

Maria Rosaria Lancia

Curriculum Vitae (without sensitive data)

**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 reserach project "Boundary conditions on smooth and fractal surfacaces"( candidate dr.ssa Sorgentone).

October 2021 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:**

November 2022 Member of the "commissione didattica" for Environment Engineering.

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

August 2022 Representative for the faculty of Civil and industrial engineering in the Task Force Benchmark of CESAER: European association of leading specialised and comprehensive universities of science and technology.

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

2015-2022 Member of the "commissione didattica" for Civil 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-present Member of Giunta di dipartimento Sbai.

2016-present 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 Member of the committee for the admission to the PhD in Mathematics for Engineering, Electromagnetism and Nanosciences.

**Third Mission:**

2020 GRANT Sapienza : member of the project " The beauty of mathematics".

**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.

**Research Interests:**

- Dirichlet forms and fractals, functional spaces on d-sets, fractals, boundary value problems in domains with boundary and/or interface of fractal type. Non linear energy forms on unbounded self-similar fractal sets. Energy forms on non self-similar fractal sets. Heat diffusion in fractal domains. Semilinear, quasilinear evolution problems in fractal domains, possibly with nonlocal terms, with dynamical boundary conditions. Approximation of BVPs in fractal domains with dynamical BCNs. NON local models in non smooth domains. Vector Analysis on Fractafolds. Shape optimization.
- Numerical approximation of some BVP's in prefractal domains.
- Subelliptic operators of Hoermander type.
- BVPs in domains with edges and singularities: boundary integral formulations for some 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, Boletín de la Sociedad Matemática Mexicana.

Referee for the Italian VQR 2004-2010, 2015-2019 Panel GEV 01.

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

Referee: 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.

**Memberships of Research Projects/Activities:****Grants as P.I.:**

P.I. progetto GNAMPA 2022 "Anomalous diffusion and its applications to fractal domains, Physics and Mathematical Finance".

P.I. Sapienza 2020 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 2019: A constructive approach to some problems of analysis on fractals and on irregular structures.

PI 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. 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:**

2019 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 varietà 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 Wenttsel in domini frattali", coordinatore P.Vernole. dal 14-03-2017- 2019.

Progetto GNAMPA 2020, " Advances in Evolution Equations: fractals, Wentzell problems, applications to Mathematical Finance ", coordinatore S.Creo.

### **International Agreements**

2015-2020 Responsible of the International agreement between Sapienza and W.P.I. (USA) for research activities on fractal fibers and homogenization.( Mosco-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**

2022- present, advisor: ISMAIL LAABALI, incoming student, XXXVIII cycle, Phd in Mathematical models for engineering, electromagnetism and nanosciences, Sapienza University of Rome.

2022 February June advisor Javier Rodriguez Cuadrado, Phd student Technical Univeristy of Madrid

2020-2021 Postdoc tutor SAPIEXCELLENCE, CHIARA SORGENTONE;

2020-2021 Postdoc tutor, SIMONE CREO;

2019-2020 Postdoc tutor, SIMONE CREO;

2021-2022 Postdoc tutor, SIMONE CREO;

2015-2018, advisor: SIMONE CREO, "Local and nonlocal Venttsel problem in fractal domains", XXX cycle, Phd 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 19 CFU , degree in Aerospace Engineering
- 2015-2016 Courses: Analisi Matematica 19 CFU , degree in Civil Engineering.
- 2015-2016 Courses: Analisi Matematica 19 CFU , degree in Aerospace Engineering
- 2016-2017 Courses: Analisi Matematica 19 CFU , degree in Civil Engineering.
- 2016-2017 Courses: Analisi Matematica 19 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
- 2022-2022 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 3 CFU, degree in Civil Engineering.
- 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: D.Andreucci,R.Capitanelli, S.Carillo, M.A.Vivaldi).
- ICIAM 2019, minisymposium Fractals in Engineering (Coorganizer: Anna Rozanova Pierrat), Valencia, July 14-19, 2019
- INDAM 2021, Diffusion in Inhomogeneous and Irregular Environments, June 8-6-2021, (Coorganizers: Andreucci, Capitanelli)
- Advances in singular and degenerate PDEs, Rome September 14-15 2021, (Coorganizers: Andreucci, Capitanelli, Giachetti)
- Advances in Evolution Equations and Applications, Pavia Sept. 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

### 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 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: ” 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, minysimposium :Analysis and partial differential equation, Puertrico, USA, February 27, 2021.
- M.R.Lancia:"On Venttsel problems in irregular domains: results and open problems", Workshop in honor of Silvia Romanelli, Bari, July 8-9, 2021.
- M.R.Lancia:" Fractional diffusion in irregular domains ", 8th ECM, Portoroz, minisimposium: Variational Methods and Equations on Graphs, online, July 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 varietà 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 varietà 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.



## List of publications

### *Peer-reviewed papers*

1. M. R. Lancia (in coll. with P.Vernole), " Nonautonomous semilinear Wentzell problems in fractal domains", *J. Evol. Equ.* 22, 88 (2022).
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### **Preprints**

1. M.R.Lancia (in coll. with S.Creo) "Dynamical boundary conditions for time-dependent fractional operators on extension domains". Submitted (2022).
2. M.R.Lancia (in coll. with S.Creo) "The p-curl system in extension domains". Submitted (2022).

### **Educational Publications**

- 1 M.R.Lancia-S.Marconi, "Esercizi di Analisi matematica", 2015; edizione ampliata 2019 Ed. La Dotta.
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