CURRICULUM VITAE ET STUDIORUM

Current Position

2021– Clinical Professor of Mathematics at New York University Abu Dhabi

Education

1980 Abitur, German School, Milan, Italy

1984 M.S. at Università degli Studi di Milano, Milan, Italy
Major: Mathematics

2024 Ph.D. in Mathematics, University of Lorraine, France

Personal Information

Married, with three daughters

Mother tongue: Italian

Other languages: Fluent in English, French, and German.

Past Employment

2013–2021 Associate Professor, Politecnico di Milano

1998–2012 Associate Professor, Università ”La Sapienza”, Rome

1996–1998 Researcher of the Consiglio Nazionale delle Ricerche (CNR) at the ”Istituto di Analisi Globale e Applicazioni”, Florence

1992–1995 Researcher at the ”Istituto per le Applicazioni del Calcolo” of the Consiglio Nazionale delle Ricerche (CNR), Rome

1989–1991 Post-Doctorate Fellow at Rutgers University, USA

1986–1992 Researcher of the Consiglio Nazionale delle Ricerche (CNR) at the ”Istituto di Analisi Globale e Applicazioni”, Florence

Personal Development

2013–2023 Abilitazione (Abilitation) to Full Professor, Italian Ministry of Research, Science and the University (MIUR)

Teaching

1993–1994 Real Analysis (Engineering Faculty, Università di Tor Vergata, Rome)

1994–1995 Real Analysis (Engineering Faculty, Università di Tor Vergata, Rome)

1998–2012 Calculus 1 and Calculus 2 (Architecture Faculty, Università La Sapienza, Rome)

2007 Ph.D. Course Mathematics for Economics, Università di Firenze, Florence

2013–2014 Analysis 1, Analysis 2 (Engineering Faculty, Politecnico di Milano, Milan)

2014–2015 Analysis 1, Analysis 2, Mathematical Methods in Engineering (Engineering Faculty, Politecnico di Milano, Milan) and Multivariable Calculus, New York University Abu Dhabi

2016–2017 Calculus with Applications, Multivariable Calculus, Linear Algebra, New York University Abu Dhabi

2017–2018 Multivariable Calculus, Mathematical Methods in Engineering, Politecnico di Milano

2018–2019 Multivariable Calculus, Ordinary Differential Equations, Integral Calculus, New York University Abu Dhabi

2019 Integral Calculus J-term

2020 Multivariable Calculus, Ordinary Differential Equations, Partial Differential Equations, New York University Abu Dhabi

2021 Multivariable Calculus, Dynamical Systems, New York University Abu Dhabi

2022 Multivariable Calculus, New York University Abu Dhabi

2023–2024 Multivariable Calculus, Dynamical Systems, New York University Abu Dhabi

2024–2025 Calculus, Multivariable Calculus, Ordinary Differential Equations, New York University Abu Dhabi

Internal Service

2019–2022 Chair of the Colloquium Committee of the Mathematics Program at NYU Abu Dhabi

2020–2022 Coordinator of Multivariable Calculus courses at NYU Abu Dhabi

2022 Chair of Visiting Faculty Hiring Committee at NYU Abu Dhabi

2023 Member of the Faculty Advisory Committee on Labor and Social Responsibility

Editorial

2023– Associate Editor, SIAM Journal on Mathematical Analysis (SIMA)

2023– Associate Editor, Inverse Problems and Imaging (IPI)

2021– Associate Editor, Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal (MMS)

2020– Member of the Editorial Board, Inverse Problems (IP)

2022 Guest Editor of the Special Issue: Women in Inverse Problems

Recent Activities and Awards

2024 Invited Research Fellow to a four-month program on inverse problems, scheduled from August 16th to December 17th, 2027, at the Simons Laufer Mathematical Sciences Institute in Berkeley

2024 Co-PI of the proposed Research Center MATH-COP (PI Nader Masmoudi)

2024 Chair of the Committee of Diversity and Inclusion of IPIA

2024 Member of the Scientific Committee of the Conference "Applied Inverse Problems" 2025, Rio de Janeiro, Brazil

2023 Member of the selection committee of Calderon Prize 2021 and 2023

2023 Member of the executive committee of IPIA, Inverse Problems International Association

2023 Reviewer of ERC Starting Grants 2023

2022 Member of the Scientific Committee of the Conference Applied Inverse Problems (AIP), September 2023, Göttingen, Germany

2022 Member of the Steering Committee of the Euroasian Association of Inverse Problems

2022 Member of the Scientific Committee of PICOF 2022, Caen, France, October 25–27, 2022

2021 Reviewer of ERC Starting Grants 2021

2021 Member of the Committee of the PhD thesis of Andrea Scapin at ETH, Switzerland

2021 Member of Evaluation Committee for a Full Professor Position (W3) in Applied Mathematics and Industrial Mathematics, University of Bremen, Germany

2020 Member of Evaluation Committee for a Position at the University of Vienna

2020 Member of the Committee for the PhD Prize of the "Gesellschaft für Inverse Probleme" in Germany

2019 Member of Evaluation Committee for Professorship Position at the University of Chile

2017 Member of the Evaluation Panel of INRIA

2017 ICERM Research Fellow in the program Mathematical and Computational Challenges in Radar and Seismic Reconstruction, Brown University, November 2017

2017 Member of the Committee of the PhD thesis of Florian Faucher at INRIA, France

2017 Member of Scientific Committee of the Conference "PICOF 2018"

2016 Member of Scientific Committee of the Conference "PICOF 2016", Grenoble, France

2016 IOP Publishing Reviewer Award

2015 Member of the Review Panel for the Academy of Finland and the Research Council for Natural Sciences and Engineering

2010 Research Membership "Inverse Problems and Applications", MSRI, Berkeley

Recent Visiting Positions

2018 Visiting Professor at NYU Abu Dhabi, August 2018–August 2021

2018 Visitor at ETH Zurich (February 2018)

2017 Research Fellow at ICERM Semester Program on "Mathematical and Computational Challenges in Radar and Seismic Reconstruction" (September 6 – December 8, 2017), Brown University

2017 Visitor at Penn State University

2016 Visiting Associate Professor at NYU Abu Dhabi, August 2016–August 2017

2016 Visitor at University of Vienna, June and July 2016

2015 Visiting Professor at NYU Abu Dhabi, August 2015 – February 2016

2015 Visitor at MIT, Boston, April 2015

2013 Participant of the Program "Inverse Problems and Applications", Mittag-Leffler Institute, Sweden

2012 Visitor at École Normale Supérieure, June 2012, Paris

2012 Visitor at Erwin Schrödinger Institute, April 2012, Vienna

2012 Visitor at Cornell University, March 2012, USA

2010 Research Member at the Mathematical Sciences Research Institute (MSRI), Berkeley, September – November 2010

Recent Invited Talks

2024 Waves 2024, Berlin (Germany), June 30 to July 5, 2024 (Plenary Speaker)

2024 Inverse Problems at AMS-UMI, July 22–26, 2024 (Invited Speaker)

2023 Inverse Problems, Imaging and PDE, IAS, HKUST, Hong Kong, December 11–15, 2023 (Invited Speaker)

2023 Spectral and Resonance Problems for Imaging, Seismology and Materials Science, Reims, November 20–24, 2023 (Invited Speaker)

2023 Applied Inverse Problems, Göttingen, September 4–8, 2023

2023 Math + X Symposium on Dynamos, Planetary Exploration and General Relativity, Inverse Problems and Machine Learning, Iceland, May 1–4, 2023 (Invited Speaker)

2023 Rich and Nonlinear Tomography: A Multidisciplinary Approach, Newton Institute, Cambridge, June 19–23, 2023 (Invited Speaker)

2022 Inverse Problems on Large Scales, November 29 – December 3, 2022, Linz, Austria (Invited Speaker)

2022 Inverse Problems in Analysis and Geometry, on the occasion of the 70th birthday of Gunther Uhlmann, August 1–5, 2022, Helsinki, Finland (Plenary Speaker)

2022 Inverse Problems: Modeling and Simulation, Malta, May 22–28, 2022 (Invited Speaker)

2021 Computational and Applied Mathematics Colloquium, PSU, November 2021

2021 International Zoom Inverse Problems Seminar, October 2021

2021 SIMAI Conference, Parma, August 30 – September 3, 2021, invited to minisymposium New Trends in Tomography: From Microscopy to Astronomy

2021 Colloquium Talk at Khalifa University, May 6, 2021

2021 Keynote Lecture, WeSTEM High School Girls' Conference, April 2021, NYU Abu Dhabi

2021 Inverse Problems on Large Scales, December 6–10, 2021, RICAM, Linz (Invited Speaker)

2021 Tomographic Reconstructions and their Startling Applications, Erwin Schrödinger International Institute for Mathematics and Physics, Vienna, March 15–26, 2021 (Invited Speaker)

2021 Statistical Aspects of Non-linear Inverse Problems, BIRS, Banff 2021 (Invited Speaker)

2021 Women in Inverse Problems, BIRS, Banff 2021 (Invited Speaker)

2020 Computational Inverse Problems for Partial Differential Equations, Oberwolfach, December 2020 (Invited Speaker)

2020 Inverse Problems: Modeling and Simulation, Malta, May 24–30, 2020 (Invited Speaker)

2019 Nonlinear Diffusion Problems, Rome, September 11–13, 2019 (Invited Speaker)

2019 Mathematical Modelling and Analysis for Advanced Structural Design, Simulation and Optimization, Pavia, Italy, September 11–13, 2019 (Invited Speaker)

2019 Workshop "Women in Analysis" June 2019 at the Banff International Research Station (BIRS), Canada (Participant)

2019 Applied Inverse Problems, Grenoble, July 8–12, 2019 (Plenary Speaker)

2019 Recent Advances in Phase-Field Modeling: From Engineering to Biology, Pavia, May 8–10, 2019 (Invited Speaker)

2019 Mathematical and Numerical Approaches for Multi-Wave Inverse Problems, April 1–5, 2019, Marseille, France (Plenary Speaker)

2018 Inverse Problems in the Alps II, March 18–23, 2018, Obergurgl, Austria

2018 Special Materials and Complex Systems – SMACS 2018, Gargnano, Italy, June 18–22, 2018

2017 Workshop "Recent Advances in Seismic Modeling and Inversion: From Analysis to Applications", November 2017, ICERM, Brown University

2016 Workshop "Theory and Numerics of Inverse Scattering Problems", September 2016, Oberwolfach, Germany

2016 Workshop Dirichlet-to-Neumann Maps: "Spectral Theory, Inverse Problems and Applications", May 2016, Oaxaca, Mexico

2015 Workshop "Reconstruction, Stability and Applications in Inverse Problems", Institut Henri Poincaré (IHP), Paris, June 29 – July 3, 2015 (Plenary Speaker)

2015 AIP Conference, Helsinki, May 22–26, 2015

2014 AIMS Conference, July 7–11, Madrid

2014 Recent Progress for Mathematical and Numerical Analysis of Inverse Problems, May 2014, Luminy, France (Plenary Speaker)

2013 Applied Inverse Problems, July 2013, Korea (Plenary Speaker)

2012 European Conference on Elliptic and Parabolic Equations, Gaeta

2012 Computational Inverse Problems, April 2012, Vienna

2011 AIMETA 2011 Inverse Problems in Mechanics of Solids and Structures, Keynote Lecture, Bologna

2011 Interfaces and Discontinuities in Solids, Liquids and Crystals, Gargnano, Italy (Plenary Speaker)

2011 Workshop on Multi-Scale and High-Contrast PDE: From Modelling, to Mathematical Analysis, to Inversion, Oxford University

2010 8th AIMS International Conference on Dynamical Systems, Dresden

2010 Inverse Problems and Applications, MSRI, Berkeley

2009 European Conference on Elliptic and Parabolic Equations, Gaeta

2008 ICOP 2008, Cortona (Plenary Speaker)

2008 Workshop on Imaging Microstructures: Mathematical and Computational Challenges, Paris

2007 Applied Inverse Problems, Vancouver

2006 Direct, Inverse and Control Problems, Rome (Plenary Speaker)

2005 IFIP, Torino

2003 Inverse Problems in Wave Scattering and Impedance Tomography, Oberwolfach

2002 AMS-UMI First Joint International Meeting, Pisa

2002 Workshop INdAM Inverse Problems and Applications, Cortona (Plenary Speaker)

Organization of Conferences and Meetings

2024 Co-organizer of two minisymposia at AIMS Conference, December 2024, Abu Dhabi

2023 Co-organizer of "Advances in Applied Mathematics", NYU Abu Dhabi, March 24–25

2022 Organizer of "Inverse Problems in the Desert", NYU Abu Dhabi, December 19–22

2022 Co-organizer of the workshop "PHAME 2022" (PHAse field MEthods in Applied Sciences), INdAM, Rome, May 2022

2020 Organizer of "Women and Mathematics", NYU Abu Dhabi, February 11–12

2019 Organizer with O. Scherzer, U. Ascher, and L. Vese of a Workshop "Reconstruction Methods for Inverse Problems" held in 2019 at the Banff International Research Station (BIRS), Canada

2018 Organizer of a 5-Day Workshop on "Reconstruction Methods for Inverse Problems" at INdAM, Rome (May 28 – June 1, 2018)

2016 Organizer of the minisymposium "Tomographic Reconstruction of Discontinuous Coefficients" at the Conference "Radon 100" in Linz, March 2017

2015 Co-organizer of a minisymposium of the conference "Applied Inverse Problems", May 2015, Helsinki

2014 Co-organizer of a minisymposium of the conference "Inverse Problems from Theory to Applications", August 2014, Bristol

2013 Co-organizer of a Conference in honor of Michael Vogelius, CIRM, Luminy, May 2013

Students

Luca Ratti, Ph.D. student (February 2019, Politecnico di Milano), currently Post-Doc at Malga Center (University of Genova, Italy)

Andrea Aspri, Ph.D. student (January 2017, University La Sapienza, Rome), currently Assistant Professor at University of Milan (Italy)

Matteo Santacesaria, Post-Doc (November 2015 – November 2017, Polimi International Fellowship), currently Tenure Track Assistant Professor at University of Genova, Italy

Several BA and Master Degree students.

Referee Work

Referee for: SIAM J. Math. Anal., SIAM J. Imaging Science, Annali della Scuola Normale Superiore di Pisa, SIAM J. Control Optim., SIAM J. Appl. Math., Comm. PDE, Proc. Amer. Math. Soc., Inverse Problems, Inverse and Ill-Posed Problems, Trans. Amer. Math. Soc., Inverse Problems and Imaging, Journal of European Mathematical Society, Annales de l'Institut Fourier, Applicable Analysis, Asymptotic Analysis, Communications on Pure and Applied Analysis, Interfaces and Free Boundaries, International Journal of Mathematics and Mathematical Sciences, Journal de Mathématiques Pures et Appliquées, Journal of Differential Equations, Journal of Mathematical Analysis and Applications, Mathematical Methods in the Applied Sciences, Mathematical Models and Methods in the Applied Sciences, Zeitschrift für angewandte Mathematik und Physik, Numerische Mathematik, Mathematics of Computation, Proceedings of the Royal Academy A, ESAIM Calculus of Variations and Optimization, Applicable Analysis.

List of Publications

[1] E. Beretta, "Existence and Boundary Behaviour of Solutions to a Class of Non-Linear Parabolic Equations", *Ricerche di Matematica*, vol. 33, 1984, pp. 359–371.

[2] E. Beretta and S. Vessella, "Stability Results for an Inverse Problem in Potential Theory", *Annali di Matematica Pura ed Applicata*, vol. 66, 1990, pp. 381–440.

[3] E. Beretta and S. Vessella, "Some Remarks on an Inverse Problem in Electrocardiology. Uniqueness.", *Applicable Analysis*, vol. 39, 1991, pp. 243–248.

[4] E. Beretta and M. Vogelius, "An Inverse Problem Originating from Magnetohydrodynamics", *Archive for Rational Mechanics and Analysis*, vol. 115, 1991, pp. 137–152.

[5] E. Beretta and M. Vogelius, "An Inverse Problem Originating from Magnetohydrodynamics II. The Case of the Grad-Shafranov Equation", *Indiana University Mathematics Journal*, vol. 41, 1992, pp. 1081–1118.

[6] E. Beretta, E. Fischer, and M. Vogelius, "An Inverse Problem Originating from Magnetohydrodynamics. Some Numerical Experiments.", in *Ill-Posed Problems in Natural Sciences. Proceedings of the International Conference*, Moscow, VSP ed., 1992.

[7] G. Alessandrini, E. Beretta, and S. Vessella, "Determining Cracks by Boundary Measurements. Lipschitz Stability.", *SIAM J. Math. Anal.*, vol. 27, no. 2, 1996, pp. 361–375.

[8] E. Beretta and M. Vogelius, "An Inverse Problem Originating from Magnetohydrodynamics III. Domains with Corners of Arbitrary Angles", *Asymptotic Analysis*, vol. 11, 1995, pp. 1–26.

[9] E. Beretta, M. Bertsch, and R. Dal Passo, "Nonnegative Solutions of a Fourth Order Nonlinear Parabolic Equation", *Archive for Rational Mechanics and Analysis*, vol. 129, 1995, pp. 175–200.

[10] G. Alessandrini, E. Beretta, F. Santosa, and S. Vessella, "Stability in Crack Determination from Electrostatic Measurements at the Boundary. A Numerical Investigation", *Inverse Problems*, vol. 11, 1995, pp. 1065–1101.

[11] E. Beretta, J. Hulshof, and L.A. Peletier, "On an ODE from Forced Coating Flow", *Journal of Differential Equations*, vol. 130, no. 1, 1996, pp. 247–265.

[12] E. Beretta, "Self Similar Source Solutions of a Fourth Order Degenerate Parabolic Equation", *Nonlinear Analysis: Theory, Methods & Applications*, vol. 29, no. 7, 1997, pp. 741–760.

[13] E. Beretta and S. Vessella, "Stable Determination of Boundaries from Cauchy Data", *SIAM J. Math. Anal.*, vol. 30, no. 1, 1998, pp. 220–232.

[14] G.I. Barenblatt, E. Beretta, and M. Bertsch, "The Problem of the Spreading of a Liquid Film Along a Solid Surface: A New Mathematical Model", *Proceedings of the National Academy of Sciences USA*, vol. 94, 1997, pp. 10024–10030.

[15] E. Beretta, A. Mukherjee, and M. Vogelius, "Asymptotic Formulas for Steady State Voltage Potentials in the Presence of Conductivity Imperfections of Small Area", *Zeitschrift für*

Angewandte Mathematik und Physik, vol. 52, no. 4, 2001, pp. 543–572.

[16] G. Alessandrini, E. Beretta, E. Rosset, and S. Vessella, "Inverse Boundary Value Problems with Unknown Boundaries: Optimal Stability", *C. R. Acad. Sci. Paris*, t. 328, Série IIb, 2000, pp. 607–611.

[17] G. Alessandrini, E. Beretta, E. Rosset, and S. Vessella, "Optimal Stability for Inverse Elliptic Boundary Value Problems with Unknown Boundaries", *Annali della Scuola Normale Superiore di Pisa*, Serie IV, vol. 29, no. 4, 2000, pp. 755–806.

[18] E. Beretta and M. Bertsch, "Some Special Solutions to the Thin Film Equation", *Differential and Integral Equations*, vol. 14, no. 11, 2001, pp. 1281–1300.

[19] E. Beretta, E. Francini, and M. Vogelius, "Asymptotic Formulas for Steady State Voltage Potentials in the Presence of Thin Inhomogeneities. A Rigorous Analysis", *Journal de Mathématiques Pures et Appliquées*, vol. 82, 2003, pp. 1277–1301.

[20] E. Beretta and E. Francini, "Asymptotic Formulas for Perturbations of the Electromagnetic Fields in the Presence of Thin Imperfections", in *Contemporary Mathematics*, vol. 333, 2003, pp. 49–63.

[21] H. Ammari, E. Beretta and E. Francini "Reconstruction of thin conducting inhomogeneities from electrostatic measurements" ,*Appl. Anal.* Vol. 83 no. 1 2004 63-76

[22] E. Beretta and S. Vessella "Uniqueness for an inverse Problem Originating from Magnetohydrodynamics. A class of smooth domains", *Proc. Royal Soc. Ed.* 135A, 267-283 2005.

[23] H. Ammari, E. Beretta and E. Francini "Reconstruction of thin conducting inhomogeneities from electrostatic measurements, II. The case of multiple segments" , *Appl. Anal.*, Vol. 85 no. 1-3 2006, 67-85.

[24] E. Beretta and E. Francini "An asymptotic formula for the displacement field in the presence of thin elastic inhomogeneities", *SIAM J. Math. Anal.* Vol. 38 (2006) 1249-1261.

[25] E. Beretta and E. Francini "Thin inclusions in an elastic body", *Matematiche.* Vol. 60 (2006) 385-388.

[26] E. Beretta, E. Francini and S. Vessella "Determination of a linear crack in an elastic body from boundary measurements.Lipschitz stability", *SIAM J. Math. Anal.* 40 (2008) no.3 pp 984-1002.

[27] E. Beretta, A. Gandolfi and C.C.A. Sastri "Mathematics and innovation in engineering", *KEM, Key Engineering Materials*, 2008

[28] H. Ammari, E. Beretta, H. Kang, E. Francini and M. Lim "Optimization algorithm for reconstructing interface changes of a conductivity inclusion from modal measurements", *Math. of Comp. (AMS)*, (79) (2010) no. 271 pp 1757-1777

[29] E. Beretta, Y. Capdeboscq and E. Francini "Thin cylindrical conductivity inclusions in a 3-dimensional domain: Polarization tensor and unique determination from boundary data", *Inverse Problems*, 25 n. 6 (2009)

[30] H. Ammari, E. Beretta, H. Kang, E. Francini and M. Lim "Reconstruction of interface

changes of an elastic inclusion from modal measurements", *Journal de Math. Pures et Appl.* (9) 94 (2010) no.3 322-339

[31] E. Beretta, E. Francini, E. Kim and J.-Y. Lee "Algorithm for the determination of a linear crack in an elastic body from boundary measurements ", *Inverse Problems*, 26 (2010) no. 8

[32] E. Beretta and C. Cavaterra "Identifying a space dependent coefficient in a parabolic equation under an overdetermined integral condition", Inverse Problems and Imaging, Vol. 5 (2011) no.2, 285-296.*Inverse Problems and Imaging*

[33] E. Beretta and E. Francini "Lipschitz stability for the impedance tomography problem. The complex case", *Comm. PDE*, 36 (2011) 1723-1749

[34] E. Beretta, E. Bonnetier, E. Francini and Anna Mazzucato "An asymptotic formula for the displacement field in the presence of small anisotropic elastic inclusions", *Inverse Problems and Imaging* 6, no.1 (2012) 1-23

[35] E. Beretta, E. Francini and S. Vessella " Size estimates for the EIT problem with one measurement: the complex case", *Rev. Matem. Iberoam.* 30 (2014) No. 2

[36] E. Beretta, M. V de Hoop, L. Qiu "Lipschitz stability of an inverse boundary value problem for a Schrödinger type equation", *SIAM J. Math. Anal.*, 45 (2013), no. 2, 679-699

[37] E. Beretta, E. Francini, S. Vessella "Uniqueness and Lipschitz stability for the identification of Lamé parameters from boundary measurements" , *Inverse Problems and Imaging*, 8, (2014),no. 3

[38] E. Beretta, M. Grasmair, M. Muszkieta, O. Scherzer "A variational algorithm for the detection of line segments.", *Inverse Problems and Imaging*, 8, no.2, 389-408 (2013)

[39] E. Beretta, E. Francini, A. Morassi, E. Rosset and S. Vessella " Lipschitz stability for piecewise constant Lamé parameters from boundary data. The case of non flat interfaces." *Inverse Problems* 30 (2014), no. 12, 125005, 18 pp

[40] E. Beretta, M. V. de Hoop, F. Faucher and O. Scherzer "Inverse boundary value problem for the Helmholtz equation: quantitative conditional Lipschitz stability estimates " (2016) *SIAM J. Math. Anal.* vol 48 3962-3983

[41] E. Beretta, M. V. de Hoop, E. Francini , S. Vessella " Lipschitz determination of interfaces in the Helmholtz equation from boundary data." *Comm. PDE* 40, (2015) no 7 13651392

[42] E. Beretta, M. V. de Hoop, E. Francini, S. Vessella, J Zhai " Conditional Lipschitz stability of an inverse boundary value problem for the time harmonic elastic waves." Vol 33 Number 3, (2017) *Inverse Problems*

[43] E. Beretta, M.C. Cerutti, A. Manzoni, D. Pierotti "On a semilinear elliptic boundary value problem arising in cardiac electrophysiology." *M3AS*, 26 (2016) no 4, 645-670

[44] A. Aspri, E. Beretta, C. Mascia " Asymptotic Expansion for Harmonic Functions in the Half-Space with a Pressurized Cavity" *M2AS* Vol 39 no. 10 2415-2430 (2016)

[45] E. Beretta, M. Muszkieta, W. Naeter, O. Scherzer "A variational method for quantitative photoacoustic tomography with piecewise constant coefficients" in chapter of book "Vari-

ational Methods in Image Analysis" by by Maitine Bergounioux, Gabriel Peyr, Christoph Schnorr, Jean-Baptiste Caillau, Thomas Haberkorn, De Gruyter Editor (2016)

[46] E. Beretta, A. Manzoni and L. Ratti "A reconstruction algorithm based on topological gradient for an inverse problem related to a semilinear elliptic boundary value problem" Vol 33 No. 3, (2017) *Inverse Problems*

[47] A. Aspri, E. Beretta and C. Mascia "Analysis of a Mogi-type model describing surface deformations induced by a magma chamber embedded in an elastic half-space" (2016) http://arxiv.org/pdf/1606.06060.pdf, *J. Ec. polytech. Math.* 4 (2017), 223255

[48] E. Beretta, E. Francini and S. Vessella "Differentiability of the Dirichlet to Neumann map under movements of vertices of triangular inclusions" *SIAM J. Math Anal.* 49 No. 2756776 (2017)

[49] E. Beretta, C. Cavaterra, J. Ortega and S. Zamorano "Size estimates of an obstacle in a stationary Stokes fluid" Vol 33 No 2, (2017) *Inverse Problems*

[50] E. Beretta, C. Cavaterra, C. Cerutti, A. Manzoni, L. Ratti "On the inverse problem of locating small dimensions ischemias for the monodomain equation of cardiac electrophysiology: theoretical analysis and numerical reconstruction, *Inverse Problems* 33 (2017) 32pp

[51] E. Beretta, S. Micheletti, S. Perotto, M. Santacesaria, "Reconstruction of a piecewise constant conductivity on a polygonal partition via shape optimization in EIT" *Journal of Comp. Phys.* 353 (2018) 264-280

[52] E. Beretta, L. Ratti, M. Verani "A phase field approach for the interface reconstruction in a nonlinear elliptic problem arising from cardiac electrophysiology" *Comm. Math. Sci.*(2018) 16 no. 7

[53] E. Beretta, E. Francini, S. Vessella "A transmission problem on a polygonal partition: regularity and shape differentiability" *Appl. Anal.* 98 (2019), no. 10, 1862–1874.

[54] [55] A. Aspri, E. Beretta, E. Rosset "On an elastic model arising from volcanology: an analysis of the direct and inverse problem" J. Differential Equations 265 (2018), no. 12, 6400–6423.

[55] A. Aspri, E. Beretta, A. Mazzucato, M. de Hoop "Analysis of a model of elastic dislocations in geophysics" *Arch. Ration. Mech. Anal.* 236 (2020), no. 1, 71–111.

[56] E. Beretta, E. Francini "Lipschitz stability estimates for polygonal conductivity inclusions from boundary measurements" *Appl. Anal.* 101 (2022), no. 10

[57] E. Beretta, C. Cavaterra, L. Ratti "On the determination of small ischemic regions in the monodomain model of cardiac electrophysiology" *Nonlinearity* 33 (2020), no. 11

[58] A. Aspri, E. Beretta, O.Scherzer, M. Muszkieta "Asymptotic expansions for higher order elliptic equations and an application in Quantitative Photoacoustic Tomography" *SIAM J. Imaging Sci.* 13 (2020), no. 4, 1781–1833

[59] Shi, Jia; Beretta, Elena; de Hoop, Maarten V.; Francini, Elisa; Vessella, Sergio "A numerical study of multi-parameter full waveform inversion with iterative regularization using multi-frequency vibroseis data". *Comput. Geosci.* 24 (2020), no. 1, 89–107

[60] A. Aspri, E. Beretta, A. Mazzucato,"Dislocations in a layered elastic medium with applications to fault detection" *J. Eur. Math. Soc.* (JEMS) 25 (2023), no. 3, 1091–1112.

[61] A. Aspri, E. Beretta, A. Gandolfi, E. Wasmer " Mortality containment vs. economics opening: optimal policies in a SEIARD model" *J. Math. Econom.* 93 (2021), 102490, 19 pp.

[62] E. Beretta, C. Cerutti, L. Ratti "Lipschitz stable determination of small conductivity inclusions in a semilinear equation from boundary data", *Math. Eng.* 3 (2021), no. 1, Paper No. 3, 10 pp.

[63] E. Beretta, E. Francini, S. Vessella "Lipschitz stable determination of polygonal conductivity inclusions in a layered medium from the Dirichlet to Neumann map ", *SIAM J. Math. Anal.* 53 (2021), no. 4

[64] Aspri, Andrea; Beretta, Elena; de Hoop, Maarten; Mazzucato, Anna L. Detection of dislocations in a 2D anisotropic elastic medium. *Rend. Mat. Appl.* (7) 42 (2021), no. 3-4, 183–195. 35Q74 (74E10 86A60)

[65] A Gandolfi, A Aspri, E Beretta, K Jamshad, M Jiang "A new threshold reveals the uncertainty about the effect of school opening on diffusion of Covid-19" Feb 22 2022, In: *Scientific Reports* 12, 1, 3012

[66] E. Beretta, M. C. Cerutti, D.Pierotti, "On a nonlinear model in domains with cavities arising from cardiac electrophysiology", *Inverse Problems* 38 (2022), no. 10, Paper No. 105005, 16 pp.

[67] A. Aspri, E. Beretta, E. Francini, S. Vessella " Lipschitz stable determination of polyhedral conductivity inclusions from local boundary measurements" *SIAM J. Math. Anal.* 54 (2022), no. 5, 5182–5222.

[68] A. Aspri, E. Beretta, C. Cavaterra, E. Rocca and M. Verani " Identification of Cavities and Inclusions in Linear Elasticity with a Phase-Field Approach" *Appl. Math. Optim.* 86 (2022), no. 3, Paper No. 32.

[69] E. Beretta, M. C. Cerutti, D.Pierotti, L. Ratti, "On the reconstruction of cavities in a nonlinear model arising from cardiac electrophysiology" *ESAIM: COCV* 29 (2023) 36

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