference (21/10/2024).
41. AIP 2025, Rio de Janeiro (07/2025).
42. COMPLAS 2025, Barcelona (05/09/2025).
43. INdAM Workshop “Inverse Problems in PDE and Geometry”, Cortona, Italy (26/05/2026).
44. Foundations of Computational Mathematics FoCM Conference 2026, Vienna, Austria (13/07/2026).
45. Plenary talk, 13th International Conference on Mathematics and Image Analysis (MIA 2027), Berlin, Germany (02/2027).

SEMINAR AND CONTRIBUTED TALKS

46. Séminaire Analyse Complexe et Géométrie, Institut de Mathématiques de Jussieu, Paris (26/10/2010).
47. DEFI research group, CMAP, École Polytechnique, Palaiseau (06/12/2010).
48. Quasilinear equations and Inverse Problems seminar, Central Institute of Mathematical Economics, Moscow (19/07/2011).
49. Seminario di Analisi, University of Florence (28/10/2011).
50. Seminario di Analisi Matematica, Università di Roma La Sapienza, Rome (16/01/2012).
51. EDP-MOISE Seminar, Laboratoire Jean Kuntzmann, Grenoble (04/04/2013).
52. Séminaire Dynamique Quantique et Classique, CPT, Marseille (05/06/2013).
53. Séminaires de l’équipe EDPs2, LAMA, Chambery (11/10/2013).
54. ANR OPTIFORM Meeting, Paris Dauphine, Paris (26/11/2013).
55. Séminaire Analyse Appliquée, I2M, Université Aix-Marseille, Marseille (15/04/2014).
56. Séminaire EDP, Institut Elie Cartan de Lorraine, Metz (16/05/2014).
57. Inverse Problems Seminar, University of Helsinki, Helsinki (15/09/2014).
58. EDP-MOISE Seminar, Laboratoire Jean Kuntzmann, Grenoble (30/04/2015).
59. MOX Biology Seminar, Department of Mathematics, Politecnico di Milano (18/06/2015).
60. BCAM Scientific Seminar, Basque Center for Applied Mathematics, Bilbao (06/10/2015).

61. Seminario MIDA, University of Genoa (22/02/2016).
62. Seminario di Analisi, Politecnico di Milano (11/05/2016).
63. Inverse Problems Seminar, University of Helsinki, Helsinki (21/03/2017).
64. Seminario OGTC, University of Aveiro (20/09/2017).
65. Seminario di Analisi, Politecnico di Milano (14/11/2017).
66. Workshop Reconstruction methods in EIT, University of Helsinki, Helsinki (25/04/2018).
67. Inverse Problems Seminar, University of Helsinki, Helsinki (08/04/2019).
68. Analysis and Learning Seminar, University of Genoa (16/04/2019).
69. Imaging & Learning Meeting, Laboratoire I3S, Sophia-Antipolis (30/01/2020).
70. LCSL Group Meeting, MaLGa Center, University of Genoa (12/06/2020).
71. Quasilinear equations, inverse problems and their applications (international seminar), Online (01/04/2021).
72. MAD Seminar, University of Bath (17/04/2024).
73. Seminarium, Matematisk statistik, KTH, Stockholm (13/05/2024).
74. Analysis and Application Seminar, Universidad Autónoma de Madrid, Spain (27/03/2025).
75. Online Inverse Problems Seminar, UC Irvine (06/11/2025).
76. Seminario di Analisi, University of Florence (17/04/2026).
77. ICML 2026 (Poster), Seoul, South Korea (8/07/2026).

POPULARIZATION TALKS

78. Analisi armonica e apprendimento da esempi, Accademia Ligure di Scienze e Lettere, Genova (06/03/2025). YouTube link: https://www.youtube.com/watch?v=EBTW6lHzHAU
79. La matematica nell'arte dell'elaborazione di immagini, Liceo Fermi, Genova (05/2026).

ORGANIZATION OF CONFERENCES, WORKSHOPS AND SCIENTIFIC MEETINGS

2027

Member of the organizing committee
BIRS Workshop - Nonlinearity in Inverse Problems: A Discourse Between Theory and Imaging
Banff, Canada, May 9-14, 2027.

2026

Member of the organizing committee
Summer school "Mathematics and Machine Learning for Image Analysis"
University of Bologna, Italy, June 10-17, 2026.

Member of the scientific committee
5th IMA Conference on Inverse Problems from Theory to Application
London, UK, September 8-10, 2026.

Member of the organizing committee
Italian Inverse Problems & Imaging Meeting
University of Genova, Italy, January 19-21, 2026.

2025

Member of the organizing committee
Summer school "Mathematics and Machine Learning for Image Analysis"
University of Bologna, Italy, June 4-11, 2025.

2024

Member of the organizing committee
Summer School on Applied Harmonic Analysis and Machine Learning,
University of Genoa, Italy, September 2-6, 2024.

Member of the organizing committee
Summer school "Mathematics and Machine Learning for Image Analysis"
University of Bologna, Italy, June 4-12, 2024.

Member of the organizing committee

	Workshop "Mathematics for Imaging, Vision and their Applications" University of Naples "Federico II", February 1, 2024.
2023	Member of the organizing committee INdAM workshop "*Learning for Inverse Problems"* 40 participants, INdAM, Rome, Italy, June 5-9, 2023.
	Member of the organizing committee *Scale Space and Variational Methods in Computer Vision (SSVM) 2023* 90 participants, Santa Margherita di Pula, Italy, May 21-25, 2023.
	Member of the organizing committee *Winter school "Advanced Methods for Mathematical Image Analysis"* University of Bologna, Italy, January 18-25, 2023.
2022	Member of the organizing committee *Summer School on Applied Harmonic Analysis and Machine Learning*, University of Genoa, Italy, September 5-9, 2022.
	Member of the organizing committee *Winter PhD School on advanced methods for mathematical image analysis* Four Universities: Insubria, Modena, Genova and Bologna, Italy, February 2022.
2021	Member of the organizing committee *MIVA Kick-off Event* 70 participants, Zoom conference, January 20, 2021.
2020	Main organizer (together with Luca Calatroni) *Imaging & Learning Meeting* 50 participants, Laboratoire I3S, Sophia-Antipolis, France, January 29-31, 2020.
2019 – present	Main organizer (together with Silvia Villa) of the MaLGa Seminar Series, University of Genoa.
2019	Member of the organizing committee *Summer School on Applied Harmonic Analysis and Machine Learning*, 80 participants, University of Genoa, Italy, September 9-13, 2019.
2018	Main organizer (together with Minh Mach) *Stroke EIT Seminar Days* 30 participants, University of Helsinki, Finland, April 25-26, 2018.
2015	Member of the local organizing committee *Applied Inverse Problems (AIP 2015)* conference 400 participants, Helsinki, Finland, May 2015.

ORGANIZATION OF MINISYMPOSIA

2023	Organizer of the minisymposium *Compressed Sensing meets Statistical Inverse Learning* Applied Inverse Problems Conference 2023, Göttingen, September 2023.
2022	Organizer of the minisymposium *Electrical impedance tomography: theory and applications* Inverse Problems: Modeling and Simulation 2022 conference, Malta, May 2022.
2019	Organizer of the minisymposium *Compressed sensing meets inverse problems* Applied Inverse Problems 2019 conference, Grenoble, France, July 2019.

INSTITUTIONAL RESPONSIBILITIES

Jul 2019 – present	P.I. at MaLGa – Machine Learning Genoa Center, University of Genoa.
Nov 2020 – present	Member of the Scientific and Technical Committee of the UMI Group *Mathematics for Imaging, Vision and their Applications (MIVA)*.
Mar 2023 – present	Member of the "Collegio dei docenti", PhD program in Mathematics, University of Genoa.
Sep 2018 – present	Member of the Department Council, DIMA, University of Genoa.
Feb 2020 – present	Member of the Degree Programme Board (CCS) of Mathematics, University of Genoa.

Mar 2021 – present	Member of the "Commissione carichi didattici" of DIMA, University of Genoa.
Feb 2020 – present	Member of the Internship Board of the Department of Mathematics, University of Genoa.
Jun 2019 – present	President of several hiring committees for post-doctoral positions, University of Genoa.
Jun 2020 – Jul 2020	Member of the hiring committee for PhD students, University of Genoa.

SUPERVISION OF POST-DOCTORAL RESEARCHERS

Apr 2025 – present	N. Aroua. Supported by ERC St Grant *SAMPDE*. Advisors: G.S. Alberti, M. Santacesaria.
Apr 2025 – Aug 2026	F. Goncharov. Supported by AFOSR Grant *GEMIP*. Advisors: G.S. Alberti, M. Santacesaria. Current position of F. Goncharov: Maître de conférences at University of Nîmes, France.
Feb 2025 – present	W. Gerner. Supported by AFOSR Grant *GEMIP* and ERC St Grant *SAMPDE*. Advisors: G.S. Alberti, M. Santacesaria.
Mar 2024 – Sep 2025	M. Holzleitner. Supported by ERC St Grant *SAMPDE*. Advisors: G.S. Alberti, M. Santacesaria. Current position of M. Holzleitner: Assistant Professor at Johannes Kepler Universität Linz, Austria.
Apr 2024 – Mar 2025	D. Elbrächter. Supported by AFOSR Grant *GEMIP*. Advisors: G.S. Alberti, M. Santacesaria. Current position of D. Elbrächter: MSCA Postdoctoral Fellow at University of Vienna, Austria.
Nov 2023 – Sep 2024	A. Gumber. Supported by ERC St Grant *SAMPDE*. Advisors: G.S. Alberti, M. Santacesaria. Current position of A. Gumber: Postdoctoral Researcher at University of Vienna, Austria.
Jan 2023 – Aug 2024	R. Petit. Supported by ERC St Grant *SAMPDE*. Advisors: G.S. Alberti, M. Santacesaria. Current position of R. Petit: Maître de conférences at Sorbonne Université, Paris, France.
Oct 2020 – Feb 2023	L. Ratti. Supported by AFOSR Grant *MALIP*. Advisors: G.S. Alberti, M. Santacesaria. Current position of L. Ratti: Assistant Professor at University of Bologna, Italy.
Oct 2020 – Sep 2022	S.I. Trapasso. Supported by AFOSR Grant *MALIP*. Advisors: G.S. Alberti, M. Santacesaria. Current position of S.I. Trapasso: Assistant Professor at Politecnico di Torino, Italy.
Sep 2019 – Sep 2020	A. Arroyo. Supported by UniGE Starting Grant "Curiosity Driven" (P.I. G.S. Alberti). Advisors: G.S. Alberti, M. Santacesaria. Current position of A. Arroyo: Assistant Professor at Complutense University of Madrid, Spain.

SUPERVISION OF RESEARCH ASSISTANTS (BORSISTI DI RICERCA)

Mar 2026 – present	M. Veneriano. Supported by MASE Mission Innovation 2.0 Grant *Il Sole non tramonta mai*. Advisors: V.P. Pastore, M. Santacesaria.
Mar 2026 – present	A. Gjergji. Supported by MASE Mission Innovation 2.0 Grant *Il Sole non tramonta mai*. Advisors: V.P. Pastore, M. Santacesaria.

SUPERVISION OF PHD STUDENTS

2025 – 2028	L. Finotti. Advisor: M. Santacesaria.
2023 – 2026	P. Angella. Advisors: V.P. Pastore, M. Santacesaria. Co-funded by Esaote S.p.A. PhD Defense: 27/07/2026. P. Angella now works in industry.
2021 – 2024	A. Felisi. Advisors: G.S. Alberti, M. Santacesaria. PhD Defense: 16/05/2025. Current position of A. Felisi: Postdoctoral Researcher at University of Bonn, Germany.
2020 – 2023	S. Sciutto. Supported by AFOSR Grant *MALIP*. Advisors: G.S. Alberti, M. Santacesaria. PhD Defense: 27/05/2024. S. Sciutto now works in industry.

SUPERVISION OF MASTER'S AND BACHELOR'S STUDENTS

2026	M. Veneriano, Master Student in Mathematics, University of Genoa (co-advisor: V.P. Pastore).
	K. Bazzotti, Master Student in Mathematics, University of Genoa.
2024	S. Grondona, Master Student in Mathematics, University of Genoa (co-advisor: A. Sorrentino).
	V. Raffetto, Master Student in Mathematics, University of Genoa (co-advisor: G.S. Alberti).
2021	S. Grondona, Bachelor Student in Mathematics, University of Genoa.
2020	G. Carta, Bachelor Student in Computer Sciences, University of Genoa.

2019 P. Campodonico, Master Student in Mathematics, University of Genoa (co-advisor: G.S. Alberti).

SUPERVISION OF VISITING STUDENTS AND RESEARCH INTERNS

2026 T. Xu, Visiting Master Student, École Polytechnique, France (3 months).

2025 – 2026 Z. Wang, Visiting PhD Student, School of Mathematics, Southeast University, Nanjing, P.R. China (12 months).

2024 E. Desainte-Maréville, Visiting Master Student in Mathematics, École Centrale de Lyon, France (6 months).

TEACHING

Sep 2026 – Aug 2027 University of Genoa.
- Analisi Matematica 2, BSc course (90h).
- Calculus I, BSc course (24h).

Sep 2025 – Aug 2026 University of Genoa.
- Analisi Matematica 1, BSc course (60h).
- Matematica, BSc course (72h).

Sep 2024 – Aug 2025 University of Genoa.
- Analisi Matematica 1, BSc course (60h).
- Analisi Matematica 4, MSc course (60h).

Sep 2023 – Aug 2024 University of Genoa.
- Analisi Matematica 1, BSc course (36h).
- Analisi Matematica 4, MSc course (60h).
- Machine Learning Crash Course, PhD course (4h).

Sep 2022 – Aug 2023 University of Genoa.
- Analisi Matematica 1, BSc course (36h).
- Analisi Matematica 4, MSc course (60h).

Sep 2021 – Aug 2022 University of Genoa.
- Analisi Matematica 1, BSc course (36h).
- Analisi Matematica 4, MSc course (60h).

Sep 2020 – Aug 2021 University of Genoa.
- Machine Learning for Inverse Problems, PhD course (24h).
- Partial Differential Equations, MSc course (60h).

Sep 2019 – Aug 2020 University of Genoa.
- Partial Differential Equations, MSc course (60h).

Sep 2016 – Aug 2017 Politecnico di Milano (teaching assistant).
- Metodi analitici e numerici per l'ingegneria, BSc course (40h).

Sep 2015 – Aug 2016 Politecnico di Milano (teaching assistant).
- Calcolo numerico ed elementi di analisi, BSc course (40h).

Sep 2012 – Aug 2013 University Pierre and Marie Curie – Paris 6 (teaching assistant).
- LM 216 (BSc): Fonctions de plusieurs variables et intégrales multiples (39h).
- LM 350 (BSc): Introduction à la topologie et au calcul différentiel (15h).

Sep 2011 – Aug 2012 University Pierre and Marie Curie – Paris 6 (teaching assistant).
- LM 216 (BSc): Fonctions de plusieurs variables et intégrales multiples (40h).
- LM 256 (BSc): Analyse vectorielle, intégrales multiples (34h).

PROFESSIONAL SOCIETIES

Apr 2024 – present Member of the ELLIS Society.

Sep 2022 – present Member of the International Inverse Problems Association.

Dec 2019 – present	Member of the Finnish Inverse Problems Society.
Jan 2019 – present	Member of UMI (Italian Mathematical Union).
Sep 2020 – present	Member of the UMI group Mathematics for Imaging, Vision and their Applications (MIVA).
Sep 2020 – present	Member of the UMI group Artificial Intelligence and Machine Learning.
Jan 2016 – present	Member of GNAMPA-IndAM.

OTHER SKILLS AND ACHIEVEMENTS

- External reviewer for the PhD thesis of Andres-Felipe Lerma-Pineda, University of Vienna, Austria (2025).
- External reviewer for the PhD thesis of Topi Kuutela, Aalto University, Finland (2023).
- Referee for *Communications on Pure and Applied Mathematics, International Mathematics Research Notices, The Journal of Geometric Analysis, SIAM Journal on Imaging Sciences, SIAM Journal on Mathematics of Data Science, SIAM Journal on Mathematical Analysis, SIAM Journal on Scientific Computing, Journal of Mathematical Imaging and Vision, Journal of Scientific Computing, Journal of Machine Learning Research, Communications in Partial Differential Equations, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Computational Imaging, Inverse Problems, Inverse Problems & Imaging, Applicable Analysis, Inverse Problems in Science & Engineering, Journal of Inverse and Ill-Posed Problems, Applied Mathematics for Modern Challenges, Taiwanese Journal of Mathematics, Journal of Innovative Applied Mathematics and Computational Sciences.*
- Languages: Italian (mother tongue), French (fluent), English (fluent).