

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.

PERSONAL INFORMATION

Married, with three daughters

Mother tongue: Italian

Other languages: fluent in English, French and German.

PAST EMPLOYMENT

2013-2021 Associate Professor Politecnico of Milan

1998-2012 Associate Professor Università "La Sapienza", Rome

1996-98 Researcher of the Consiglio Nazionale delle Ricerche (CNR) at the "Istituto di Analisi Globale e Applicazioni", Florence

1992-95 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)

1986-92 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

1993-94 Real Analysis (Engineering Faculty, Università di Tor Vergata, Rome)

1994-95 Real Analysis (Engineering Faculty, Università di Tor Vergata, Rome)

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

2007 PhD Course Mathematics for Economics, Università di Firenze, Florence

2013-14 Analysis 1, Analysis 2 (Engineering Faculty, Politecnico di Milano, Milan)

- 2014-15** Analysis 1, Analysis 2, Mathematical Methods in Engineering (Engineering Faculty), Politecnico di Milano, Milan and Multivariable Calculus, New York University, Abu Dhabi)
- 2016-17** Calculus with Applications, Multivariable Calculus, Linear Algebra, New York University, Abu Dhabi)
- 2017-18** Multivariable Calculus, Mathematical Methods in Engineering, Politecnico of Milan)
- 2018-19** 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

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 in 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

- 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 Goettingen, 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 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 Wien
- 2020** Member of the Committee for the PhD Prize of the "Gesellschaft fuer 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-AD, 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-AD, August 2016-August 2017
- 2016** Visitor at University of Wien June and July 2016

- 2015** Visiting Professor at NYU-AD, August-February 2016
- 2015** Visitor of MIT, Boston, April 2015
- 2013** Participant of the Program "Inverse Problems and Applications", Mittag-Leffler Institut, Sweden
- 2012** Visitor of Ecole Normale Supérieure, June 2012, Paris
- 2012** Visitor of Erwin Schrödinger Institut, April 2012, Wien
- 2012** Visitor of Cornell University, March 2012, USA
- 2010** Research Member at the Mathematical Sciences Research Institute (MSRI), Berkeley, September, November 2010

RECENT INVITED TALKS

- 2023** Inverse Problems, Imaging and PDE IAS, KHUST, Hong Kong Dec. 11-15 2023 (Invited Speaker)
- 2023** Spectral and Resonance Problems for Imaging, Seismology and Materials Science Reims, Nov. 20-24 2023 (Invited Speaker)
- 2023** Applied Inverse Problems, Gottingen, Sept 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, in 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, <https://www.youtube.com/watch?>
- 2021** SIMAI conference, Parma 30 Aug-3 Sept 2021, invited to minisymposium New trends in tomography: From microscopy to astronomy.
- 2021** Colloquium Talk at Khalifa University, 6th of May 2021
- 2021** Keynote Lecture, WeSTEM High School Girls Conference, April 2021 NYUAD

- 2021** Inverse Problems on Large Scales, Dec 6-10, 2021 RICAM, Linz (invited speaker)
- 2021** Tomographic Reconstructions and their Startling Applications, Erwin Schroedinger 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, 11-13 September 2019 (Invited speaker)
- 2019** Workshop "Women in Analysis" June 2019 at the Banff International Research Station (BIRS) Canada (partecipant)
- 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, 1-5 April 2019, Marseille, France (Plenary speaker)
- 2018** Inverse Problems in the Alps II, 18-23 March 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 Oxaca, Mexico
- 2015** Workshop Reconstruction, stability and applications in inverse problems, Institut Henri Poincare (IHP) , Paris, June 29 - July 3, 2015 (Plenary speaker)
- 2015** AIP conference, Helsinki 22-26 May, 2015
- 2014** AIMS Conference, 7-11 July, 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, Wien
- 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

- 2023** Corganizer of ADVANCES IN APPLIED MATHEMATICS, NYUAD, March 24-25
- 2022** Organizer of "Inverse problems in the Desert", NYU Abu Dhabi December 19-22
- 2022** Coorganizer 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" to be 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 (28 May-1June 2018)
- 2016** Organizer of the minisymposium "Tomographic Reconstruction of Discontinuous Coefficients" at the Conference "Radon 100" in Linz, March 2017.
- 2015** Coorganizer of a mini symposium of the conference "Applied Inverse Problems", may 2015, Helsinki.
- 2014** Coorganizer of a mini symposium of the conference "Inverse Problems from Theory to Applications", August 2014, Bristol.
- 2013** Coorganizer of a Conference in honor of Michael Vogelius, CIRM, Luminy, May 2013

STUDENTS

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

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

Matteo Santacesaria Post-Doc (11/2015-11/2017, Polimi International Fellowship) currently Tenure Track Assistant Professor at University of Genova, Italy

Several BA and Master Degree students. (Current students at NYU AD Xinran You, Daniel Farfield)

REFEREE WORK

Referee for: SIAM J. Math Anal., SIAM J. in Imaging Science, Annali della Scuola Normale Superiore di Pisa, SIAM J. Control Opt., 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' Institute Fourier, Applicable Analysis, Asymptotic Analysis, Communications on Pure and Applied Analysis, Interfaces and Free Boundaries, International Journal of Mathematics and Mathematical Sciences, Journal de Mathematiques Pures et Appliquees, 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 fuer angewandte Mathematik und Physik, Numerische Mathematik, Mathematics of Computation.

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, pag. 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, pag. 381-440.
- [3] E. Beretta and S. Vessella ”Some Remarks on an Inverse Problem in Electrocardiology. Uniqueness.”, *Applicable Analysis*, vol. 39, 1991, pag. 243-248.
- [4] E. Beretta and M. Vogelius ”An Inverse Problem Originating from Magnetohydrodynamics”, *Archive for Rational Mechanics and Analysis*, vol. 115, pag 137-152, 1991.
- [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, pag. 1081-1118, 1992.
- [6] E. Beretta, E. Fischer and M. Vogelius ”An Inverse Problem Originating from Magnetohydrodynamics. Some Numerical Experiments.” *Ill-Posed Problems in Natural Sciences. Proceed. 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 pp. 361-375, 1996.
- [8] E. Beretta and M. Vogelius ”An Inverse Problem originating from Magnetohydrodynamics III. Domains with corners of arbitrary angles”, *Asymptotic Analysis* 11 (1995).
- [9] E. Beretta, M. Bertsch and R. Dal Passo ” Nonnegative solutions of a fourth order nonlinear parabolic equation”, *Archive for Rational Mechanics and Analysis* 129 (1995).
- [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* 11 (1995).
- [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”, 29 1997 pp.741-760, *Nonlinear Analysis TMA*.
- [13] E. Beretta and S. Vessella ”Stable determination of boundaries from Cauchy data”, *SIAM Journal of Mathematical Analysis* Vol. 30, no.1, pp 220-232, 1998.
- [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 Science USA* 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*

fuer Angewandte Mathematik und Physick, 52, no. 4, 543-572, 2001.

- [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, Serie II b, p. 607-611, 2000.
- [17] G. Alessandrini, E. Beretta, E. Rosset and S. Vessella "Optimal stability for inverse elliptic boundary value problems with unknown boundaries", Annali Scuola Normale Superiore di Pisa (4), t. 29 no. 4, 755-806, 2000.
- [18] E. Beretta and M. Bertsch "Some special solutions to the thin film equation", Differential Integral Equations, 14, no. 11, 1281-1300, 2001.
- [19] E. Beretta, E. Francini and M. Vogelius "Asymptotic formulas for steady state voltage potentials in the presence of thin inhomogeneities. A rigorous analysis", J. Math. Pures Appl. 82 (2003) 1277-1301
- [20] E. Beretta and E. Francini "Asymptotic formulas for perturbations of the electromagnetic fields in the presence of thin imperfections", Contemporary Mathematics Vol. 333, 2003 49-63.
- [21] E. Beretta and G. Bianchi "Removable singularities for a semilinear elliptic equation", Quaderno del Dipartimento di Matematica, Firenze, 2003
- [22] H. Ammari, E. Beretta and E. Francini "Reconstruction of thin conducting inhomogeneities from electrostatic measurements" ,Appl. Anal. Vol. 83 no. 1 2004 63-76
- [23] 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.
- [24] 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.
- [25] 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.
- [26] E. Beretta and E. Francini "Thin inclusions in an elastic body", Matematiche. Vol. 60 (2006) 385-388.
- [27] 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.
- [28] E. Beretta, A. Gandolfi and C.C.A. Sastri "Mathematics and innovation in engineering", KEM, Key Engineering Materials, 2008
- [29] 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
- [30] 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)
- [31] 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
- [32] 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
- [33] 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*
- [34] E. Beretta and E. Francini ”Lipschitz stability for the impedance tomography problem. The complex case”, *Comm. PDE*, 36 (2011) 1723-1749
- [35] 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
- [36] 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
- [37] 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
- [38] 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
- [39] 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)
- [40] 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
- [41] 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
- [42] 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)

- [43] 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
- [44] 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
- [45] 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)
- [46] E. Beretta, M. Muszkieta, W. Naeter, O. Scherzer "A variational method for quantitative photoacoustic tomography with piecewise constant coefficients" in chapter of book "Variational Methods in Image Analysis" by Maitine Bergounioux, Gabriel Peyr, Christoph Schnorr, Jean-Baptiste Caillau, Thomas Haberkorn, De Gruyter Editor (2016)
- [47] 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
- [48] 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
- [49] 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)
- [50] 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
- [51] 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
- [52] 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
- [53] 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
- [54] E. Beretta, E. Francini, S. Vessella "A transmission problem on a polygonal partition: regularity and shape differentiability" Appl. Anal. 98 (2019), no. 10, 18621874.

- [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, 64006423.
- [56] 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, 71111.
- [57] E. Beretta, E. Francini "Lipschitz stability estimates for polygonal conductivity inclusions from boundary measurements" *Appl. Anal.* 101 (2022), no. 10
- [58] 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
- [59] 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, 17811833
- [60] 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, 89107
- [61] 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, 10911112.
- [62] 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.
- [63] 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.
- [64] 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
- [65] 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, 183195. 35Q74 (74E10 86A60)
- [66] 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
- [67] 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.
- [68] A. Aspri, E. Beretta, E. Francini, S. Vessella " Lipschitz stable determination of poly-

hedral conductivity inclusions from local boundary measurements” SIAM J. Math. Anal. 54 (2022), no. 5, 51825222.

- [69] 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.
- [70] 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