

Luisa Fermo

Curriculum Vitae



General Information

Name,Surname Luisa Fermo
Nationality Italian
Date of birth October 23, 1981
Place of birth Potenza, Italy
Gender Female
Email fermo@unica.it
Home page <http://bugs.unica.it/~luisa/>

Education

Studies

25/03/2009 PhD in Mathematical Methods and Models for Dynamical Systems
University of Basilicata, Potenza
PhD. Dissertation: Weighted Polynomial Approximation and Numerical Treatment of Fredholm Integral Equations
Supervisor: Professor Giuseppe Mastroianni

21/04/2005 Master Degree in Mathematics
University of Basilicata, Potenza
Title of Thesis: Trattamento numerico di alcune classi di Equazioni Integrali su intervalli illimitati
Supervisor: Professor Giuseppe Mastroianni

Experience Abroad

17/09/2007-06/02/2008 Chemnitz University of Technology, Faculty of Mathematics (Germany)
Prof. Peter Junghanns

Summer School

25-29/09/2006 Summerschool on Applied Analysis (Chemnitz University of Technology, Faculty of Mathematics, Germany)
17-21/09/2007
22-26/09/2008

Languages

Italian Native
English ESOL International JETSET LEVEL 5 (B2)

Academic Positions

Current Position

30/11/2019 - present **Associate Professor SSD: 01/A5 Numerical Analysis**

Affiliation University of Cagliari, Department of Mathematics and Computer Science
Via Ospedale 72, 09124 Cagliari

Previous Positions

30/11/2016 - 29/11/2019 **Assistant Professor (Art. 24 c.3 Lett B Legge 240/10, tempo pieno) SSD: 01/A5 Numerical Analysis**

Affiliation University of Cagliari, Department of Mathematics and Computer Science
Viale Luigi Merello 92, 09123 Cagliari

16/04/2012 - 29/11/2016 **Assistant Professor (Art. 24 c.3 Lett A Legge 240/10, tempo pieno) SSD: 01/A5 Numerical Analysis**

Affiliation University of Cagliari, Department of Mathematics and Computer Science
Viale Luigi Merello 92, 09123 Cagliari

1/10/2011-15/04/2012 **Research Fellow**

Research Project "Mathematical Models, Qualitative Analysis and Scientific Computing for Multiscale Complex Biological Phenomena under the action of the immune competition" within the European Project "FP7-HEALTH-2007-A RESOLVE HEALTH-2008-20.20.47 Termination of development processes and their reactivation in adult life"

Affiliation Politecnico di Torino, Department of Mathematics
Corso Duca degli abruzzi 24, 10129 Torino

01/07/2010 - 30/09/2011 **Research Fellow**

Research Project "Mathematical Models, Qualitative Analysis and Scientific Computing for Wound Healing and Fibrosis under the action of the immune competition" within the European Project "FP7-HEALTH-2007-A RESOLVE HEALTH-2008-20.20.47 Termination of development processes and their reactivation in adult life"

Affiliation Politecnico di Torino, Department of Mathematics
Corso Duca degli abruzzi 24, 10129 Torino

08/01/2009 - 30/06/2010 **Research Fellow**

Research Project "Trattamento numerico di equazioni integrali con nuclei fortemente oscillanti su intervalli limitati e non"

Affiliation University of Basilicata, Department of Mathematics and Computer Sciences
Viale dell'Ateneo Lucano 10, 85100 Potenza

Qualifications

- 2017 National Scientific Qualification (ASN - Abilitazione Scientifica Professionale) as Associate Professor of Numerical Analysis
- Validity 28th November 2017 through 28th November 2023
- Report <http://bugs.unica.it/~luisa/pdf/ASN54928>

Scientific Activity

Research Interests

1. Numerical solution of integral equations
2. Numerical solution of nonlinear evolution models of integrable type
3. Inverse problems applied to geophysics
4. Mathematical methods and models for the vehicular traffic
5. Polynomial approximation in Hilbert spaces with weighted metric
6. Functional properties of positive operators

Projects

- 2020 Annual Project INdAM-GNCS 2020 "Approssimazione multivariata ed equazioni funzionali per la modellistica numerica". Role: participant. P.I.: Elisa Francomano.
- 2019 - present Progetto biennale ricerca di base regione Sardegna, annualità 2017 "Algoritmi e modelli per l'Imaging Science (AMIS)". Role: participant. P.I.: Giuseppe Rodriguez.
- 2019 Annual Project INdAM-GNCS 2019 "Discretizzazione di misure, approssimazione di operatori integrali ad applicazioni". Role: participant. P.I.: Donatella Occorsio.
- 2018 Biannual Research Project Fondazione di Sardegna, annualità 2017 "Algorithms for Approximation with Applications [Acube]". Grant: 28k€. Role: principal investigator.
- 2018 Annual Project INdAM-GNCS 2018 "Metodi, algoritmi e applicazioni dell'approssimazione multivariata". Role: participant. P.I.: Alessandra De Rossi.
- 2017 National Grant for Fundamental Research (FFABR). Grant: 3k€.
- 2017 Annual Project INdAM-GNCS 2017 "Metodi numerici non lineari per problemi inversi e applicazioni". Role: participant. P.I.: Claudio Estatico.
- 2017 "Innovative methods for Volterra integral equations" Borsa di studio INdAM, 3 months. Host institution: Instituto Superior Técnico - University of Lisbon. Role: principal investigator.
- 2016 Annual Project INdAM-GNCS 2016 "Inverse problem in geophysics". Role: participant. P.I.: Giuseppe Rodriguez
- 2010-2012 European Project "RESOLVE". Role: fellowship. P.I.: Nicola Bellomo.

Organization of schools

1. "Summer School on Inverse Problems in Cagliari ", 17-21 July 2017, Cagliari
2. "Second Advanced School on Integral Equations and Applications", 18-20 May 2017, Lisbon

Organization of conferences and Conference Sessions

1. "Numerical integration, integral equations and transforms", Special Session within 5th Dolomites Workshop on Constructive Approximation and Applications, 6-10 September, 2021, virtual conference
2. "Recent Advances in Scientific Computation", 27-29 May 2019 Santa Margherita di Pula (Sardinia)
3. "International Workshop on Analysis and Numerical Approximation of Singular Problems" (IWANASP18), 4-6 September 2018 Cagliari
4. "Opening Meeting for the research project GNCS 2016, PING - Inverse problem in geophysics", 6 April 2016 Florence
5. "Due giornate di Matematica Applicata", 16-17 October 2012 Cagliari

Scientific Communications

Invited talk

- 15-21/06/2019 Numerical Computations: Theory and Algorithms, Special stream "Approximation: methods, algorithms and applications", Le Castella, Isola di Capo Rizzuto. Lecture on "Gauss and anti-Gauss quadrature rules applied to integral equations of the second kind".
- 27-29/05/2019 Recent advances in Scientific Computation, Minisymposia "New Trends in Applied Mathematics: a Tribute to Sebastiano Seatzu ", Cagliari. Lecture on " Six years of research with Sebastiano".
- 13-16/09/2016 XIII SIMAI Biannual Congress, Minisymposia "Applications and Numerical Methods for Integral Equations", Milano. Lecture on "A new numerical method for mixed boundary value problems on domains with corners".
- 08-13/09/2016 4th Dolomites Workshop on Constructive Approximation and Applications, Session on "Numerical integration, integral equations and trasform", Alba di Canazei. Lecture on "A numerical method for a Volterra integral equation related to the initial value problem for the KdV equation".
- 22-24/10/2015 Fifth International Workshop on Analysis and Numerical Approximation of Singular Problems, Lagos (Portugal). Lecture on "A Nyström method for mixed boundary value problems on domains with corners".
- 17-20/09/2014 International Conference on Numerical Analysis and Approximation Theory, Cluj-Napoca (Romania). Lecture on "Matrix-pencil method for estimating parameters of monomial-exponential sums".

Conferences

- 6-10/09/2021 5th Dolomites Workshop on Constructive Approximation and Applications, virtual conference. Poster on "A Nyström-type method based on anti-Gauss quadrature rules."
- 20/08-03/09/2021 Congresso Nazionale SIMAI 2018, Parma. Lecture on " Second-kind Volterra integral equations: a Nyström method in weighted spaces of continuous function"
- 16-18/01/2020 Multivariate Approximation: Theory and Applications, Perugia. Lecture on "A numerical method for the generalized Love integral equation."

- 17-19/07/2019 Workshop on numerical solution of integral and differential equations (NSIDE 2019), Danzica, Polonia. Lecture on "A projection method for Volterra integral equations."
- 4-6/09/2018 International Workshop on Analysis and Numerical Approximation of Singular Problems, Cagliari. Lecture on "Sebastiano Seatzu's contribution to the numerical treatment of nonlinear evolution equations."
- 2-6/07/2018 Congresso Nazionale SIMAI 2018, Roma. Lecture on "Recovering the electrical conductivity of the soil via linear integral equations."
- 8-9/02/2018 Due giorni di algebra lineare numerica e Applicazioni, Padova. Lecture on "A numerical method for bisingular Cauchy integral equations."
- 16-17/02/2017 Due giorni di algebra lineare numerica, Como. Lecture on "Numerical methods for Volterra integral equations basic to the solution of the KdV equation."
- 01-04/06/2016 21st International Conference Mathematical Modelling and Analysis, Tartu (Estonia). Lecture on "A numerical method for mixed boundary value problems on domains with corners".
- 06/04/2016 Opening Meeting for the research project Inverse problem in Geophysics, Florence. Lecture on "Identifying a sphere via exponential sums".
- 22/09/2015 Tyrrehanian International Workshop on Digital Communications, Florence. Lecture on "Numerical solution of the direct scattering problem for the nonlinear Schrödinger equation".
- 18-21/06/2015 New Trends in Numerical Analysis: Theory, Methods, Algorithms and Applications, Falerna (Italy). Lecture on "Bound states computation for the nonlinear Schrödinger equation".
- 24-31/05/2015 International Conference on Nonlinear Evolution Equations and Dynamical Systems, Santa Margherita di Pula (Italy). Lecture on "Scattering data computation for the Zakharov-Shabat system".
- 09-10/04/2015 Two days on Applied Mathematics in Cagliari, Cagliari. Lecture on "A numerical method for estimating parameters of monomial-exponential sums".
- 07-10/07/2014 Congresso Nazionale SIMAI 2014, Taormina (Italy). Lecture on "A kinetic approach to traffic flow on road networks".
- 24-25/10/2013 Safety, panic, traffic and crowd dynamics, Bologna. Lecture on "A kinetic model for modeling vehicular traffic along one way roads.
- 12-13/09/2013 International Workshop on Approximation Theory and Applications, Rifreddo (Italy). Poster on "A matrix-pencil method for recovering monomial-exponential sums".
- 02-05/09/2013 VDM60 - Nonlinear Evolution Equations and Linear Algebra, Cagliari. Lecture on "Computation of relevant scattering data in the Zakharov Shabat system".
- 11-12/02/2013 Incontro PRIN, Catania. Lecture on "A fully-discrete-state kinetic theory approach to modeling vehicular traffic".
- 16-17/10/2012 Workshop "Due Giornate di Matematica Applicata", Cagliari. Lecture on "Risoluzione numerica dell'equazione non lineare di Schrödinger".
- 25-28/06/2012 Workshop "Congresso Nazionale SIMAI 2012", Torino. Lecture on "A discrete kinetic theory approach to modeling vehicular traffic".
- 16-17/02/2012 Workshop "Due Giorni di Algebra Lineare Numerica", Genova. Lecture on "Un metodo numerico per il problema di Dirichlet su domini con frontiera a tratti regolari".

- 29-30/10/2009 Workshop “ Integral Equations: recent numerical developments and new applications”, Parma. Lecture on “On a regularizing parameter of some integral equations”.
- 5-10/10/2009 Workshop on Advances and Trends in Integral Equations, Chemnitz (Germany). Lecture on “A discussion on the regularizing parameter of some integral equations”.
- 24-30/09/2009 6th International Conference on Functional Analysis and Approximation Theory, Acquafredda di Maratea (Italy). Lecture on “ The Shepard operator on the real semiaxis”.
- 23/04/2009 Workshop del Dottorato di Ricerca Internazionale in Matematica “ János Bolyai”, Potenza. Lecture on “Un metodo di Nyström per le Equazioni di Fredholm con nucleo e/o termine noto singolare”.
- 25-29/08/2008 International Conference Approximation and Computation, Nis (Serbia). Lecture on “A Nyström type method for Integral Equations”.
- 06-12/07/2007 Conference on Approximation Theory, Budapest. Lecture on “On a positive linear operator”.
- 07-11/11/2007 VIII International Meeting on Approximation Theory of the University of Jaén, Ubeda (Spain). Lecture on “Some embedding theorems”.
- 27-28/09/2007 Equazioni integrali: recenti sviluppi numerici e nuove applicazioni, Parma. Lecture on “Equazioni integrali con nucleo e/o termine noto singolari”.

Visits

- 01-18/03/2020 Scientific visit at Instituto Superior Tecnico (Prof. Teresa Diogo and Pedro Lima)
- 01/09/2019-09/09/2019 Scientific visit at Chemnitz Univeristy of Technology (Prof. Peter Junghanns)
- 01/03/2017-01/06/2017 Scientific visit at Instituto Superior Tecnico (Prof. Teresa Diogo and Pedro Lima)
- 18-23/06/2018 Scientific visit at Instituto Superior Tecnico (Prof. Teresa Diogo and Pedro Lima)
- 27/1-2/2/2013, Politecnico di Torino (Prof. Nicola Bellomo)
2-7/2/2014
- 19-23/11/2011, CNR-IAC “Mauro Picone”, Rome (Prof. Andrea Tosin)
16-20/07/2012
- 8-9/11/2010 Resolve European Project Meeting, Vienna
- 27-28/03/2012
- 8-9/10/2010 Scientific visit at Medical University of Vienna (Doctor David Lumenta)

Editorial Activity

- Guest editor for Special issue of Applied Numerical Mathematics dedicated to the papers presented at the conference IWANASP18

Referee Activity

- Referee for Applied Mathematics and Computation • Applied Numerical Mathematics • Computers and Mathematics with Applications • Mathematical Models and Methods in Applied Sciences • Mathematics and Computer in Simulations • Journal of Computational and Applied Mathematics

Participation National Groups

- 2020-present Member of Unione Matematica Italiana (UMI) and member of Gruppo UMI “Teoria dell’Approssimazione e Applicazioni (TAA)

- 2017-present Member of Research Italian network on Approximation (RITA)
- 2014-present Member of INdAM-GNCS (National Group for Scientific Computing of the National Institute for Advanced Mathematics, Italy)
- 2011-present Member of SIMAI (Società Italiana di Matematica Applicata e Industriale) and member of "SIMAI Activity Group on Numerical Modeling and Scientific Computing"
- 2011-2013 Member of INdAM-GNFM (National Group for Mathematical Physics of the National Institute for Advanced Mathematics, Italy)
- 2008-2010 Member of INdAM-GNCS (National Group for Scientific Computing of the National Institute for Advanced Mathematics, Italy)

Theses Direction Experience

- 2018/2019 Licia Doderò, **MSc Land Environmental Engineering** (co-supervised with Italo Meloni).
- 2017/2018 Alessandra Di Berardino, **MSc Mathematics** (co-supervised with Giuseppe Rodriguez). Thesis: "Metodi di quadratura numerica con applicazioni ad equazioni integrali di secondo tipo".
- 2013/2014-2016/2017 Patrizia Diaz de Alba, **PhD Student** (co-supervised with Giuseppe Rodriguez). Thesis: Numerical treatment for inverse problems in applied Geophysics.
- 2014/2015 Alessio Pani, **BSc Electronic and Electronical Engineering** (co-supervised with Giuseppe Rodriguez). Thesis: "Identificazione dei parametri elettromagnetici di un ordigno inesplosivo sepolto".

Students

- 07/11/2018-7/05/2019 Patrizia Diaz de Alba
Post-doc, University of Cagliari, Italy
Research topic: numerical treatment of integral equations related to applied Geophysics
- 01/09/2017-28/10/2017 Giada Serafini
PhD student, University of Basilicata, Italy
Research topic: numerical treatment of bisingular integral equation of Cauchy type

Institutional Appointments

- 2021-present Member of Consiglio di Facoltà di Ingegneria e Architettura dell'Università di Cagliari
- 2021-present Member of Giunta del Dipartimento di Matematica e Informatica dell'Università di Cagliari
- 03-07/2021 Outside member of a search committee for the recruitment of an assistant professor (RTD A) at University of Turin for the scientific sector 01/A5 - Numerical Analysis
- 06-07/2021 Member of a search committee for the recruitment of an assistant professor (RTD B) at University of Cagliari for the scientific sector 01/A5 - Numerical Analysis
- 2012/2013-present Member of the recruitment committee of tutors for the BSc course in "Applied Mathematics"

- 2020-present Member of "Commissione di Autovalutazione, CAV", Biomedical Engineering, University of Cagliari, Italy
- 2020-present Member of "Commissione Gestione fondi tasse studenti", Biomedical Engineering, University of Cagliari, Italy
- 2017/2018-2020 Member of "Commissione Paritetica docenti-studenti", Biomedical Engineering, University of Cagliari, Italy
- 2017/2018-present Member of various BSc and MSc thesis committees at University of Cagliari, Italy
- 2017/2018-present Member of PhD Program Committee in Mathematics and Computer Science, University of Cagliari, Italy
- 17/07/2018 Member of the PhD thesis committee of Giancarlo Nino (GSSI, L'Aquila). Thesis: Laplace Transform methods based on pseudospectral roaming for convection-diffusion equations (advisor: prof. Nicola Guglielmi, GSSI; co-advisor Lopez-Fernandez Maria, GSSI)
- Decreto di nomina http://bugs.unica.it/~luisa/pdf/DR_105_2108
- 10/2016 Member of "Commissione istruttoria per la modifica dell'offerta formativa dei corsi di studio in Ingegneria", University of Cagliari, Italy

Teaching

Holder of PhD Course

- 2014/2015 **Applicable Approximation Theory** - 20 hours - (University of Cagliari, Italy)
- 02-06/09/2019 **Gaussian and anti-Gaussian rules and applications** - 8 hours - (Chemnitz University of Technology)

Holder of BSc Courses, MSc Courses and Master Course

- 2020/2021-present **Metodi Numerici per l'Ingegneria** - 20 hours - (Bachelor's degree, Biomedical Engineering, University of Cagliari, Cagliari, Italy)
- 2019/2020-present **Calcolo Numerico: metodi, modelli e algoritmi** - 60 hours - (Master's degree Land Environmental and Mechanical Engineering, University of Cagliari, Cagliari, Italy)
- 2012/2013 - present **Matematica Applicata** - 60 hours - (Bachelor's degree, Biomedical Engineering, University of Cagliari, Cagliari, Italy)
- 2016/2017 - present **Matematica Applicata** - 60 hours - (Bachelor's degree Chemical Engineering, University of Cagliari, Cagliari, Italy)
- 2015/2016-present **Metodi numerici della teoria dell'approssimazione** - reading course - (Bachelor's degree and Master's degree, Mathematics, University of Cagliari, Cagliari, Italy)
- 2018/2019 **Calcolo Scientifico e Metodi Numerici** - 48 hours - (Bachelor's degree, Computer Science, University of Cagliari, Cagliari, Italy)
- 2016/2017 - 2017/2018 **Matematica Applicata** - 60 hours - (Bachelor's degree Mechanical Engineering, University of Cagliari, Cagliari, Italy)
- 2011/2012 **Sistemi Complessi** - 12 hours - (Second Level Master, Politecnico di Torino, Torino, Italy)

Teaching assistant of BSc Courses, MSc Courses

- 2011/2012 **Calcolo Numerico** - 40 hours - (Bachelor's degree, Politecnico di Torino, Torino)
Equazioni della Fisica Matematica - 12 hours - (Bachelor's degree, Mathematical Engineering, Politecnico di Torino, Torino, Italy)
Istituzioni di Matematica - 11 hours - (Bachelor's degree, Architecture, Politecnico di Torino, Torino, Italy)
- 2010/2011 **Equazioni della Fisica Matematica** - 20 hours - (Master course, Mathematical Engineering, Politecnico di Torino, Torino, Italy)
Fisica Matematica - 4 hours - (Bachelor's degree, Informatic Engineering, Politecnico di Torino, Torino, Italy)

Thematic Seminar Cycles

- 2016/2017 **Research Seminar on Numerical Analysis**, Instituto Superior Técnico - University of Lisbon, Portugal
Seminar on "A numerical approach for partial differential equations of integrable type" (26/04/2017)
- 2016/2017 **Research Seminar on Numerical Analysis**, University of Coimbra, Portugal
Seminar on "Volterra integral equations for partial differential equations of integrable type" (7/04/2017)
- 2013/2014 **Advanced Seminar on Applied Mathematics** (PhD Course), University of Cagliari, Italy
Series of 2 seminars on "Quadrature formula and integral equations" (03-04/04/2014)
- 2012/2013 **Seminar on Mathematics**, University of Cagliari, Italy
Seminar on "A mathematical model for the vehicular traffic" (27/11/2012)
- 2011/2012 **Complex systems in Engineering Sciences** (PhD Course), Politecnico di Torino, Italy
Seminar on "A kinetic mathematical model for vehicular traffic" (27/11/2011)
- 2008/2009 **Research Seminar on Numerical Analysis**, University of Basilicata, Italy
Series of 4 seminars on "Embedding Theorems in Weighted Functional Spaces" (9/03/2009), "Numerical Treatment of Fredholm Integral Equations with singular given functions" (12/03/2009), "The Fourier transform applied to Carleman's equation" (11/06/2009), "On some positive operators" (18/06/2009)
- 2006/2007 **Seminar on Nonlinear Functional Analysis** (PhD Course), Chemnitz University of Technology, Germany
Series of 2 seminars on "The surjective implicit function theorem and the rank theorem" (8/01/2008) and "The Sard-Smale Theorem" (15/01/2008)
Research Seminar Analysis (PhD Course), Chemnitz University of Technology, Germany
Seminar on "Numerical Treatment of Fredholm integral equations with singular right-hand side and/or kernels" (27/11/2007)
Research Seminar on Numerical Analysis, University of Basilicata, Italy
Series of 2 seminars on "The Jackson theorem on the real axis" (18/10/2007) and "The Fredholm method for the Dirichlet problem" (11/09/2007)

2005/2006 **Research Seminar on Numerical Analysis**, University of Basilicata, Italy
Series of 2 seminars on “The Fourier sums” (19/09/2006) and “The Marcinkiewicz inequalities and their applications” (18/10/2006)

Publications

Papers

- [1] L. Fermo and C. van der Mee, “Volterra integral equations with highly oscillatory kernels: a new numerical method with applications,” *Electronic Transactions on Numerical Analysis (ETNA)*, vol. 54, pp. 333–354, 2021.
- [2] L. Fermo, M. Russo, and G. Serafini, “A numerical method for the generalized Love integral equation in 2D,” *Dolomites Research Notes on Approximation*, vol. 14, pp. 46–57, 2021.
- [3] L. Fermo and D. Occorsio, “A projection method with smoothing transformation for second kind volterra integral equations,” *Dolomites Research Notes on Approximation*, vol. 14, pp. 12–26, 2021.
- [4] L. Fermo, M. Russo, and G. Serafini, “Numerical treatment of the generalized Love integral equation,” *Numerical Algorithms*, vol. 86, no. 4, pp. 1769–1789, 2021.
- [5] P. Díaz de Alba, L. Fermo, and G. Rodriguez, “Solution of second kind fredholm integral equations by means of gauss and anti-gauss quadrature rules,” *Numerische Mathematik*, vol. 146, pp. 699–728, 2020.
- [6] L. Fermo and C. Laurita, “A Nyström method for mixed boundary value problems in domains with corners,” *Applied Numerical Mathematics*, vol. 149, pp. 65–82, 2020.
- [7] L. Fermo, C. van der Mee, and S. Seatzu, “A numerical method to compute the scattering solution for the Kdv equation,” *Applied Numerical Mathematics*, vol. 149, pp. 3–16, 2020.
- [8] G. Albi, N. Bellomo, L. Fermo, S. Ha, J. Kim, L. Pareschi, L. Poyato, and J. Soler, “Vehicular traffic, crowds, and swarms. From kinetic theory and multiscale methods to applications and research perspectives,” *Mathematical Models and Methods in Applied Sciences*, vol. 29, pp. 1901–2005, 2019.
- [9] P. Díaz de Alba, L. Fermo, C. van der Mee, and G. Rodriguez, “Recovering the electrical conductivity of the soil via a linear integral model,” *Journal of Computational and Applied Mathematics*, vol. 352, pp. 132–145, 2019.
- [10] L. Fermo, M. Russo, and G. Serafini, “Numerical methods for Cauchy bisingular integral equations of the first kind on the square,” *Journal of Scientific Computing*, vol. 79, pp. 103–127, 2019.
- [11] L. Fermo, C. Van der Mee, and S. Seatzu, “Scattering data computation for the Zakharov-Shabat system with nonsmooth potentials,” *Applied Numerical Mathematics*, vol. 116, pp. 195–203, 2017.
- [12] L. Fermo, C. Van der Mee, and S. Seatzu, “Scattering data computation for the Zakharov-Shabat system,” *Calcolo*, vol. 53, pp. 487–520, 2016.
- [13] L. Fermo, C. Van der Mee, and S. Seatzu, “Parameter estimation of monomial-exponential sums in one and two variables,” *Applied Mathematics and Computation*, vol. 258, pp. 576–586, 2015.
- [14] L. Fermo and C. Laurita, “On the numerical solution of a boundary integral equation for the exterior Neumann problem on domains with corners,” *Applied Numerical Mathematics*, vol. 94, pp. 179–200, 2015.
- [15] L. Fermo and A. Tosin, “A fully-discrete-state kinetic theory approach to traffic flow on road networks,” *Mathematical Models and Methods in Applied Sciences*, vol. 25(3), pp. 423–461, 2015.

- [16] L. Fermo and C. Laurita, "A Nyström method for the numerical solution of a boundary integral equation related to the Dirichlet problem on domains with corners," *Numerische Mathematik*, vol. 130(1), pp. 35–71, 2015.
- [17] L. Fermo, C. Van der Mee, and S. Seatzu, "Parameter estimation of monomial-exponential sums," *Electronic Transactions on Numerical Analysis (ETNA)*, vol. 41, pp. 249–261, 2014.
- [18] L. Fermo, C. Van der Mee, and S. Seatzu, "Emerging problems in approximation theory for the numerical solution of the nonlinear Schrödinger equation," *Publication de l'Institut Mathématique*, vol. 96, pp. 125–141, 2014.
- [19] L. Fermo and A. Tosin, "Fundamental diagrams for kinetic equations of traffic flow," *Discrete and Continuous Dynamical Systems Series S*, vol. 7(3), pp. 449–462, 2014.
- [20] L. Fermo and A. Tosin, "A fully-discrete-state kinetic theory approach to modeling vehicular traffic," *SIAM, Journal on Applied Mathematics*, vol. 73, pp. 1533–1556, 2013.
- [21] N. Bellomo, A. Carloni, V. Poletti, L. Fermo, and M. Chilosi, "Heterogeneous distribution of mechanical stress in human lung: a mathematical approach to evaluate abnormal remodeling in IPF," *Journal of Theoretical Biology*, vol. 332, pp. 136–140, 2013.
- [22] A. Bellouquid, E. De Angelis, and L. Fermo, "Towards the modeling of vehicular traffic as a complex system: a kinetic approach," *Mathematical Models and Methods in Applied Sciences*, vol. 22, p. 1140003, 2012.
- [23] L. Arlotti, E. De Angelis, L. Fermo, M. Lachowicz, and N. Bellomo, "On a class of integro-differential equations modeling complex systems with nonlinear interactions," *Applied Mathematics Letters*, vol. 25, pp. 490–495, 2012.
- [24] V. Coscia, L. Fermo, and N. Bellomo, "On the mathematical theory of living systems ii: The interplay between mathematics and system biology," *Computer and Mathematics with Applications*, vol. 62, pp. 3902–3911, 2011.
- [25] L. Fermo, N. Bellomo, and D. Lumenta, "Assessment of surgical strategies for addressing keloids: an optimization problem," *Computer and Mathematics with Applications*, vol. 62, pp. 2417–2423, 2011.
- [26] C. Bianca and L. Fermo, "Bifurcation diagrams for the moments of a kinetic type model of keloid-immune system competition," *Computer and Mathematics with Applications*, vol. 61, pp. 277–288, 2011.
- [27] L. Fermo, "A quadrature method for Cauchy Singular integral equations with singular given functions," *Rivista di Matematica della Università di Parma*, vol. 2, pp. 99–123, 2011.
- [28] L. Fermo, "A regularizing parameter for some Fredholm integral equations," *Computational Methods in Applied Mathematics*, vol. 10, pp. 177–194, 2010.
- [29] L. Fermo, "Weighted convergence of some positive linear operators on the real semiaxis," *Studia Univers. "Babes-Bolyai", Mathematica*, vol. LV, pp. 219–242, 2010.
- [30] L. Fermo and M. G. Russo, "Numerical Methods for Fredholm integral equations with singular right-hand sides," *Advances in Computational Mathematics*, vol. 33, pp. 305–330, 2010.
- [31] L. Fermo and M. G. Russo, "A Nyström method for Fredholm integral equations with right-hand sides having isolated singularities," *Calcolo*, vol. 46, pp. 61–93, 2009.
- [32] L. Fermo, "A Nyström method for a Class of Fredholm integral equations of the third kind on unbounded domains," *Applied Numerical Mathematics*, vol. 59, pp. 2970–2989, 2009.
- [33] L. Fermo, "Embedding Theorems for functions with inner singularities," *Acta Scientiarum Mathematicarum (Szeged)*, vol. 75, pp. 547–573, 2009.

Proceedings

- [1] P. Diaz de Alba, L. Fermo, F. Pes, and G. Rodriguez, "Minimal-norm solution of an overdetermined system of first kind integral equations: algorithms and applications," *Proceedings of*

the International Conference on Computational Science and its Applications (ICCSA), Cagliari, September 2021, p. in press, 2021.

- [2] G. P. Deidda, P. Diaz de Alba, L. Fermo, and G. Rodriguez, "Time domain electromagnetic response of a conductive and magnetic permeable sphere via exponential sums," *Proceedings of the International Conference on Computational Science and its Applications (ICCSA), Cagliari, September 2021, p. in press, 2021.*
- [3] L. Fermo, C. Van der Mee, and S. Seatzu, "Numerical solution of the direct scattering problem for the nonlinear Schrödinger equation," *IEEE Xplore Tyrrhenian International Workshop on Digital Communications*, pp. 6–9, 2015.
- [4] L. Fermo, "On a positive linear operator on the semiaxis," *Rendiconti del Circolo Matematico di Palermo*, vol. Serie II Suppl. 82, pp. 315–343, 2010.

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In fede

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