UNIVERSITÀ DEGLI STUDI DI MILANO
selezione pubblica per n. 1 posto di Ricercatore a tempo determinato in tenure track (RTT)
per il settore concorsuale **01/A3 - Analisi Matematica, Probabilità e Statistica Matematica**,
settore scientifico-disciplinare **MAT/05 - Analisi Matematica,**
presso il **Dipartimento di Matematica "Federigo Enriques"**,
(avviso bando pubblicato sulla **G.U. n.97 del 22/12/2023**) Codice concorso **5472**

Andrea Aspri
CURRICULUM VITAE

INFORMAZIONI PERSONALI

Cᴏɢɴᴏᴍᴇ	**ASPRI**
Nᴏᴍᴇ	**ANDREA**
Dᴀᴛᴀ Dɪ Nᴀsᴄɪᴛᴀ	10/11/1986

EDUCATION AND TRAINING

01/01/2022 - present   Junior Assistant Professor (RTDa)

Junior Assistant Professor at Mathematics Department "F. Enriques" of Università degli Studi di Milano, under the support of the project FSE - REACT EU "RICERCA E INNOVAZIONE 2014-2020" (Research and Innovation 2014-2020).

01/11/2020 - 31/12/2021   Postdoctoral Researcher

Postdoc position at Mathematics Department "F. Casorati" of Università degli Studi di Pavia, under the supervision of Prof. Elisabetta Rocca.

Title of the research project: Problemi di controllo e di dinamiche a lungo termine per sistemi di equazioni alle derivate parziali non lineari;
Financial resources (period November 2020 - October 2021): FRG5 – Fondo Ricerca & Giovani 2019 and Progetto ECCELL2018_CSADSM56 - Eccellenza 2018-2022.
Financial resources (period November 2021 - December 2021): FRG6 - Fondo Ricerca & Giovani 2020 and Progetto ECCELL2018_CSADSM56 - Eccellenza 2018-2022.

01/10/2017 - 31/10/2020   Postdoctoral Research Scientist

Research Scientist at RICAM (Johann Radon Institute for Computational and Applied Mathematics), in the group "Inverse Problems and Mathematical Imaging", under the supervision of Prof. Otmar Scherzer, Linz, Austria.

01/11/2013 - 31/10/2016   PhD in Mathematics   EQF 8

Mathematics Department "Guido Castelnuovo", Sapienza Università di Roma
Piazzale Aldo Moro 5, 00185 Roma (Italy)

Thesis Title: *Analysis of a linear elastic model relative to a small pressurized cavity embedded in the half-space.*
Advisors: Prof. Elena Beretta (Mathematics Department, Politecnico di Milano), Prof. Corrado Mascia (Mathematics Department, Sapienza Università di Roma).
Referees report: Ammari Habib, Scherzer Otmar.
Date of Defense: January 13, 2017.
Committee: *Ammari Habib, Francini Elisa, Gianni Roberto.*
Classification: excellent.

01/10/2010 - 25/03/2013   Master's Degree in Applied Mathematics   EQF 7

Mathematics Department "Guido Castelnuovo", Sapienza Università di Roma
Piazzale Aldo Moro 5, 00185 Roma (Italy)

Thesis Title: *Deformazioni elastiche e variazioni gravitazionali generate da intrusioni ellissoidali con applicazioni alla vulcanologia* (Elastic deformations and gravity anomalies due to ellipsoidal intrusions with applications in volcanology).
Final grade: 110/110 cum laude.
Supervisors: Prof. Corrado Mascia (Mathematics Department, Sapienza Università di Roma), Prof. Maurizio Battaglia (Department of the Earth Sciences).

SCIENTIFIC ACTIVITY

Scientific Interests

I'm currently working on inverse problems both from the mathematical analysis and numerical analysis perspective. In the following, a list of the topics of my interest:

Inverse problems for PDEs with particular interest for mathematical models coming from the applications: uniqueness and stability issues.
Partial differential equations of elliptic type.
Shape optimization and phase field methods (with possible applications to 3D printing).
Regularization methods for ill-posed problems: Data driven regularization and reconstruction methods.

Collaborators

E. Beretta (*Mathematics Department of NYU Abu Dhabi*)
C. Cavaterra (*Mathematics Department of Università degli Studi di Milano*)
M. de Hoop (*Department of Computational and Applied Mathematics and Department of Earth, Environmental, and Planetary Sciences, Rice University*)
E. Francini (*Mathematics Department of Università degli Studi di Firenze*)
L. Frischauf (*Mathematics Department of University of Vienna*)
A. Gandolfi (*Mathematics Department of NYU Abu Dhabi*)
Y. Korolev (*Mathematics Department of University of Cambridge*)
C. Mascia (*Mathematics Department of Sapienza Università di Roma*)
A. Mazzucato (*Mathematics Department of Penn State University*)
E. Rocca (*Mathematics Department of Università degli Studi di Pavia*)
E. Rosset (*Mathematics and Geoscience Department of Università degli Studi di Trieste*)
O. Scherzer (*Mathematics Department of University of Vienna*)
M. Verani (*MOX, Mathematics Department of Politecnico di Milano*)
S. Vessella (*Mathematics Department of Università degli Studi di Firenze*)

1. EDITOR ACTIVITY

Editor together with Alberti S. G. and Scherzer O. of the special issue titled "**Analysis and applications of data-driven methods**", in the journal Numerical Functional Analysis and Optimization, Taylor & Francis Group
`https://www.tandfonline.com/action/newsAndOffers?journalCode=lnfa20`

2. PAPERS AND BOOKS

Book

A. Aspri, **An Elastic Model for Volcanology**, published in "Lecture Notes in Geosystems Mathematics and Computing", Birkhäuser, Springer Nature Switzerland, December 2019.
`https://www.springer.com/gp/book/9783030314743.`

List of Publications

1. A. Aspri, E. Beretta, C. Mascia, **Asymptotic Expansion for Harmonic Functions in the Half-Space with a Pressurized Cavity**, Mathematical Methods in the Applied Sciences, Volume 39, Issue 10, July 2016, 2415-2430.

2. A. Aspri, E. Beretta, C. Mascia, **Analysis of a Mogi-type model describing surface deformations induced by a magma chamber embedded in an elastic half-space**, Journal de l'École polytechnique — Mathématiques, Volume 4, January 2017, 223-255.

3. A. Aspri, E. Beretta, E. Rosset, **On an elastic model arising from volcanology: an analysis of the direct and inverse problem**, Journal of Differential Equations, Volume 265, Issue 12, December 2018, 6400-6423.

4. A. Aspri, E. Beretta, A. L. Mazzucato, M. de Hoop, **Analysis of a model of elastic dislocations in geophysics**, Archive for Rational Mechanics and Analysis (online first November 2019), Volume 236, Issue 1, April 2020, 71-111.

5. A. Aspri, S. Banert, O. Öktem, O. Scherzer, **A data-driven iteratively regularized Landweber iteration**, Numerical Functional Analysis and Optimization, (online first March 2020), Volume 41, Issue 10, 2020, 1190-1227.

6. A. Aspri, E. Beretta, O. Scherzer, M. Muszkieta, **Asymptotic expansions for higher order elliptic equations with an application to quantitative photoacoustic tomography**, SIAM Journal on Imaging Sciences, Volume 13, No. 4, pp. 1781-1833.

7. A. Aspri, Y. Korolev, O. Scherzer, **Data driven regularization by projection**, Inverse Problems, Volume 36, No. 12, pp. 125009 (2020).

8. A. Aspri, E. Beretta, A. Gandolfi, E. Wasmer, **Mortality containment vs. Economics opening: Optimal Policies in a SEIARD model**, Journal of Mathematical Economics, Volume 93 (2021), pp. 102490.

9. A. Aspri, E. Beretta, M. V. de Hoop, A. L. Mazzucato, **Detection of dislocations in a 2D anisotropic elastic medium**, Rendiconti di Matematica e delle sue Applicazioni Volume 42, pp. 183-195, for a special issue entitled "Nonlinear Diffusion Problems" dedicated to Maria Assunta Pozio.

10. A. Aspri, L. Frischauf, Y. Korolev, O. Scherzer, **Data driven reconstruction using frames and Riesz bases**. February 2021. Contribution in the volume (see Chapter 13) entitled "Deterministic and Stochastic Optimal Control and Inverse Problems" edited by B. Jadamba, A. Khan, M. Sama, S. Migorski, CRC Press.

11. A. Aspri, E. Beretta, A. L. Mazzucato, **Dislocations in a layered elastic medium with applications to fault detection**, Journal of the European Mathematical Society, Volume 25, Issue 3, 1091-1112 (2023).

12. A. Gandolfi, A. Aspri, E. Beretta, K. Jamshad, M. Jiang, **The effect of opening schools on the course of a pandemic: a mathematical study**, Scientific Reports, Article Number 3012(2022), Volume 12.

13. A. Aspri, E. Beretta, C. Cavaterra, E. Rocca, M. Verani, **Identification of cavities and inclusions in a linear elastic medium using a phase field approach**, Applied Mathematics and Optimization, Volume 86(2022), pp. 1-41.

14. A. Aspri, **A phase-field approach for detecting cavities via a Kohn-Vogelius type functional**, Inverse Problems (for the special issue "Emerging Talents 2021"; see, in the sequel, the section titled "Awards" for further explanations), Volume 38(2022), pp. 094001.

15. A. Aspri, E. Beretta, E. Francini, S. Vessella, **Lipschitz stable determination of polyhedral conductivity inclusions from local boundary measurements**, SIAM Journal on Mathematical Analysis, Volume 54(2022), pp. 5182-5222.

16. A. Aspri, A. Benfenati, P. Causin, C. Cavaterra, G. Naldi, **Mathematical and numerical challenges in diffuse optical tomography inverse problems**, Discrete and Continuous Dynamical Systems - S, 2024, 17(1): 421-461. doi:10.3934/dcdss.2023210.

Preprints & Works in progress

A. Aspri, O. Scherzer, **Analysis of Generalized Iteratively Regularized Landweber Iterations driven by data**, submitted.

A. Aspri, E. Francini, **Lipschitz stable determination of polyhedral inclusions and its conductivity**.

P. Antonietti, A. Aspri, E. Beretta, A. L. Mazzucato, **A shape optimization approach for detection of elastic dislocations**.

A. Aspri, E. Beretta, E. Francini, D. Pierotti, S. Vessella **On the determination of cavities in the monodomain model from boundary measurements**

A. Aspri, E. Rocca, **A Γ-convergence result for a phase-field approach with a Kohn-Vogelius type functional**.

A. Aspri, L. Frischauf, M. Rumpf, O. Scherzer, **Spectral Function Space Learning and Numerical Linear Algebra Networks for Solving Linear Inverse Problems**.

3. RESEARCH PROJECTS

Member of the projects

Principal investigator of the project titled "Problemi inversi per equazioni alle derivate parziali e applicazioni" (English translation: Inverse problems for partial differential equations and applications), financed by GNAMPA (Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni) of INdAM. Total sum granted 3,500 Euro, 2023.

Member of the project titled "Problemi Inversi per le Equazioni alle Derivate Parziali" (English translation: Inverse Problems for Partial Differential Equations) and financed by GNAMPA (Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni) of INdAM (Istituto Nazionale di Alta Matematica). Total sum granted 3,500 Euro, 2022.

Member of PRIN ("Progetti di Rilevante Interesse Nazionale") titled "Mathematics for Industry 4.0 (Math4I4)" in the local unity of the Mathematics Department of Università degli Studi di Pavia, coordinated by Prof. Elisabetta Rocca. Total sum granted 483,800 Euro.

Member of the project financed by the State of Upper Austria with the title *"Förderung des Johann Radon Institute for Computational and Applied Mathematics (RICAM) der Österreichischen Akademie der Wissenschaften (ÖAW)"* (English translation: "Grant for Johann Radon Institute for Computational and Applied Mathematics (RICAM) of the Austrian Academy of Sciences"), from January 2018 to October 2020. Annual total sum granted 250,000 Euro per year. The project had the purpose of supporting mathematical research with potential applications in the life sciences and medicine.

In September 2020, the Scientific Assistant of RICAM (Dr Peter Kritzer) applied for an extension of this grant, for other three years, submitting a research project divided into three subprojects. I wrote and edited one of the three subprojects, entitled "Data driven regularizations". The institute received the grant in December 2020.

Associate member of the SFB project "Tomography across the scales" (`https://tomography.univie.ac.at/`). Principal investigators: Otmar Scherzer (University of Vienna - Mathematics Department), Ronny Ramlau (RICAM Linz), Wolfgang Drexler (Center for Medical Physics and Biomedical Engineering), Peter Elbau (University of Vienna - Mathematics Department), Monika Ritsch-Marte (Medical University of Innsbruck), Gerhard Schütz (TU Wien - Institute of Applied Physics).

Memeber of the project "Mathematical modeling for the identification of magma reservoirs from gravitation and deformation data", Sapienza Università di Roma, 2013. Principal investigator: Mascia Corrado.

Member of the project "Modelli Differenziali Non Lineari: Analisi, Approssimazione ed Applicazioni", Sapienza Università di Roma, 2015. Principal investigator: Falcone Maurizio.

Member of the project "Modelli Differenziali Non Lineari: Analisi, Approssimazione ed Applicazioni", Sapienza Università di Roma, 2016. Principal investigator: Finzi Vita Stefano.

Bibliometric Indeces

Legend: SC=Scopus, WoS= Web of Science

Publications: SC=19, WoS=19;

Citations: SC=81, WoS=72;

H-index: SC=5, WoS=5;

4. AWARDS, RESEARCH VISITS AND MISCELLANEA

Awards

August 2015 - December 2016

Research Project: Principal Investigator of the project "Avvio alla Ricerca 2015" for young researchers financed by Sapienza Università di Roma, 1K euro.

Project's Title: *Problemi inversi e algoritmi di ricostruzione relativi a cavità pressurizzate in semispazi con applicazioni alla vulcanologia (Inverse problems and reconstruction algorithms for pressurized cavities in the half-space with applications in volcanology).*

December 2020

Selected for "Emerging Talents 2021": nominated by the editorial board of the journal "Inverse Problems" to submit a paper for a special issue in 2021 reserved to the most talented young scientists working on inverse problems.

Research visits

14 - 20 December 2019

Mathematics Department "Renato Caccioppoli" of University of Naples "Federico II". Invitation received by Salvatore Cuomo and Francesco Calabrò.

10-18 September 2022
24 February- 10 March 2020
15 - 23 February 2019
3 - 12 March 2017
13 - 21 February 2016

Mathematics Department of New York University Abu Dhabi. Invitation received by Elena Beretta.

Referee Activity

Referee for the following international journals.

Applicable Analysis;
Applied Mathematics and Computation;
Boundary Value Problems;
Computational Methods in Applied Mathematics;
Differential Equations and Dynamical Systems;
Economic Analysis and Policy;
International Journal on Geomathematics (GEM);
Inverse Problems;
Inverse Problems and Imaging;
Inverse Problems in Science & Engineering;
Journal of Computational and Applied Mathematics;
Journal of Inverse and Ill-Posed Problems;
Journal of Mathematical Analysis and Applications;
Journal of Mathematical Imaging and Vision;
Journal of Mathematics in Industry;
Mathematics and Computers in Simulation;
Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal.
Numerical Functional Analysis and Optimization;
SIAM Journal on Mathematical Analysis;
SIAM Journal on Imaging Sciences;
Trends in Mathematics;

Popularization contribution

17 January 2024

Interviewed by a StoryTime editor to describe the education and training paths I have followed and to provide insights into the work carried out in the field of my mathematical research. The interview was broadcasted on 'Radio Canale Italia'.

30 November 2020

Interviewed by Markus Kessler of the Austrian Academy of Sciences to speak about the paper "Mortality containment vs. Economics opening: Optimal Policies in a SEIARD model", see previous section "List of Publications" for details on the paper. Title of the interview: "Optimale COVID-Strategie: Der Wert eines Menschenlebens". The interview is on the website of the Austrian Academy of Sciences https://www.oeaw.ac.at/detail/news/ zu-fruehe-oeffnung-kann-zu-naechstem-lockdown-fuehren

**5. CONFERENCES,
WORKSHOPS AND SEMINARS**

Organization of Workshops/Minisymposia

4 September - 8 September 2023 Co-organizer with Sherina E. of the mini-symposium MS31 "Inverse problems in Elastic Media" at the "*11th Applied Inverse Problems Conference*", held in Göttingen, 4 - 8 September, 2023.

5 June - 9 June 2023 Co-organizer with Alberti S. G., Bubba T., Ratti L. and Santacesaria M. of the INdAM workshop "*Learning for Inverse Problems*", held in Rome, 5 June – 9 June, 2023.

19 December - 22 December 2022 Co-organizer with Beretta E., Cakoni F., Francini E., and Scherzer O. of the Workshop "*Inverse Problems in the Desert* ", held in the New York University Abu Dhabi , 19 December – 22 December, 2022.

22 May - 28 May 2022 Co-organizer with Beretta E., Ilmavirta J., Mazzucato A., and Volkov D. of the Mini-symposium "*Inverse Problems in Geomathematics and Seismology* ", to the 10th International Conference "Inverse Problems: Modelling and Simulation", held in Malta, 22 May - 28 May, 2022.

21 March - 25 March 2022 Co-organizer with Alberti G.S., Frischauf L., and Scherzer O. of the Mini-symposium "*Data-Driven Methods in Inverse Problems and Imaging*", to the SIAM Conference on Imaging Science, held virtually, 21 March – 25 March, 2022.

30 August – 3 September 2021 Co-organizer with Mindrinos L. of the Mini-symposium "*New trends in tomography: From microscopy to astronomy*", to the National Congress SIMAI 2020, held in Parma (Italy), 30 August - 3 September, 2021.

8 July - 12 July 2019 Co-organizer with Beretta E. and Mazzucato A. of the Mini-symposium "*Inverse Problems in Elastic Media*" to Applied Inverse Problems (AIP) conference, held in Grenoble, 8 – 12 July, 2019.

28 May - 1 June 2018 Co-organizer with Beretta E., de Hoop M., Francini E., and Scherzer O. of the INdAM workshop "*Reconstruction Methods for Inverse Problems*" held in Rome 28 May - 1 June, 2018.

Upcoming conferences and seminars (invited talks)

December 2024 Speaker at the special session titled "Optimal control and parameter estimation in biological models" of the 14th AIMS conference on Dynamical Systems, Differential Equations and Applications, Abu Dhabi, 16-20 December 2024. (invited talk)

December 2024 Speaker at the special session titled "New trends in inverse problems for partial differential equations" of the 14th AIMS conference on Dynamical Systems, Differential Equations and Applications, Abu Dhabi, 16-20 December 2024. (invited talk)

December 2024 Speaker at the 'Joint Seminar on Inverse Problems and Learning Theory,' which will be held online on 23 January 2024. (invited talk)

Conference/Workshop (invited Talks)

In the following, titles of the presentation are in bold.

September 2023 **Lipschitz stable determination of polyhedral conductivity inclusions from local boundary measurements**, Mini-Symposium MS49 titled "Applied parameter identification in physics", 11th Applied Inverse Problems Conference, Göttingen, 4-8 September 2023.

September 2023 **Phase-field approaches in elastic inverse problems**, Special Session titled "Problemi diretti e inversi in scienza dei materiali, biomedicina e climatologia (Direct and Inverse Problems in material science, biomedicine and climatology)", XXII conference of Unione Matematica Italiana (UMI), Pisa, 4-9 September 2023.

June 2023 **Data driven regularization by projection**, Workshop titled "Leveraging model- and data-driven methods in medical imaging", Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Canada, 25-30 June 2023.

22 June 2023 **An inverse problem for elastic dislocations**, Workshop titled "Synergistic workshop on Rich and Nonlinear tomography aimed at drawing together all strands of both methods and applications with new insights", Isaac Newton Institute for Mathematical Sciences, Cambridge, 19-23 June 2023.

28 March 2023 **Data driven regularization in inverse problems**, Workshop titled "20 Years Johann Radon Institute (RICAM)" at RICAM (Johann Radon Institute for Computational and Applied Mathematics), Linz, 27 - 29 March, 2023.

1 December 2022 **Phase-field approaches in elastic inverse problems**, Workshop titled "Inverse Problems on Large Scales" within the Special Semester on Tomography across the Scales at RICAM (Johann Radon Institute for Computational and Applied Mathematics), Linz, November 29 - December 3, 2022.

27 October 2022 **Phase-field approaches in elastic inverse problems**, PICOF22 (Problèmes Inverses, Contrôle et Optimisation de Formes), Caen, France, 25-27 October 2022.

24 May 2022 **Data driven regularization**, 10th International Conference "Inverse Problems: Modeling and Simulation", Minisymposium M14 "Mathematical Methods in Tomography Across the Scales", Malta, 23-27 May 2022.

23 May 2022 **Phase-field approaches in elastic inverse problems**, Workshop titled "PHAse-field Methods in applied sciences – PHAME2022", INDAM, Rome - May 23-27, 2022.

12 May 2022 **Phase-field approaches for reconstruction of elastic cavities**, Workshop titled "Inverse Problems for Anomalous Diffusion Processes", Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Canada, 8-13 May 2022.

22 March 2022 **Asymptotic expansions for higher order elliptic equations with applications in Quantitative Photoacoustic**, SIAM Conference on Imaging Science, Berlin, Minisymposium "Mathematical Imaging at the Small Scale: Modeling, Analysis and Applications", 22-25 March 2022.

10 November 2021 **Data-driven regularization for linear inverse problems**, The 3rd International Conference on Machine Learning and Intelligent Systems (MLIS 2021), Xiamen (China), 8-11 November 2021.

13 October 2021 **Data-driven regularization by projections**, PRIMO (Post graduate Researchers in Inverse problems, Machine learning and Optimization) workshop, Department of Mathematics of the University of Bologna , 11-13 October 2021.

1 September 2021 **Data driven regularization by projection**, Contributed talk in IFIP TC7 Conference on System Modelling and Optimization, Quito (Ecuador), 30 August - 3 September 2021.

4 March 2021 **Data driven regularization by projection**, SIAM Conference on Computational Science and Engineering (CSE21), Minisymposium "Using data to drive iterative methods: subspace recycling and other techniques", Fort Worth, Texas (U.S.), 1-5 March 2021.

25 January 2021 **Topological derivative for higher order elliptic equations with applications in Quantitative Photoacoustic**, Computational and Applied Mathematics Colloquium, Department of Mathematics, Penn State University

2 September 2020 **Updates on data driven regularization by projection**, 4rd SFB workshop "Tomography Across the Scales", online meeting, 1-2 September 2020.

15 January 2020 **A data-driven iteratively regularized Landweber iteration**, American Mathematical Society (AMS) Special Session on "Interactions of Inverse Problems, Computational Harmonic Analysis, and Imaging", Denver, Colorado, 15-18 January 2020.

2 December 2019 **Data driven regularization by projection**, 3rd SFB workshop "Tomography Across the Scales", Obergurgl (Austria), 1-5 December 2019.

25 June 2019 **Analysis of a model of elastic dislocations in geophysics**, Reconstruction Methods for Inverse Problems, Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Canada, 24-28 June 2019.

4 December 2018 **A data-driven iteratively regularized Landweber iteration**, 2nd SFB workshop "Tomography Across the Scales", Obergurgl (Austria), 3 – 6 December 2018.

23 May 2018 **On the inverse problem of determining a pressurized cavity in a half-space**, Minisymposium M10 of the 9th International Conference "Inverse Problems: Modeling and Simulation", Malta, 21 – 25 May 2018.

22 March 2018 **On an elastic model arising from volcanology: an analysis of the direct and inverse problem**, workshop "Inverse Problems in the Alps II", Obergurgl (Austria), 21 - 23 March 2018.

27 March 2017 **A linear elastic model to detect magma chamber**, conference "100 Years of the Radon Transform", RICAM – Linz, 27 – 31 March 2017.

Seminars

4 May 2022   *Phase-field approaches in elastic inverse problems*, Department of Mathematics "F. Enriques", Università degli Studi di Milano, 4 May 2022.

11 March 2022   *Phase field methods in Inverse Problems*, Internal Meeting on PRIN "Mathematics for Industry 4.0" 2020F3NCPX, Mathematics Department "F. Casorati", Università degli Studi di Pavia, 11 March 2022.

2 February 2021   *Elastic dislocations with applications to fault detection*, Mathematics Department "F. Casorati", Università degli Studi di Pavia, 2 February 2021.

16 December 2020   *Analysis of a model of elastic dislocations in geophysics*, Virtual Inverse Days Workshop 2020, organized by the Finnish Meteorological Institute and University of Helsinki, Helsinki, 14-18 December 2020.

15 December 2020   *Data driven regularization*, Malga seminar Analysis and Learning, Department of Mathematics, Università degli Studi di Genova, Genoa, 15 December 2020.

10 June 2020   *Data Driven regularization by projection*. Selected as speaker by the director of RICAM (Prof. Ronny Ramlau) for the first of the joint seminars between RICAM (Linz) and Fudan University (Shanghai), 10 June 2020.

7 January 2020   *Data Driven regularization*, Department of Mathematics "Guido Castelnuovo", Sapienza University of Rome, Seminars of Numerical Differential Modeling, 7 January 2020.

16 December 2019   *Topological higher order derivatives with applications in quantitative photoacoustic tomography*, Mathematics Department "Renato Caccioppoli", University Federico II of Naples, Naples, Italy.

23 May 2019   *Inverse Problems and Mathematical Imaging*, ÖAW Betriebsausflug, RICAM (Johann Radon Institute for Computational and Applied Mathematics), Linz.

4 July 2018   *A modified Landweber driven by expert knowledge*, First SFB Internal Meeting, Computational Science Center, Vienna.

20 July 2017   *On the direct and inverse problem of a linear elastic model coming from volcanology*, RICAM - Inverse Problems and Mathematical Imaging Group, Linz.

8 May 2017   *Analysis of a linear elastic model relative to a small pressurized cavity in the half-space*, A.MA.CA. (Analisi MAtematica al CAstelnuovo) Mathematics Department "Guido Castelnuovo", Sapienza Università di Roma.

31 May 2016   *A linear elastic model to detect magma chamber*, Mathematics Department "Guido Castelnuovo", Sapienza Università di Roma, Seminars of Numerical Differential Modeling, 31 May 2016.

5 May 2015   *Harmonic functions in the half-space with a pressurized cavity*, Mathematics Department "Guido Castelnuovo", Sapienza Università di Roma, Seminars of Numerical Differential Modeling, 5 May 2015.

Poster Presentations

25 - 29 May 2015   **Asymptotic expansion of the solution of a Neumann problem for harmonic functions in the half-space with a small cavity**, conference "Applied Inverse Problems (AIP 2015)", Helsinki.

26 – 28 August 2014   **On detecting a magma chamber from deformation and gravity measurements on the boundary of the half-space**, conference "Inverse problems - from theory to application (IPTA 2014)", Institute of Physics, Bristol.

19 – 23 May 2014   **On detecting a magma chamber from deformation and gravity measurements on the boundary of the half-space**, conference "Recent progess in mathematical and numerical analysis of inverse problems", CIRM, Luminy, Marseille.

TEACHING EXPERIENCE

1. THESIS SUPERVISIONS

Second advisor for Master Thesis

Candidate: Frischauf Leon (Mathematics Department, University of Vienna);
First advisor: Scherzer Otmar (University of Vienna);
Title: Regularization by orthogonalization and frames;
Defence date: August 21, 2020.
Present position: Ph.D. student at Department of Mathematics, University of Vienna.

TEACHING

Legend for Departments (and related Universities) which appear in sections below.

University Unitelma Sapienza: CS-Unitelma-Sapienza = Computer Science dept. Unitelma-Sapienza;

Sapienza, University of Rome: CS = Computer Science dept.; EE = Energy Engineering dept.; AE = Aerospace Engineering dept.; CE = Chemistry Enginerring dept.

University of Pavia: DIEI = Department of Industrial Engineering and Information, DCEE= Department of Civil and Enviromental Engineering; DDS = Department of Drug Sciences; DC = Department of Chemistry.

University of Milan: AI=Artificial Intelligence, DP = Department of Physics.

2. GIVEN COURSES

23/24   Mathematical Analysis 2 (DP, Milan), instructor together with Cristina Tarsi, 36 hours of 80 hours.

23-24   Mathematics for Imaging and Signal Processing (AI, Milan), instructor together with Matteo Cozzi, 8 hours of 56 hours.

27.02.2023   15.06.2023   Mathematical Analysis 2 (DP, Milan), instructor together with Marco Peloso, 36 hours of 80 hours.

01.10.2021   17.02.2022   Mathematics with Elements of Statistics (DDS, Pavia), instructor together with Stefano Lisini, 24 hours of 48 hours.

29.09.2020   27.09.2021   Differential Calculus (CS, Sapienza), telematic course.

24.02.2020   21.02.2021   Integral Calculus (CS, Sapienza), telematic course

23.09.2019   28.09.2020   Differential Calculus (CS, Sapienza), telematic course.

25.02.2019   23.02.2020   Integral Calculus (CS, Sapienza), telematic course

24.09.2018   22.09.2019   Differential Calculus (CS, Sapienza), telematic course.

3. TUTORING

01.10.2021 31/12/2021 Two classes on Ordinary Differential Equations. Title of the course "Advanced Mathematical Methods for Engineers" (DIEI, Pavia - Master Program in Electronic Engineering), 4 hours;

01.10.2021   31.12.2021 Mathematical Analysis I (DCEE, Pavia), 6 hours;

27.09.2021 31.12.2021 Advances Mathematical Methods for Engineers (DIEI, Pavia - Master Program in Electronic Engineering), 24 hours;

1.03.2021   28.02.2022 Integral Calculus (CS-Unitelma-Sapienza);

1.10.2020   31.09.2021 Differential Calculus (CS-Unitelma-Sapienza);

1.03.2021 16.06.2021 Five classes on topics of mathematical analysis. Title of the course "Complementi di Matematica per le Scienze Chimiche" (DC, Pavia), 10 hours;

1.11.2020 22.12.2020 Two classes on Ordinary Differential Equations. Title of the course "Advanced Mathematical Methods for Engineers" (DIEI, Pavia - Master Program in Electronic Engineering), 4 hours;

1.03.2020   28.02.2021 Integral Calculus (CS-Unitelma-Sapienza);

1.10.2019   30.09.2020 Differential Calculus (CS-Unitelma-Sapienza);

1.03.2019   29.02.2020 Integral Calculus (CS-Unitelma-Sapienza);

1.10.2018   23.09.2019 Differential Calculus (CS-Unitelma-Sapienza);

1.10.2017   30.09.2018 Differential Calculus (CS-Unitelma-Sapienza);

2.10.2016   10.02.2017 Mathematical Analysis 1 (EE);

1.10.2016   30.09.2017 Differential Calculus (CS-Unitelma-Sapienza);

04.2016 09.2016   Mathematical Analysis 2 (EE);

10.2015 07.2016   Mathematical Analysis 1 (EE 50 hours, AE 50 hours, CE 50 hours);

1.02.2015   31.01.2016 Integral Calculus (CS-Unitelma-Sapienza);

1.10.2015   30.09.2016 Differential Calculus (CS-Unitelma-Sapienza);

1.10.2014   30.09.2015 Differential Calculus (CS-Unitelma-Sapienza);

4. PRECALCULUS COURSES

22.09.2014 31.12.2014 Faculty of Mathematics, Physics and Natural Sciences (Sapienza University of Rome).

8.09.2014 19.09.2014 Faculty of Information Engineering, Informatics and Statistics (Sapienza University of Rome).

5. HIGH SCHOOL

20.06.2017 07.07.2017 Examiner of Mathematics and Physics and vice-president of the X committee - RMLI01010 - Classics high school "A. Mancinelli", Velletri (Rome).

PERSONAL SKILLS

Mother tongue | Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	B2	B2	C1
German	A1	A2	A1	A1	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference (CEF) level

Computer skills | Competent with most Microsoft Office programmes.
Very good knowledge of Matlab;
Good knowledge of Bocop, C++, Mathematica and Fortran90.
Good knowledge of Cisco WebEx platform.

ADDITIONAL INFORMATION

Memberships | Partner of UMI "Unione Matematica Italiana" since 2021.
Partner of SIMAI "Società Italiana di Matematica Applicata e Industriale" from 23-12-2013.
Member of GNAMPA "Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni" from January 2014.

Data, 13 Gennaio 2024