

**Maria Rosaria Lancia**  
Curriculum Vitae

- Full Name: Maria Rosaria Lancia

**Education:**

1988 Laurea in Mathematics 110/110 Magna cum laude, University of Rome La Sapienza.

1993, Ph.D. in Applied and Theoretical Mechanics, University of Rome La Sapienza.

**Fellowships:**

C.I.R.A. (Italian Center for aerospace research) fellowship 1987.

C.N.R.(National Research Council) fellowship 1989.

**Accademic positions:**

November 1991 -October 2005, Ricercatore (Research associate) ( Mathematical Analysis),  
Facoltà d'Ingegneria, University of Rome La Sapienza .

November 2005- present, Associate Professor in Mathematical Analysis, Facoltà d'Ingegneria,  
University of Rome La Sapienza .

Maternity leave: 14-07-99 to 15-11-99, D.R. n.880, 20-12-99 and 30-7-06 to 30-12-06 D.R.  
n.8027, 06-02-09.

**Main Academic Appointments:**

September 2019-present Qualified for the position of Full Professor in Mathematical Analysis.

March 2019 SEAL of EXCELLENCE for MSCA-IF 2018 ( Marie Skłodowska-Curie Individual Fellowships) supervisor of the research project "Boundary conditions on smooth and fractal surfaces" ( candidate dr.ssa Sorgentone).

October 2021-present Supervisor of the research project "Optimal shapes for energy harvesting", in the framework of PON RTDA-researcher positions funded by Sapienza, MAT/05.

**Main Academic Commitments:**

June 2022-present delegate of the Faculty to take part to CESEAR (Conference of European Schools for Advanced Engineering Education and Research) for the task force learning and teaching.

June 2020 Porte Aperte alla Sapienza, Digital edition 2020, orientation for incoming students in Civil Engineering.

November-March 2019 co-Responsible for P.O.T.( Project Orienting and Tutoring) M.I.U.R.-Sapienza.

December 2019-present Responsible for DSA and disabled students Faculty of Civil engineering, Sapienza University of Rome.

2017-2022 Coordinator of "Osservatorio per la didattica per il C.D.A. di ingegneria civile".  
2022-present Coordinator of "Osservatorio per la didattica per il C.D.A. di ingegneria Ambientale".

2015-2022 Member of the "commissione didattica" for Civil Engineering.

2022-present Member of the "commissione didattica" for Environment Engineering.

2015-present member of the committee for the selection for temporary positions as researcher assistant and tutors (supplenze, codocenze, tutoraggi).

2015 President of the committee for admission test (TOLC-TIP) to the Faculty of civil and industrial engineering, Sapienza University of Rome.

2016-2022 Member of Giunta di dipartimento Sbai.

2016-2022 Member of Giunta di facoltà, Faculty of Civil and industrial engineering, Sapienza University of Rome.

2016 President of the committee for admission test (TOLC-TIP) to the Faculty of Civil and industrial engineering, Sapienza University of Rome.

2017 President of the committee for admission test (TOLC) to the Faculty of engineering, Sapienza University of Rome.

2012-present Member of the academic board of the PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences, Sbai,Sapienza University of Rome.

2012- 2022 Member of the committee for the admission to the PhD in Mathematics for Engineering, Electromagnetism and Nanosciences.

### **Third Mission:**

2023-2024 P.I. for PCTO "Verso il test d'ingegneria", Department S.B.A.I.

2024-2025 Progetto strategico di facoltà ICI: Citizen science come strumento di potenziamento e rigenerazione urbana. Sperimentazioni e "conoscenza applicata" per accrescere la resilienza e il benessere dei cittadini; inclusione e pratiche sociali.

2020 GRANT Sapienza : member of the project " The beauty of mathematics", Department S.B.A.I.

### **Orientation days for incoming students at the school of Civil and Industrial Engineering, Sapienza University of Rome:**

2019 December, Meeting with high school students, Liceo Azzarita.

2019 February, Meeting with high school students, Liceo Azzarita, Liceo Mameli.

2019 February, Meeting with high school students, Liceo Farnesina.

2021 February, onlinemeeting with high school students, Liceo Azzarita.

2023 February, Meeting with high school students, Liceo Azzarita, Liceo Mameli.

2023 December, Meeting with high school students, Licei e ITTS di Monte Fiascone.

### **Research Interests:**

- Dirichlet forms and fractals, functional spaces on d-sets, fractals, non linear energy forms on unbounded self-similar fractal sets.
- Local and nonlocal (in space and/or time)/ autonomous and nonautonomous boundary value problems in domains with boundary and/or interface of fractal type: linear and quasilinear operators possibly with dynamical boundary conditions.
- Vector Analysis on Fractafolds.
- Fractal Homogenization, constructive approximation of BVPs in irregular domains
- Inverse problems
- Numerical approximation of BVP's in prefractal domains.
- Subelliptic operators of Hoermander type.
- BVPs in domains with edges and singularities: boundary integral formulations for problems in fluidodynamics.
- Linear and non linear elasticity.

**Professional Societies/ Memberships:**

COST ACTION CA18232, WG4, Variational methods on graphs and networks.

UMI (Italian Mathematical Union).

SIMAI (Italian Society of industrial Applied mathematics).

GNAMPA (National Group of Mathematical Analysis, Propability and its applications).

### **Research Evaluation Activity:**

Reviewer of AMS (American Mathematical Society).

Reviewer of many international journals, among which J. of Computational physics, Physica D, Applicable Analysis, Mathematical Methods in the Applied Sciences, NORWA, ZAMM, DCDS series -B, JFA, DCDS-S, J. Elasticity.

Referee for the Italian VQR 2004-2010, VQR 2014-2019 Panel GEV 01.

Referee FIRB (M.I.U.R) Futuro in ricerca 2012, Referee FIRB (M.I.U.R) Futuro in ricerca 2010.

Referee: Research project Action B, Parma, 2023.

Referee: Talent research Politecnico di Torino June 2015.

Referee for FILAS (now denominated Lazio Innova).

2012-present, member of REPRISE: Register of expert Peer Reviewers for Italian Scientific Evaluation, M.I.U.R.

### **Editorial Boards:**

2017-2020 Journal of Applied Mathematics and Computation, Hill Publishing group.

2018-present Hill Publishing Group; Fractal and Fractional, MDPI.

2022-2024 Hill Publishing Group, Sci, MDPI.

### **Memberships of Research Projects/Activities:**

#### **Grants as P.I.:**

P.I. Sapienza 2023 Irregularity in pure and applied Mathematics, Science and Engineering.

GNAMPA 2022 P.I. : Anomalous diffusion and its applications to fractal dynamics, physics and mathematical finance.

P.I. Sapienza 2020: Fractal analysis between theory and applications.

2020 Sapienza, grant for a visiting professor (Prof.A. Teplyaev).

P.I Sapienza 2019: A constructive approach to some problems of analysis on fractals and on irregular structures.

March 2019, SEAL of EXCELLENCE for MSCA-IF 2018 ( Marie Skłodowska-Curie Individual Fellowships) supervisor of the research project "Boundary conditions on smooth and fractal surfaces" ( candidate dr.ssa Sorgentone).

P.I Sapienza 2018: Vector Boundary Value Problems on fractafolds.

P.I. Sapienza 2017: Boundary Value Problems with Integrodifferential Terms on Fractafolds.

P.I. of Progetti di Ricerca di Università' 2014 : Fractal structures and Fluids.

P.I. Progetti di Ricerca di Università' 2013 : Diffusion phenomena across fractal structures.

2013 GNAMPA: grant for visiting professors (Prof. U.Mosco W.P.I. USA).

2009 P.I. Progetto di Ateneo Federato: Transmission phenomena across fractal structures.

2008 P.I. of Progetto di Ateneo Federato: Heat diffusion on fractal domains.

1997 P.I. 60% Sapienza, "Metodi e Modelli matematici per lo studio di alcuni problemi provenienti dalle scienze applicate."

#### **Memberships Research projects:**

2023-present UMI-CLIMATH , "Modellistica matematica per lo studio del clima , del cambiamento climatico e dei suoi impatti.

2023-present MISE-Airone Gruppo Lauro member of the unit: optimal shapes.

2022-present PRIN: Anomalous Phenomena on regular and irregular domains, approximating complexity for the applied sciences.

2019-2024 COST ACTION CA18232 (European Cooperation in Science and technology), WG4, Variational methods on graphs and networks.

1991- 2008: Ricerche di Facoltà, 2000-2008, 2015: Dynamical fractals and applications.

Sottoprogetto "Modelli Matematici per le applicazioni industriali e tecnologiche nell'ambito del progetto speciale "Matematica Applicata e Industriale" del CNR.

Gruppo di ricerca metodi variazionali e strutture discontinue.

COFIN 1998 " Strutture non euclidee: Forme di Dirichlet e frattali", Coordinatore U.Mosco.

COFIN 2003 "Problemi differenziali non lineari, algoritmi, analisi ed applicazioni", coordinatore A.Quarteroni.

COFIN 2005 "Modelli Matematici per la scienza dei materiali", coordinatore A. Di Carlo.

COFIN 2008 "La sicurezza e il potenziamento nelle reti elettriche di trasmissione e sub-trasmissione", coordinatore La Scala.

Ricerche di Ateneo 2001,2002,2003,2004 " Frontiere Frattali e irregolari" coordinatore, U.Mosco.

Ricerche di Ateneo 2005,2006,2007 "Modelli matematici per strutture irregolari", coordinatore M.A.Vivaldi.

progetto INDAM 2003, "Fisica su varieta' frastagliate" coordinatore A. Di Carlo.

progetto INDAM 2004, "Problemi della fisica del continuo su domini irregolari", coordinatore M.De Giovanni.

progetto INDAM 2005, " Strutture non regolari nella fisica del continuo", coordinatore A.Mazzocchi.

Progetto GNAMPA 2017, "Problemi di Venttsel in domini frattali", coordinatore P.Vernole. 14-03-2017- 2019.

### **International Agreements**

2015-2020 Responsible of the International agreement between Sapienza and W.P.I. (USA) for research activities on fractal fibers and homogenization. ( Umberto Mosco, Bogdan Vernuscu)(under renewal).

2018-2021 Responsible of International agreement between Sapienza and Steklov Mathematical Institute of Russian Academy of Sciences for research activities on PDEs in non regular domains. (Alexander Nazarov).

### **Memberships of International Academic Boards and PhD Evaluation Committees:**

2012-present, member of the academic board of the PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences.

November 2020, member of the academic board for the "Habilitation à diriger les recherches (HDR)", Université Paris-Saclay, candidate Anna Rozanova Pierrat, thesis "Wave propagation and fractal boundary problems: mathematical analysis and applications".

April 2013, member of the evaluation board for the PhD thesis in Mathematics, Worcester Polytechnic Institute candidate:Haodong Liang Worcester Polytechnic Institute (WPI) (MA.U.S.A.), thesis "Fractal interfaces and heat transmission problems", and then for the DEFENSE.

April 2011, member of the evaluation board for the PhD thesis in Mathematics, Worcester Polytechnic Institute candidate:Emily Evans Worcester Polytechnic Institute (WPI) (MA.U.S.A.) December 9 2010, thesis " Extension Operators and Finite Elements for Fractal Boundary Value Problems" and for the Defense April 2011.

**PhD Thesis (advisor)- Postdoc (assegnisti) tutor:**

2023-present: Advisor ISMAIL LABAALI, "Boundary integral formulations for Fractal domains," Ph.D in Mathematical models for engineering, electromagnetism and nanosciences, Sapienza University of Rome XXXVIII cycle.

2022 February -June, advisor: JAVIER RODRIGUEZ CUDRADO, PhD student Technical University of Madrid.

2020-2021 Postdoc tutor SAPIEXCELLENCE, CHIARA SORGENTONE;

2020-2021 June Postdoc tutor, SIMONE CREO;

2021 July-December Postdoc tutor, SIMONE CREO;

2019-2020 Postdoc tutor, SIMONE CREO;

2015-2018, advisor: SIMONE CREO, "Local and nonlocal Venttsel problem in fractal domains", XXX cycle, Ph.D in Mathematical models for engineering, electromagnetism and nanosciences, Sapienza University of Rome.

2011-2014, advisor: V.REGIS DURANTE, "Asymptotics for 3D Venttsel problems in fractal domains", XXVII cycle, Phd in Mathematics, University of Rome 3.

**Teaching Activities:**

As associate Professor:

- 2005-2006 Analisi Matematica I e II, 12 CFU degree in Civil Engineering.
- 2006-2007 Analisi II, 6 CFU degree in Civil Engineering (Maternity leave for Analisi I).
- 2007-2008 Analisi Matematica I e II, 12 CFU degree in Civil Engineering.
- 2008-2009 Analisi Matematica I e II, 12 CFU degree in Civil Engineering.
- 2009-2010 Analisi Matematica I e II, 12 CFU degree in Civil Engineering.
- 2010-2011 Analisi Matematica I e II, 12 CFU degree in Civil Engineering.
- 2011-2012 Analisi Matematica I e II, 12 CFU degree in Civil Engineering.
- 2012-2013 Courses: Analisi Matematica 12 CFU , degree in Civil Engineering.
- 2013-2014 Courses: Analisi Matematica 12 CFU , degree in Civil Engineering.
- 2014-2015 Courses: Analisi Matematica 19 CFU , degree in Civil Engineering.

- 2014-2015 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering
- 2015-2016 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering.
- 2015-2016 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2016-2017 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering.
- 2016-2017 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2017-2018 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering and degree in Ingegneria dell'Ambiente e territorio.
- 2017-2018 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2018-2019 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering and degree in Ingegneria dell'Ambiente e territorio.
- 2018-2019 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2019-2020 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering and degree in Ingegneria dell'Ambiente e territorio.
- 2019-2020 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2019-2020, Courses Fondamenti di Analisi matematica 3 CFU , degree for Tecniche per l'edilizia e il territorio per la professione del geometra.
- 2020-2021 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering degree in Ingegneria dell'Ambiente e territorio.
- 2020-2021 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2020-2021, Courses Fondamenti di Analisi matematica 3 CFU, degree for Tecniche per l'edilizia e il territorio per la professione del geometra.
- 2021-2022 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering degree in Ingegneria dell'Ambiente e territorio.
- 2021-2022 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2021-2022, Courses Fondamenti di Analisi matematica 3 CFU, degree for Tecniche per l'edilizia e il territorio per la professione del geometra.
- 2022-2023 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering degree in Ingegneria dell'Ambiente e territorio.
- 2022-2023 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2022-2023 Courses Richiami di matematica per l'ingegneria civile, 3 CFU

- 2023-2024 Courses: Analisi Matematica 1 9 CFU , degree in Civil Engineering degree in Ingegneria dell'Ambiente e territorio.
- 2023-2024 Courses: Analisi Matematica 1 9 CFU , degree in Aerospace Engineering.
- 2023-2024 Courses Richiami di matematica per l'ingegneria civile, 3 CFU
- 2009-2010 Precorsi for the faculty of Engineering, Sapienza University of Rome.
- 2010-2011 Precorsi for the faculty of Engineering, Sapienza University of Rome.

As Researcher Assistant:

- 1991-1992 exercises (Esercitazioni) Analisi Matematica I, Degree in Civil Engineering.
- 1992-1993 exercises (Esercitazioni) Analisi Matematica I, Degree in Civil Engineering.
- 1993-1994 exercises (Esercitazioni) Analisi Matematica I, Degree in Civil Engineering.
- 1994-1995 exercises (Esercitazioni) Analisi Matematica I, Degree in Civil Engineering.
- 1994-1995, Analisi Matematica 1, Substitution (Supplenza), Diploma di Ambiente e Territorio.
- 1995-1996 exercises (Esercitazioni) Analisi Matematica I, Degree in Civil Engineering.
- 1995-1996, Analisi Matematica 1, Substitution (Supplenza), Diploma di Ambiente e Territorio.
- 1996-1997 exercises (Esercitazioni) Analisi Matematica I, Degree in Civil Engineering.
- 1996-1997, Analisi Matematica 1, Substitution (Supplenza), Diploma di Ambiente e Territorio.
- 1997-1998 exercises (Esercitazioni) Analisi Matematica I, Degree in Civil Engineering.
- 1997-1998, Analisi Matematica 1, Substitution (Supplenza), Diploma di Ambiente e Territorio.
- 1998-1999, Analisi Matematica 1 , Substitution (Supplenza), Degree in Civil Engineering and Transports.

- 1999-2000, Analisi Matematica 1 , Substitution (Supplenza), Degree in Civil Engineering and Transports.
- 2000-2001, Analisi Matematica 1 , Substitution (Supplenza), Degree in Civil Engineering and Transports.
- 2001-2002, Analisi Matematica 1 , Substitution (Supplenza), Degree in Civil Engineering and Transports.
- 2002-2003, Analisi Matematica 1 , Substitution (Supplenza), Degree in Civil Engineering and Transports.
- 2003-2004, Analisi Matematica 1 , Substitution (Supplenza), Degree in Civil Engineering and Transports.
- 2004-2005, Analisi Matematica 1 , Substitution (Supplenza), Degree in Civil Engineering and Transports.

### **Graduate Courses**

2017 "Boundary value problems in domains with irregular boundaries", PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences, Sapienza University of Rome.

2018 "Boundary value problems in domains with irregular boundaries: Part II", PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences, Sapienza University of Rome.

2020 "Introduction to fractals and boundary control problems in irregular domains", PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences, Sapienza University of Rome.

2021 "Introduction to fractals and boundary control problems in irregular domains, part II", PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences, Sapienza University of Rome.

2022 Short course on "Fractional calculus and probability, 2nd part". PhD in Mathematical Models for Engineering, Electromagnetics and Nanosciences, Sapienza University of Rome.

### **Italian Professorships Committees**

1999 member of the hiring committee for four positions of Assistant professor, MAT/05, Science Faculty, University of Florence.

2002 member of the hiring committee for a position of Assistant professor, MAT/05, Science Faculty, University of Perugia.

### **Organization of International Minicourses:**

Minicourse on "Dirichlet forms, Besov Spaces and regularity for boundary value problems in fractal domains", prof. H.Wallin, University of UMEA, SBAI, Sapienza University of Rome, 2000.

Minicourse on "Differential Operators and Markov Processes", Prof. U.Freiberg, University of Jena, SBAI, Sapienza University of Rome, 2001.

Minicourse on "Liouville type Theorems for fractal operators", J.Masamune, Worcester Polytechnique, USA, SBAI, Sapienza University of Rome, 2008.

Minicourse on "About the use of differential 1-forms on the Sierpinski gasket and other fractals", A.Teplyaev, University of Connecticut, SBAI, Sapienza University of Rome, 2010.

### **Organization of International Conferences and Minysimposia:**

- International Conference "Perspectives in PDEs, in honour of U.Mosco, Roma, 24-26 giugno 2009.
- International Conference "Homogenization : flows in collapsing domains and composite materials" Roma, 25-27 giugno 2012.
- Minicourse : "About the use of differential 1-forms on the Sierpinski Gasket and other fractals" prof. A.Teplyaev, University of Connecticut 15-16 aprile e 6 e 7 maggio 2015, Dept. SBAI.
- Special session "Variational convergence and Degeneracies in PDES: fractal domains, composite media, dynamical boundary conditions", AIMS2016, Orlando, USA (Coorganizers Capitanelli, Vivaldi).
- One day workshop on PDEs, in honour of Umberto Mosco, Rome May 28, 2019. (Coorganizers: Andreucci, Capitanelli, Carillo, Vivaldi).
- ICIAM 2019, minisymposium Fractals in Engineering (Coorganizer: Rozanova Pier-rat), Valencia, July 14-19, 2019.
- Advances in singular and degenerate PDEs, Rome September 16-17, 2021, (Coorganizers: Andreucci, Capitanelli, Giachetti).
- Advances in Evolution Equations and Applications, Pavia September 25-26, 2021, (Coorganizers: Giannazza, Marcellini, Vinti).
- International meeting AMS-SMF-EMS, Grenoble, July 5-9, 2022, Minisymposium, Fractal Geometry in pure and applied Mathematics (Coorganizers: Hafedh, Landry, Winter).
- Two days of PDEs in heterogeneous and irregular structures, Rome June 23-24, 2022

- Workshop on Fractals in pure and applied sciences, Rome, March 15-17, 2023
- Workshop on Fractals, Quantum graphs in pure and applied sciences, Politecnico di Milano, March 25-27, 2024
- International conference on Analysis on fractals and networks and applications, Cirm, Marseille, March 18-22, 2024

### Visiting Professorships:

April 2011, Worcester Polytechnic Institute (MA, USA) (1 week) (invito dei Prof. Vernescu e Mosco) 01-04-2011 al 08-04-2011.

April 2013, Worcester Polytechnic Institute (MA, USA) (1 week) (invito dei Prof. Vernescu e Mosco) 08-04-2013 al 15-04-2013.

July 2017, Cornell University (Ithaca USA) (1 week) ( prof. Teplyaev) 01-07-2017 al 10-07-2017.

June 2018, Centrale Supélec Paris (1 week) ( prof. Rozanova Pierrat). 20-06-2018 al 28-06-2018.

March 2019, Bielefeld university, (1 week) ( prof. Hinz) 14-03-2019 al 20-03-2019.

### Editorial Activity

- Editor of the volumes:

”Fractal geometry in pure and applied Mathematics”, Eds. H.Herichi, M.R.Lancia, A. Rozanova, S. Winter, to appear on AMS Contemporary Mathematics.

”Fractal applications in engineering: Theoretical aspects and numerical applications”, Eds. M.R.Lancia- A. Rozanova Pierrat, SEMA SIMAI Springer Series 2021.

Special issue celebrating the Umberto Mosco’s birthday, Rendiconti di Matematica e Applicazioni 2021, Eds. Andreucci,Capitanelli,Carillo,Lancia, Vivaldi, Rendiconti di Matematica e Applicazioni 2021.

Special issue on ”Variational convergence and degeneracies in PDES, fractal domains composite media and dynamical boundary conditions” Eds. Capitanelli, Lancia, Vivaldi, DCDS-S,12, 2019.

### Invited talks to Conferences and Italian or Foreign Universities:

- M.R.Lancia: ”Nonlocal type Wentzell problems in irregular domains: well posedness, regularity results and their approximation”, V.I.Smirnov Seminars on Mathematical Physics , St. Petersburg Dept. of Steklov Institute, April 22, 2024.
- M.R.Lancia: ” The role of fractal surfaces in diffusion phenomena”, SIMAI 2023, Matera.
- M.R.Lancia: ”Non autonomous BVPs in extension domains with dynamical boundary conditions”, AIMS 2023, Wilmington, May 31-June 4, 2023, Special session ”Recent results in local and nonlocal elliptic and parabolic equations”

- M.R.Lancia: "Diffusion across fractal membranes", WORKSHOP Mathematical modelling in biology and medicine, Arpino, May 2023
- M.R.Lancia: " The role of fractal geometry in some problems of mathematical physics", 2nd Joint Congress of Mathematics AMS-EMS-SMF 2022", Grenoble, 18-22/07/2022, Special Session "Fractal Geometry in Pure and Applied Mathematics".
- M.R.Lancia: " On Venttsel problems in irregular domains:results and open problems", 7th Cornell conference on Analysis, Probability and Mathematical Physics on Fractals, Cornell, USA, June 4-8, 2022.
- M.R.Lancia:" On the role of fractals in heat transfer", ICoNSoM, minisymposium Fractals and Fractional Calculus, Alghero June 13-16, 2022.
- M.R.Lancia:"On nonautonomous Venttsel problems in fractal domains, 27th International Conference on Difference Equations and Applications (ICDEA 2022)", Parigi, 18-22/07/2022, Online Special Session "Nonlinear difference and differential problems, transformations, homogenization techniques and applications".
- M.R.Lancia: " (s; p) Robin-Venttsel problems in extension domains, online conference SIDIM 2021, minysymposium :Analysis and partial differential equation, Puerторico, USA, February 27, 2021.
- M.R.Lancia:"Venttsel problems in irregular domains: results and open problems", Research on Mathematical Analysis and Semigroups, in honor of Silvia Romanelli, Bari, July 8-9, 2021.
- M.R.Lancia:"Semilinear evolutions problems in fractal domains ", 8th ECM, Portoroz, minisymposium: Variational Methods and Equations on Graphs, June 20-26 2021.
- M.R.Lancia:"Fractional diffusion in irregular domains ", 8th ECM, Portoroz, minisymposium: Differential equations, dynamical systems and applications, June 20-26 2021.
- M.R.Lancia: " (s, p) Robin-Venttsel problems in extension domains, online conference SIDIM 2021, minysymposium :Analysis and partial differential equation, Puerторico, USA, February 27, 2021.
- M.R.Lancia: "Fractional Robin problems in irregular domains", online, *Forschungsseminars Analysis, Fern Universität in Hagen* , November 20th 2020.
- M.R.Lancia:"Stokes problems in fractal domains", Functional analytic methods in PDEs, Problemi diretti ed inversi per equazioni d'evoluzione, U.M.I, Pavia, September , 2-7, 2019.
- M.R.Lancia:"Stokes flows in irregular domains", ICIAM 2019, minisymposium Fractals in Engineering (coorganizer Anna Rozanova Pierrat), Valencia, July 14-19, 2019.

- M.R.Lancia:”Venttsel problems in irregular domains”, Functional analytic methods in PDEs, Cesena, June, 25-28, 2019.
- M.R.Lancia:”Nonlocal diffusion processes in irregular domains”, International Conference on Elliptic and Parabolic Problems, Gaeta, May 20-24, 2019.
- M.R.Lancia:” Nonlocal heat transfer across irregular interfaces” , Workshop on Analysis of nonlocal and non smooth models, Bielefeld March 25-29,2019.
- M.R.Lancia:”Boundary value problems in irregular domains”, MASCOT18, 15th MEETING ON APPLIED SCIENTIFIC COMPUTING AND TOOLS, October 2-5, Rome 2018.
- M.R.Lancia:”Vector analysis on fractafolds: applications to some BVPs”, SIMAI2018, in Complexity Reduction: Mathematical Modelling and Control. July 2-6 ,Rome 2018.
- M.R.Lancia:” Magnetostatic problems in fractal domains, 6th Cornell Conference on Analysis, Probability, and Mathematical Physics on Fractals, Ithaca USA, June 13-17, 2017.
- M.R.Lancia:” Venttsel problems in fractal domains”, AIMS 2016, July 2016 Orlando, U.S.A.
- M.R.Lancia:”Regularity results for evolution problems with dynamical boundary conditions in a (pre-)fractal domain”, COPDE, Munich 2015.
- M.R.Lancia ”Numerical approximation of evolution problems in (pre)fractal domains”, Seventh European conference on elliptic and parabolic equations , Gaeta, Italy June 2012.
- M.R.Lancia:”Heat flow problems across fractal layers”, Conference: New Function spaces in PDEs and Harmonic Analysis, Naples,Italy, May 31-June 4, 2011.
- M.R.Lancia:” An optimal mesh generation for domains with Koch type boundaries”,MASCOT11, 11th Meeting on Applied scientific computing and tools, Rome,Italy October 19-21, (2011).
- M.R.Lancia, M.Cefalo, G.Dell’Acqua: ” Numerical approximation of some conditioned heat flow problems across fractal layers”, SIMAI 2010, Minisimposio Advances and challenges in Biomathematics and Bioinformatics, Cagliari, Italy June 21-25 2010.
- M.R.Lancia:” Irregular heat flow problems”, Workshop on Asymptotic analysis and Stochastics methods for heterogeneous media, Alba Julia (Romania) June 9-13, 2010.
- M.R.Lancia:” Heat flow problems in varying Hilbert spaces”, 6th European Conference on Elliptic and Parabolic Problems, Minisymposium:Degenerate structures and fractals, Gaeta, May, 25-29, 2009.

- M.R.Lancia: "Numerical approximation of heat flow problems across a Koch-type layer", Mathematical Modelling Mechanics and Materials, Udine 11-13 gennaio 2008.
- M.R.Lancia: "Heat Propagation across fractal layers", Analysis PDEs and Applications, on the occasion of Vladimir Maz'ya's 70th birthday, Roma, June 30 - July 3, 2008.
- M.R.Lancia: "Conditioned semigroups in some heat flow problems across fractal layers", Minisymposium: Differential modeling in applied sciences, SIMAI2008, Roma 15-19 September, 2008.
- M.R.Lancia: "Conduzione del calore attraverso strati frattali", CONFERENZA PLENARIA, Assemblea scientifica del G.N.F.M. Montecatini Terme, 11-13 ottobre 2007.
- M.R.Lancia: "Parabolic transmission problems across irregular layers", International Symposium: Problemi attuali dell'analisi e della fisica matematica, Taormina, Italy June 29- July 1 2006.
- M.R.Lancia: "A constructive approach to some fractal transmission problems", S.I.A.M. Conf. on Analysis of P.D.E. Minisymposium :fractals, homogeneization and P.D.E., Boston July 10-12 2006.
- M.R.Lancia: "Convergence results for parabolic transmission problems across irregular layers.", Workshop on fractal analysis, Eisenach, September 2005.
- "Energy forms on non self similar fractals", Fifth European conference on elliptic and parabolic equations in honor of H.Brezis, Gaeta, Italy June 2004.
- M.R.Lancia: "Fractal manifolds: results and open problems", Secondo incontro del Progetto GNAMPA-GNFM : Fisica su varieta' Frastagliate, Roma, Italy Dept. Me.Mo.Mat. January 2004.
- M.R.Lancia: "Variational convergence of singular energy forms associated with second order transmission problems with highly conductive layers" U.M.I. Conference, Milan, Sept. 8-13, 2003.
- M.R.Lancia: "On some second order transmission problems", Primo incontro del Progetto GNAMPA-GNFM : Fisica su varieta' Frastagliate, Milano, Politecnico, May 2003.
- M.R.Lancia: "Variational convergence of singular energy forms related to transmission problems", International Conference: Fractal Geometry and Stochastics III, Friedrichroda, Marzo, 2003.
- M.R.Lancia "Problemi variazionali in domini non Euclidei", Conference "Recenti sviluppi nella teoria delle equazioni differenziali", Bologna, Italy, April 2002.

- M.R.Lancia "On the approximation of fractal transmission energies", SIMAI 2002, Chia Italy June 2002,.
- M.R.Lancia: "A transmission problem with a fractal interface", SIMAI 2000,Ischia, Italy June 2000.
- M.R.Lancia: "A transmission problem with a fractal layer", POTENTIAL THEORY AND DIRICHLET FORMS, Varenna Italy September 2000.
- M.R.Lancia: " Disuguaglianza di Harnack per operatori tipo Hörmander", Convegno: Equazioni a derivate parziali ed applicazioni, Murst 40%, Bologna, June 1996.
- M.R.Lancia: "Lagrangiane Nulle in Elasticità Lineare", Convegno: Equazioni a derivate parziali ed applicazioni, Murst 40%, Bologna, June 1994.
- M.R.Lancia:"Equazioni integrali e Applicazioni", Convegno: Equazioni Differenziali, Murst 40%, Firenze, April 1993.
- M.R.Lancia: " Lagrangiane Nulle in Elasticità Lineare e la Teoria Raricostante ", Convegno: Termomeccanica dei Continui, Murst 40%, Roma, September 1993.
- M.R.Lancia:"Numerical Approximation of Boundary Integral Equations in Three Dimensional Aerodynamics", International Symposium on Boundary Element Methods, Kyoto University, October 1991.
- M.R.Lancia: "Variational boundary integral formulations", IV Convegno Italiano di Meccanica Computazionale, Università di Padova, June 1989.

## Maria Rosaria Lancia's Articles indexed in WOS or SCOPUS

1. M.R.Lancia (in coll. with S.Creo) "Dynamical boundary conditions for time-dependent fractional operators on extension domains". *ADVANCES in DIFFERENTIAL EQUATIONS*, 29:9-10(2024), 727-756 (2024).
2. M.R.Lancia (in coll. con S.Creo), " The p-curl system in extension domains, *DCDS-s*, 17,2208-2223, (2024).
3. M.R.Lancia (in coll. with M.Cefalo, S.Creo and J. Rodriguez Cuadrado)"Fractal mixtures for optimal heat draining, *Chaos Solitons and Fractals*,, 173, 1-11, (2023).
4. M.R.Lancia (in coll. with R.Capitanelli and S.Creo)" Asymptotics for time fractional Venttsel'problems in fractal domains", *Fractal. Fract.* 2023, 7, 479, (2023).
5. M. R. Lancia (in coll. with P.Vernole), " Nonautonomous semilinear Wentzell problems in fractal domains",*J. Evol. Equ.* 22, 88 (2022).
6. M. R. Lancia (in coll. with S.Creo, and P.Vernole)," Transmission problems for the fractional p-Laplacian across fractal interfaces",*DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS. SERIES S.* 12 3621-3644 (2022).
7. M.R.Lancia (in coll. con S.Creo), "Fractional (s,p)-Robin-Venttsel' problems on extension domains", *NoDEA Nonlinear Differential Equations Appl.*, 28 (3), paper no. 31, 33 pp., (2021).
8. M. R. Lancia (in coll. with M.Cefalo, S.Creo, M. Gallo, and P.Vernole) , Approximation of 3D Stokes flows in fractal domains, *SEMA SIMAI Springer Series* 8,27-53, (2021).
9. M. R. Lancia (in coll. with S.Creo, and P.Vernole)," M-Convergence of p-fractional energies in irregular domains", *J. Convex Anal.*, 28, 2, 509-534, (2021).
10. M.R.Lancia (in coll. with S.Creo, and A. I. Nazarov)," Regularity results for nonlocal evolution Venttsel' problems", *Fract. Calc. Appl. Anal.*, 23 (5), 1416-1430, (2020).
11. M.R.Lancia (in coll. with S.Creo, and P.Vernole),"Convergence of fractional diffusion processes on extension domains" , *J. Evol. Equ.* 20, 109 – 139, (2020).
12. M.R.Lancia (in coll. with S.Creo)," Friedrichs inequality in irregular domains", *J. Math. Anal. Appl.*, 484, 109-139, (2020).
13. M.R.Lancia (in coll. with M.Cefalo, S.Creo, and P.Vernole), "Nonlocal Venttsel' diffusion in fractal-type domains: regularity results and numerical approximation". *Math. M. in Appl. Sciences*,14, 4712-4733, (2019).
14. M.R.Lancia (in coll. with A. Velez-Santiago and P.Vernole)," A quasi-linear nonlocal Venttsel' problem of Ambrosetti–Prodi type on fractal domains", *DCDS-A*, 39, 4487-4518, (2019).
15. M.R.Lancia (in coll. with P.Vernole) " The Stokes problem in fractal domains: asymptotic behaviour of the solutions", *DCDS-S*, 13,1553-1565, (2020).
16. M.R.Lancia (in coll. with S.Creo, A. Nazarov and P.Vernole),"On two-dimensional nonlocal Venttsel' problems in piecewise smooth domains", *Discrete Cont. Dyn. Syst. Series S*, 12 (1), 57-64, (2019).
17. M.R.Lancia (in coll. with M.Hinz, A.Teplyaev and P.Vernole)"Fractal snowflake domain diffusion with boundary and interior drifts". *JMAA*,**457**, 672-693, (2018).

18. M.R.Lancia (in coll. with S.Creo, A. Velez-Santiago and P.Vernole), "Approximation of a nonlinear fractal energy functional on varying Hilbert spaces". *Commun. Pure Appl. Anal.*, 17, no. 2, 647–669, (2018).
19. M.R.Lancia (in coll. with A. Velez-Santiago and P.Vernole), "Quasi-linear Venttsel problems with nonlocal boundary conditions on fractal domains". *Non Linear Analysis Real world applications*, 35, 265-291, (2017).
20. M.R.Lancia (in coll. with V. Regis Durante, P.Vernole), "Asymptotics for Venttsel' problems for operators in non divergence form in irregular domains", *Disc. Continuous Dynamical Systems* 9,n.5,1493-1520, (2016).
21. M.R.Lancia (in coll. with V. Regis Durante, P.Vernole), "Density results for energy spaces on some fractafolds." *Z. Anal. Anwend.* 34, 357–372, (2015).
22. M.R.Lancia (in coll with M.Cefalo) "An optimal mesh generation algorithm for domains with Koch type boundaries." *Math. Comput. Simulation* 106, 133–162, (2014).
23. M.R.Lancia (in coll. with P.Vernole), "Venttsel' problems in fractal domains" *J. Evol. Equ.* 14, 681–712, (2014).
24. M.R.Lancia (in coll with R.Capitanelli and M.A.Vivaldi, ), "Insulating layers of fractal type" *Differential and Integral equations.* 26,1055-1076, (2013).
25. M.R.Lancia (in coll with M.Cefalo and H.Liang, ), "Heat flow problems across fractal mixtures: regularity results and numerical approximation" *Differential and Integral equations.* 26, 1027-1054, (2013).
26. M.R.Lancia (in coll. with P.Vernole) "Semilinear fractal problems: approximation and regularity results" *Nonlinear Anal.*, 80, 216–232, (2013).
27. M.R.Lancia (in coll. with P.Vernole) "Semilinear evolution transmission problems across fractal layers" *NonLinear Analysis T.M.A.*, **75**, 4222-4240, (2012).
28. M.R. Lancia ( in coll. with G. Dell'Acqua and Massimo Cefalo) "Numerical approximation of transmission problems across Koch-type highly conductive layers. *Applied Math. and Comp.*, **218**, 9, 5453-5473, (2012).
29. M.R.Lancia (in coll. with P.Vernole) "Irregular heat flow problems." *SIAM Journal on Mathematical Analysis*, **42**, no.4, 1539–1567, (2010).
30. M.R.Lancia (in coll.with U.Mosco e M.A.Vivaldi), "Homogeneization for conductive thin layers of prefractal type", *JMAA*, **347**, 354-369, (2008).
31. M.R.Lancia (in coll. with J.Masamune), "The Liouville property of unbounded fractal layers" *Complex Variables and Elliptic Equations*, **53**, 4: 297-306, (2008).
32. M.R.Lancia (in coll. with U.Freiberg), "Energy forms on conformal  $C^1$  diffeomorphic images of the Sierpinski Gasket", *Math. Nachr.* **3**: 337-349, (2008).
33. M.R.Lancia, "On some second order trasmission problems", *Arabian Journal for science and engineering*, Special issue: Wavelet and fractal methods in science and engineering, **29-2C**, 85-100, (2004).
34. M.R.Lancia (in coll. with U.Freiberg), "Energy forms on a closed fractal curve", *Zeitschrift für Analysis und ihre Anwendungen*, **23**, 115-137, (2004).

35. M.R.Lancia (in coll. with R.Capitanelli), "Nonlinear energy forms and Lipschitz spaces on the infinite Koch curve", *Arabian Journal for science and engineering*. Special issue "Wavelet and fractal methods in science and engineering". **29-2C**, 101-110, (2004).
36. M.R.Lancia, " A Trasmission problem with a fractal interface", *Zeitschrift für Analysis und ihre Anwendungen* **21**, 1, 113-133, (2002).
37. M.R.Lancia (in coll. with R.Capitanelli), "Nonlinear energy forms and Lipschitz spaces on the Koch curve", *Journal of Convex Analysis*. **9**, 2, 245-257, (2002).
38. M.R.Lancia (in coll. with M.Chicco), "Generalized maximum principle and evaluation of the first eigenvalue for Heisenberg-type operators", *Boll. Unione Mat. Ital. Sez. B Artic. Ric. Mat.* **8** 4, no. 2, 441-456, (2001).
39. M.R.Lancia (in coll. with M.V.Marchi), "Liouville theorems for Fuchsian-type operators on the Heisenberg Group", *Zeitschrift für Analysis und ihre Anwendungen*, **16** 3, 653-668, (1997).
40. M.R.Lancia (in coll. with P. Podio-Guidugli, G. Vergara Caffarelli), "Gleanings of Radial Cavitation", *Journal of elasticity* , **44** 183-192, (1996).
41. M.R.Lancia (in coll. with P. Bassanini, C.M. Casciola, R. Piva), "Uniqueness of the bounded flow solution in aerodynamics", *Comp.Mech.* **22**, 12-18, (1998).
42. M.R.Lancia (in coll. with P. Bassanini, C.M. Casciola, R. Piva), "A theoretical model for multiply connected wings", *European Journal of Applied Mathematics* , **9**, 6, 607-634, (1998).
43. M.R.Lancia (in coll. with P. Bassanini, C.M. Casciola, R. Piva), "Edge singularity and Kutta condition in 3D aerodynamics", *Meccanica* **34** , 199-229, (1999).
44. M.R.Lancia (in coll. with P.Bassanini, C.M. Casciola, R. Piva), "On the trailing edge singularity and Kutta condition for 3D airfoils", *Eur. Jour. of Mech. B/fluids* **15** , 6, 809-830, (1996).
45. M.R.Lancia (in coll. with P. Podio-Guidugli, G. Vergara Caffarelli), "Null Lagrangians in Linear Elasticity ", *Mathematical Models and Methods in Applied Sciences***3** 5, 415-427, (1995) .
46. M.R.Lancia (in coll. with P. Bassanini), " Boundary Integral Equations of the First Kind for Planar Vector Fields in Multiply Connected Domains". *Acta Mechanica* **94**, 1-2, 43-57, (1992).
47. M.R.Lancia (in coll. with P.Bassanini, C.M. Casciola, R. Piva), "A Boundary Integral formulation for the Kinetic Field in Aerodynamics. Part II: Applications to 2D Unsteady Flows". *Eur. J. Mech., B/Fluids*, **1**, n. 3 , (1992).
48. M.R.Lancia (in coll. with P. Bassanini, C.M. Casciola, R. Piva), "A Boundary Integral formulation for the Kinetic Field in Aerodynamics. Part I: Mathematical Analysis". *Eur. J. Mech., B/Fluids*, **10** n.4, (1991).

#### **Proceedings peer reviewed, indexed in WOS or SCOPUS**

1. M.R.Lancia, " Parabolic transmission problems across irregular layers", Proc. of the International Symposium : Problemi attuali dell'analisi e della fisica matematica, Taormina 29 giugno-1 luglio 2006, *Le Matematiche* LXII: 271-287, (2007).

2. M.R.Lancia (in coll. con U.Freiberg), "Energy forms on non self-similar fractals", Proc. of the fifth European conference on elliptic and parabolic problems: a special tribute to the work of H.Brezis, 2004, Gaeta, Italy, Progress in Nonlinear differential equations and their applications, **63**, 267-277, (2005).
3. M.R.Lancia (in coll. Bassanini P., Casciola C.M., Piva R.), "Edge singularity and Kutta condition for 3D unsteady flows in aerodynamics" in *Integral equations and nonsmooth domains* special volume dedicated to V.G.Maz'ya on his 60th birthday. (W.Wendland Ed.) Proc. IABEM98, Inter. Symp. on Boundary element methods, Ecole Polytechnique Palaiseau, Maggio 1998; Pittman Res. Notes in Math. (1999).
4. M.R.Lancia (in coll. Bassanini P., Casciola C.M., Piva R.), "On the removal of the trailing edge singularity in 3D flows". *IABEM Symposium on Boundary Integral Methods for Non-linear Problems* (Morino L. & Wendland WL. Eds.) Siena, May 1995, Kluwer Academic Publishers 1-6, (1997).
5. M.R.Lancia (in coll. Casciola C.M., Piva R.), "A General Approach to Unsteady Flows in Aerodynamics: Classical Results and Perspectives". *Boundary Element Methods in Engineering* (B.S.Annigeri, K.Tseng eds.) Proc. International Symposium on Boundary Element Methods, Springer Verlag, 58-69. East Hartford, Connecticut, October (1989).

#### Articles peer reviewed on indexed books, Scopus

1. M.R.Lancia (in coll. with S.Creo, M.Hinz, A.Teplyaev and P.Vernole) "Magnetostatic Problems in fractal domains". in *Fractals and Dynamics in Mathematics, Science and the Arts* published by World Scientific. Volume 5: Analysis, Probability and Mathematical Physics on Fractals, 477-502, (2020,). [https://doi.org/10.1142/9789811215537\\_015](https://doi.org/10.1142/9789811215537_015)

#### Articles peer reviewed on non indexed journals or books

1. M.R.Lancia (in coll. con P.Vernole) "Semilinear Venttsel' Problems in Fractal Domains", *Applied Mathematics*, Vol.5 No.12, , 1820-1833, (2014). DOI: 10.4236/am.2014.512175
2. M.R.Lancia (in coll. con P.Vernole) Semilinear Evolution Problems with Ventcel-Type Conditions on Fractal Boundaries, *International Journal of Partial Differential Equations* (2014), Article ID 461046, 13 pages, (2014). <http://dx.doi.org/10.1155/2014/461046>
3. M.R.Lancia (in coll. con E.Vacca), "Numerical approximation of heat flow problems across highly conductive layers", in Special volume on "Mathematical modeling of bodies with complicated bulk and boundary behavior", *Quaderni di Matematica*, Seconda Universita degli Studi di Napoli, (2008).
4. M.R.Lancia, "Second order transmission problems across a fractal surface", *Rend. Acc. Naz. dei XL*, Vol. XXVII, 237-251, (2003).
5. M.R. M.R.Lancia (in coll. con P.Vernole), "Convergence results for parabolic transmission problems across highly conductive layers with small capacity", *Adv. Math.Sci. Appl.* **16** (2):411-445, (2006).
6. M.R.Lancia (in coll. con M.A.Vivaldi), "Asymptotic convergence of transmission energy forms", *Advances in Mathematical Sciences and Applications* **13**, 1, 315-341, (2003).
7. M.R.Lancia (in coll. con M.A.Vivaldi), "On the regularity of the solutions for transmission problems". *Advances in Mathematical Sciences and Applications* **13**, 1, 455-466, (2002).

8. M.R.Lancia (in coll. con M.A.Vivaldi), " Lipschitz spaces and Besov traces on self-similar fractals", *Rend.Acc. Naz. dei XL*, vol. XXIII, 101-116, (1999).
9. M.R.Lancia (in coll. con M.V.Marchi), "Harnack inequality and Hölder regularity of solutions for Hörmander type operators", *Advances in Mathematical Sciences and Applications* **7**, 2, 833-857,(1997).
10. M.R.Lancia (in coll. C.M Casciola ), "A Variational Approach for Boundary Integral Equations in Potential Aerodynamics".*Rendiconti di Matematica*, vol. **9**, 701-717, (1989).

#### **Proceedings peer reviewed on non indexed books**

1. M.R.Lancia (in coll. P.Bassanini, C.M. Casciola , R. Piva ), "Uniqueness of the bounded flow solution in aerodynamics", Proc. IABEM workshop on *Fundamental solutions in Boundary element methods:formulation and integrations* ( L.Benitez ed.) 243-253 June 1997, Università di Siviglia;June (1997).
2. M.R.Lancia (in coll. P.Bassanini, C.M.Casciola, R. Piva ), "Numerical Approximation of Boundary Integral Equations in Three Dimensional Aerodynamics". *Boundary Element Methods Fundamentals and Applications* (S.Kobayashi, N.Nishimura eds.) Proc. IABEM91, Kyoto Ottobre 1991; Springer Verlag 41-48, (1992).
3. M.R.Lancia (in coll. P. Bassanini, C.M. Casciola , R. Piva ), "A General Integral Formulation for Rotational Flows in Aerodynamics". *Boundary Integral Methods Theory and Applications* (L.Morino, R. Piva eds.) Proc. IABEM90, Roma, Ottobre 1990; Springer Verlag 85-94, (1991).

#### **Preprints**

1. M.R.Lancia (in coll. with S. Creo, G. Mola , S. Romanelli), " Inverse problems in irregular domains: approximation via Mosco Convergence, to appear on Contemporary Mathematics 2024.
2. M.R.Lancia (in coll. with S. Creo and M. Hinz, " Nonlocal Boundary energy forms for quasidisks: codimension gap and approximation", submitted (2023).
3. M.R.Lancia (in coll. with A. Velez-Santiago)"A priori estimates for general elliptic and parabolic boundary value problems over irregular domains " Submitted (2023).

#### **Educational Publications**

- 1 M.R.Lancia-S.Marconi, "Esercizi di Analisi matematica", 2015; edizione ampliata 2019 Ed. La Dotta.
- 2 M.R.Lancia-S.Marconi, " Temi di Analisi matematica", 2013 Ed. La Dotta.
- 3 M.R.Lancia-S.Marconi, "Esercizi di introduzione al calcolo differenziale e integrale", 2019 Ed.La Dotta.
- 4 M.R.Lancia " Conduzione del calore attraverso strati frattali sottili altamente conduttivi", 37-40, in NUOVA SECONDARIA - ISSN:1828-4582 vol. 9 (anno XXV), 2008.

#### **PhD Thesis and internal reports**

1. Lancia M.R., "Una Formulazione integrale in velocità per campi aerodinamici", *tesi di Dottorato*, Roma 1993.
2. M.R.Lancia (in coll. con M.A.Vivaldi), "Teoremi di traccia per domini irregolari", Quaderno n. 4 del Dipartimento di Metodi e Modelli Matematici per le Scienze Applicate, 1999

**Summary of scientific Achievements:**

- Papers [international]: 54 (indexed in WOS or SCOPUS)- 67 (including also non indexed papers)
- Papers [national]: 1
- Books [scientific]:3 (indexed in WOS or SCOPUS)
- Books [teaching]: 3