

Europass Curriculum Vitae

Personal informations

NAME	Francesca De Marchis
DATE AND PLACE OF BIRTH	born on July 22, 1983 in Rome
NATIONALITY	Italian
STATUS	Married - Two children
E-MAIL	demarchis@mat.uniroma1.it

Current position

INSTITUTION	University of Rome Sapienza
POSITION	Associate Professor
DATES	since March 2020

Past positions

INSTITUTION	University of Rome Sapienza
POSITION	Assistant Professor (Rtd-B)
DATES	March 2017 - March 2020
INSTITUTION	University of Rome Sapienza
POSITION	Postdoctoral research fellow
SUPERVISOR	Professor Emanuele Caglioti
DATES	January 2016 - December 2017
MATERNITY LEAVE	August 3, 2016 – February 3, 2017
INSTITUTION	University of Rome Sapienza
POSITION	Postdoctoral research fellow
SUPERVISOR	Professor Emanuele Caglioti
DATES	December 2014 - November 2015
INSTITUTION	University of Rome Tor Vergata
POSITION	Postdoctoral research fellow
SUPERVISOR	Professor Gabriella Tarantello
DATES	June 2012 - November 2014
MATERNITY LEAVE	September 4, 2013 – March 5, 2014
INSTITUTION	University of Rome Sapienza
POSITION	Postdoctoral research fellow
SUPERVISOR	Professor Filomena Pacella
DATES	May 2011 - April 2012

Education

DEGREE	Ph.D. in Mathematical Analysis
INSTITUTION	International School for Advanced Studies (SISSA), Trieste
THESIS	Existence and multiplicity of solutions for problems in Geometrical Analysis
ADVISOR	Professor Andrea Malchiodi
DATES	From November 2007 to October 2010 – Ph.D. Defense 29/10/2010
DEGREE	SISSA's Master Degree (Diploma Percorso Formativo Comune)
INSTITUTION	International School for Advanced Studies (SISSA), Trieste

DATES	October 2005 - March 2008
DEGREE	Master's degree in Mathematics
GRADE	110 out of 110 cum laude
INSTITUTION	University of Trieste
THESIS	Variational methods for a mean field equation on compact surfaces
ADVISOR	Professor Andrea Malchiodi
DATES	October 2005 - July 2007
DEGREE	Bachelor's degree in Mathematics
GRADE	110 out of 110 cum laude
INSTITUTION	University of Rome Sapienza
THESIS	Finite perimeter sets and BV functions
ADVISOR	Professor Luigi Orsina
DATES	October 2002 - July 2005

Grants and Awards

DATE	December 2011 Prize for the best PhD in Mathematics in memory of "Marco Cuzzo", awarded by University of Rome Tor Vergata.
DATES	November 2007 - October 2010 Three-years fellowship for Ph.D. course in Mathematical Analysis, instituted by SISSA.
DATES	October 2005 - September 2007 Two-years fellowship for Master's Degree in Mathematics (Diploma Percorso Formativo Comune), instituted by SISSA, with a curriculum for a high level training in Mathematics.
DATE	October 2005 "Cesare e Giustina Labonia" Graduation Prize for the best female graduate student in Mathematics in Rome, awarded by FILDIS.
DATE	October 2005 Prize for the best undergraduate student in Mathematics, awarded by the Department of Mathematics of University of Rome Sapienza.
DATES	October 2002 - September 2005 Three-years fellowship for Degree in Mathematics, instituted by Istituto Nazionale Di Alta Matematica.

Research visits

DATES	May 2018
INSTITUTION	Scuola Normale Superiore, Pisa, Italy
DATES	June 2016
INSTITUTION	Institut Mittag-Leffler, Djursholm, Sweden
DATES	April 2016
INSTITUTION	ETH, Zürich, Switzerland
DATES	May 2015
INSTITUTION	ETH, Zürich, Switzerland
DATES	November 2014
INSTITUTION	Università degli Studi di Napoli, Italy
DATES	October 2014

INSTITUTION	Universidad de Granada, Spain
DATES	January 2013
INSTITUTION	Universität Giessen, Germany
DATES	November 2010 - December 2010
INSTITUTION	SISSA, Italy
DATES	September 2008 - November 2008
INSTITUTION	Princeton University, USA
	During the special Program on Geometric Partial Differential Equations at the IAS

Organization Activity

DATES	June 2022 INDAM meeting 2020 <i>Spherical surfaces and related topics</i> , Cortona, Italy
DATES	from October 2019 to July 2022 Weakly Seminar of Mathematical Analysis at the Department of Mathematics, University of Rome Sapienza
DATES	February 2015 Session on <i>Nonlinear analysis and elliptic PDEs</i> during the "Congreso de la RSME 2015", Granada, Spain

Projects and groups

GNAMPA 2023	<i>Proprietà qualitative delle soluzioni di equazioni ellittiche</i>
ROLE	Participant (PI: Luca Battaglia)
PRIN 2022	<i>Variational and Analytical aspects of Geometric PDEs</i>
ROLE	Participant (PI: Andrea Malchiodi)
SAPIENZA 2022	<i>Nonlinear PDE's: from uniformly elliptic to strongly degenerate cases</i>
ROLE	Participant (PI: Isabeau Birindelli)
GNAMPA 2022	<i>Equazioni ellittiche non lineari</i>
ROLE	Participant (PI: Gabriele Mancini)
SAPIENZA 2021	<i>Nonlinear PDEs: from geometry to population dynamics</i>
ROLE	Principal Investigator
SAPIENZA 2020	<i>Nonlinear PDE's: from uniformly elliptic to strongly degenerate cases</i>
ROLE	Participant (PI: Fabiana Leoni)
GNAMPA 2020	<i>Equazioni ellittiche non lineari</i>
ROLE	Participant (PI: Massimo Grossi)
SAPIENZA 2019	<i>Nonlinear partial differential equations arising in geometry and applied sciences</i>
ROLE	Participant (PI: Filomena Pacella)
SAPIENZA 2018	<i>Elliptic equations and systems arising in Geometry and Physics</i>
ROLE	Principal Investigator
ANVUR 2017	<i>FFABR (Fondo per il finanziamento delle attività di base di ricerca)</i>
ROLE	Principal Investigator
GNAMPA 2017	<i>Existence and qualitative properties of solutions for nonlinear elliptic problems</i>
ROLE	Participant (PI: Isabella Ianni)
SAPIENZA 2017	<i>Nonlinear Elliptic Partial Differential Equations: existence and geometric aspects of solutions</i>

ROLE	Participant (PI: Filomena Pacella)
AVVIO ALLA RICERCA SAPIENZA 2016	<i>Nonlinear problems with geometrical or physical motivations</i>
ROLE	Principal Investigator
SAPIENZA 2016	<i>Mostly maximum principle</i>
ROLE	Participant (PI: Isabeau Birindelli)
PRIN 2015	<i>Variational methods, with applications to problems in mathematical physics and geometry</i>
ROLE	Participant (PI: Andrea Malchiodi)
AVVIO ALLA RICERCA SAPIENZA 2015	<i>Nonlinear PDES with power or exponential type nonlinearities</i>
ROLE	Principal Investigator
SAPIENZA AWARD 2014	<i>Nonlinear PDES: qualitative analysis of solutions</i>
ROLE	Participant (PI: Massimo Grossi)
GNAMPA 2014	<i>Blow up phenomena for semilinear parabolic problems</i>
ROLE	Principal Investigator
PRIN 2012	<i>Variational and perturbation aspects of nonlinear differential problems</i>
ROLE	Participant (PI: Susanna Terracini)
PROGETTO ATENEIO 2012	<i>Nonlinear differential problems: existence and qualitative properties of solutions</i>
ROLE	Participant (PI: Filomena Pacella)
FIRB-IDEAS 2009-2013	<i>Analysis and Beyond</i>
ROLE	Participant (PI: Andrea Malchiodi)
PRIN 2009	<i>Variational methods and Nonlinear PDE</i>
ROLE	Participant (PI: Andrea Malchiodi)
INDAM GROUP	GNAMPA
ROLE	Participant, 2009-2021

Publications

AUTHORS	F. De Marchis, H. Fourti, I. Ianni
TITLE	<i>Sharp boundary concentration for a two-dimensional nonlinear Neumann problem</i>
JOURNAL	submitted 2023
AUTHORS	A. Amadori, F. De Marchis, I. Ianni
TITLE	<i>Morse index computation for radial solutions of the Hénon problem in the disk</i>
JOURNAL	Nonlinear Analysis, Theory, Methods and Applications, 2022, 215, 112645
AUTHORS	F. De Marchis, A. Malchiodi, L. Martinazzi, P.D. Thizy
TITLE	<i>Critical points of the Moser-Trudinger functional on closed surfaces</i>
JOURNAL	Inventiones 230 (2022), 1165-1258
AUTHORS	F. De Marchis, M. Grossi, I. Ianni, F. Pacella
TITLE	<i>Morse index and uniqueness of positive solutions of the Lane-Emden problem in planar domains,</i>
JOURNAL	J. Math. Pures Appl. 128 (2019), 339-378
AUTHORS	F. De Marchis, M. Grossi, I. Ianni, F. Pacella
TITLE	<i>L^∞-norm and energy quantization for the planar Lane-Emden problem with large exponent,</i>
JOURNAL	Archiv der Mathematik 111(4) (2018), 421-429
AUTHORS	F. De Marchis, R. Lopez Soriano, D. Ruiz

TITLE	<i>Compactness, existence and multiplicity for the singular mean field problem with sign-changing potentials,</i>
JOURNAL	J. Math. Pures Appl. 115 (2018), 237-267
AUTHORS	F. De Marchis, I. Ianni, F. Pacella
TITLE	<i>Asymptotic analysis for the Lane-Emden problem in dimension two,</i>
JOURNAL	contribution to the volume PDEs Arising from Physics and Geometry, London Mathematical Society (n.450), Cambridge University Press (2018)
AUTHORS	T. D'Aprile, F. De Marchis, I. Ianni
TITLE	<i>Prescribed Gauss curvature problem on singular surfaces,</i>
JOURNAL	Calc. Var. PDE 57 (2018) doi: s00526-018-1373-3
AUTHORS	F. De Marchis, T. Ricciardi
TITLE	<i>Existence results for turbulent flows with arbitrary intensities,</i>
JOURNAL	Nonlinear Anal. Real. 38 (2017) 222–244
AUTHORS	F. De Marchis, I. Ianni, F. Pacella
TITLE	<i>A Morse index formula for radial solutions of Lane-Emden problems,</i>
JOURNAL	Advances in Mathematics 322 (2017) 682–737
AUTHORS	F. De Marchis, I. Ianni, F. Pacella
TITLE	<i>Asymptotic profile of positive solutions of Lane-Emden problems in dimension two,</i>
JOURNAL	J. Fix. Point Theory A. 19 (2017), no. 1, 889-916
AUTHORS	F. De Marchis, I. Ianni, F. Pacella
TITLE	<i>Exact Morse index computation for nodal radial solutions of Lane-Emden problems,</i>
JOURNAL	Math. Ann. 367 (2017), n. 1, 185–227
AUTHORS	F. De Marchis, R. Lopez-Soriano
TITLE	<i>Existence results on the singular Nirenberg problem,</i>
JOURNAL	Calc. Var. Partial Differential Equations 55 (2016), n. 2, Art. 36, 35 pp.
AUTHORS	F. De Marchis, I. Ianni, F. Pacella
TITLE	<i>Morse index and sign changing bubble towers for Lane-Emden problems,</i>
JOURNAL	Ann. Mat. Pura Appl. 195 (2016), n. 2, pp. 357-369.
AUTHORS	F. De Marchis, I. Ianni
TITLE	<i>Blow up of solutions of semilinear heat equations in non radial domains of \mathbb{R}^2,</i>
JOURNAL	Discrete and Contin. Dyn. Systems - A, 35 (2015), n. 3, 891-907.
AUTHORS	F. De Marchis, I. Ianni, F. Pacella
TITLE	<i>Asymptotic analysis and sign changing bubble towers for Lane-Emden problems,</i>
JOURNAL	J. Eur. Math. Soc. 17 (2015), n. 8, 2037-2068.
AUTHORS	D. Bartolucci, F. De Marchis
TITLE	<i>Supercritical Mean Field Equations on convex domains and the Onsager's statistical description of two-dimensional turbulence,</i>
JOURNAL	Arch. Ration. Mech. Anal. 217 (2015), n. 2, 525-570.
AUTHORS	F. De Marchis, I. Ianni, F. Pacella
TITLE	<i>Sign changing solutions of Lane Emden problems with interior nodal line and semilinear heat equations,</i>
JOURNAL	J. Differential Equations 254, n. 8, (2013), pp. 3596-3614.
AUTHORS	D. Bartolucci, F. De Marchis
TITLE	<i>On the Ambjorn-Olesen Electroweak condensates,</i>
JOURNAL	J. Math. Phys. 53, n.7, (2012), 073704, 15 pp.
AUTHORS	D. Bartolucci, F. De Marchis, A. Malchiodi

TITLE	<i>Supercritical conformal metrics on surfaces with conical singularities,</i>
JOURNAL	Int. Mat. Res. Not., n.24, (2011), 5625-5643.
AUTHOR	F. De Marchis
TITLE	<i>Multiplicity of solutions for a mean field equation on compact surfaces,</i>
JOURNAL	Boll. U.M.I., 4, n.2, (2011), 245-257.
AUTHOR	F. De Marchis
TITLE	<i>Existence and multiplicity of solutions for problems in Geometrical Analysis,</i>
PHD THESIS	SISSA Trieste, 2010.
AUTHOR	F. De Marchis
TITLE	<i>Generic multiplicity for a scalar field equation on compact surfaces,</i>
JOURNAL	J. Funct. Anal., 259, n.8, (2010), 2165-2192.
AUTHOR	F. De Marchis
TITLE	<i>Multiplicity result for a scalar field equation on compact surfaces,</i>
JOURNAL	Comm. Partial Differential Equations, 33, n.10-12, (2008), 2208-2224.

Reviewing activity



Referee for Transactions of the American Mathematical Society, Journal of Functional Analysis, Manuscripta Mathematica, Discrete and Continuous Dynamical Systems, Abstract and Applied Analysis, Journal of Fixed Point Theory and Applications, Bollettino UMI, Annali della Scuola Normale Superiore di Pisa, Pacific Journal of Mathematics, Calculus of Variations and PDE, Journal of Mathematical Analysis and Applications.

Invited talks

DATE	June 2023
PLACE	Granada, Spain
EVENT	<i>International doctoral summer school in conformal geometry and non-local operators</i>
DATE	February 2023
PLACE	Università degli Studi di Roma Sapienza
DATE	June 2022
PLACE	Monastir, Tunisia
EVENT	<i>Workshop on Nonlinear Analysis and Applications</i>
DATE	November 2021
PLACE	Manfredonia
EVENT	<i>Tutti insieme. . . nonlinearmente</i>
DATE	March 2021
PLACE	online seminar
EVENT	<i>PDE's: Italia vs España</i>
DATE	May 2020
PLACE	Casa Matemática Oaxaca, Oaxaca, Mexico
EVENT	<i>Geometric and Analytical Aspects of Nonlinear Elliptic Equations and Related Evolution Problems</i> - cancelled due to COVID pandemic
DATE	November 2019
PLACE	Centro De Giorgi, Pisa
EVENT	<i>Recent trends in Geometric analysis and applications</i>
DATE	November 2019
PLACE	Laboratoire Jacques-Louis Lions, Sorbonne Université, Paris, France

EVENT	<i>LIA COPDESC and Lions Magenes Days</i>
DATE	June 2019
PLACE	Casa Matemática Oaxaca, Oaxaca, Mexico
EVENT	<i>Women in Geometry 2</i>
DATE	October 2018
PLACE	Università degli Studi di Roma Sapienza
DATE	September 2018
PLACE	Università della Campania Luigi Vanvitelli, Caserta, Italy
EVENT	<i>Nonlinear Analysis and PDEs in Caserta</i>
DATE	July 2018
PLACE	Taipei, Taiwan
EVENT	<i>12th AIMS Conference on Dynamical Systems, Differential Equations and Applications</i>
DATE	May 2018
PLACE	Università di Bologna Alma Mater Studiorum, Italy
EVENT	<i>Variational and PDE problems in Geometrical Analysis</i>
DATE	May 2018
PLACE	Scuola Normale Superiore, Pisa, Italy
DATE	April 2018
PLACE	Banff International Research Station, Canada
EVENT	<i>Physical, Geometrical and Analytical Aspects of Mean Field Systems of Liouville Type</i>
DATE	January 2018
PLACE	INDAM, Rome, Italy
EVENT	<i>Second Italian-Chilean Workshop in PDE's</i>
DATE	June 2017
PLACE	Notre Dame's Rome Global Gateway, Rome, Italy
EVENT	<i>Nonlinear Analysis Conference</i>
DATE	May 2017
PLACE	Gaeta, Italy
EVENT	<i>International conference on elliptic and parabolic problems</i>
DATE	May 2017
PLACE	Università degli Studi di Roma Sapienza
EVENT	AMACA:Analisi MATematica al CASTelnuovo
DATE	June 2016
PLACE	Institut Mittag-Leffler, Djursholm, Sweden
EVENT	<i>Summer school Geometric and physical aspects of Trudinger-Moser type inequalities</i>
DATE	June 2016
PLACE	Cogne, Italy
EVENT	<i>International conference on Variational Methods and Nonlinear PDE's</i>
DATE	May 2016
PLACE	Gaeta, Italy
EVENT	<i>9th European conference on elliptic and parabolic problems</i>
DATE	May 2016
PLACE	Torino, Italy
EVENT	<i>Conference Bruxelles - Torino talks in PDE's</i>

DATE	April 2016
PLACE	Università degli Studi di Roma Sapienza
DATE	April 2016
PLACE	ETH, Zürich, Switzerland
DATE	September 2015
PLACE	Siena, Italy
EVENT	<i>XX Congresso dell'Unione Matematica Italiana</i>
DATE	July 2015
PLACE	Lyon, France
EVENT	<i>Conference EquaDiff 2015</i>
DATE	March 2015
PLACE	Università degli Studi di Roma Sapienza
DATE	December 2014
PLACE	Venezia
EVENT	<i>Two-day meeting in honor of Antonio Ambrosetti</i>
DATE	November 2014
PLACE	Università degli Studi di Napoli Federico II
DATE	October 2014
PLACE	Universidad de Granada
DATE	July 2014
PLACE	Madrid
EVENT	<i>AIMS Conference Series on Dynamical Systems and Differential Equations. Special section: Recent trends in nonlinear Schrodinger systems</i>
DATE	March 2014
PLACE	University of Oxford
EVENT	<i>Workshop Women in Partial Differential Equations & Calculus of Variations</i>
DATE	May 2013
PLACE	Università di Roma Tor Vergata
DATE	January 2013
PLACE	Universität Giessen
DATE	January 2012
PLACE	Università degli Studi di Roma Sapienza
DATE	January 2012
PLACE	TATA Institute of Fundamental Research, Bangalore
EVENT	<i>School Cocompact embeddings, profile decompositions, and their applications to PDE</i>
DATE	December 2011
PLACE	Università di Roma Tor Vergata
EVENT	<i>Workshop New entries at Tor Vergata 2011</i>
DATE	November 2011
PLACE	Pienza
EVENT	<i>Workshop Nonlinear Differential Equations</i>
DATE	May 2011
PLACE	Università degli Studi di Roma Sapienza
DATE	May 2010

PLACE	ULB, Bruxelles
EVENT	Spring School in <i>Nonlinear Partial Differential Equations</i>
DATE	October 2009
PLACE	CIRM, Luminy
EVENT	Workshop <i>Loss of compactness in nonlinear problem: new trends and applications</i>
DATE	August 2009
PLACE	SMI, Cortona
EVENT	Summer school in <i>Geometric Aspects in Non-Linear Analysis</i>
DATE	May 2009
PLACE	Centro De Giorgi, Pisa
EVENT	Trimester on <i>Geometric Flows and Geometric Operators</i>

Teaching experiences

DATES	A.Y. 2020/2021 - 2021/2022 - 2022/2023
SUPERVISION OF STUDENTS	13 undergraduate students defended the thesis under my supervision
DATES	winter semester A.Y. 2022/2023
ASSIGNMENT	<i>Analisi Vettoriale</i> (84h), Bachelor of Physics, University of Rome Sapienza
DATES	winter semester A.Y. 2022/2023
ASSIGNMENT	<i>Matematica III</i> (56h), Bachelor of Management Statistics and Bachelor of Statistics, Economy and Society, University of Rome Sapienza
DATES	spring semester A.Y. 2021/2022
ASSIGNMENT	<i>Mincourse on ODE</i> (8h), Excellence Program of the Bachelor of Physics, University of Rome Sapienza
DATES	winter semester A.Y. 2021/2022
ASSIGNMENT	<i>Equazioni Differenziali</i> (60h), Bachelor of Mathematics, University of Rome Sapienza
DATES	winter semester A.Y. 2021/2022
ASSIGNMENT	<i>Analisi Vettoriale</i> (84h), Bachelor of Physics, University of Rome Sapienza
DATES	spring semester A.Y. 2020/2021
ASSIGNMENT	<i>Nonlinear elliptic equations</i> (reading course), PhD Program in Mathematics, University of Rome Sapienza
DATES	winter semester A.Y. 2020/2021
ASSIGNMENT	<i>Equazioni Differenziali</i> (48h), Bachelor of Mathematics, University of Rome Sapienza
DATES	winter semester A.Y. 2020/2021
ASSIGNMENT	<i>Analisi Vettoriale</i> (84h), Bachelor of Physics, University of Rome Sapienza
DATES	spring semester A.Y. 2019/2020
ASSIGNMENT	<i>Variational and topological methods in Nonlinear Analysis</i> (reading course), PhD Program in Mathematics, University of Rome Sapienza
DATES	spring semester A.Y. 2019/2020
ASSIGNMENT	<i>Maximum Principles for elliptic PDE's</i> (reading course), PhD Program in Mathematics, University of Rome Sapienza
DATES	winter semester A.Y. 2019/2020
ASSIGNMENT	<i>Analisi Vettoriale</i> (84h), Bachelor of Physics, University of Rome Sapienza
DATES	winter semester A.Y. 2018/2019
ASSIGNMENT	<i>Analisi Vettoriale</i> (84h), Bachelor of Physics, University of Rome Sapienza

DATES	winter semester A.Y. 2017/2018
ASSIGNMENT	<i>Istituzioni di Matematica II</i> (24h), Bachelor of Chemistry, University of Rome Sapienza
DATES	winter semester A.Y. 2017/2018
ASSIGNMENT	<i>Analisi Vettoriale</i> (84h), Bachelor of Physics, University of Rome Sapienza
DATES	winter semester A.Y. 2015/2016
ASSIGNMENT	Teaching assistant for the course <i>Analisi Matematica II</i> , Bachelor of Mathematics, University of Rome Sapienza
DATES	winter semester A.Y. 2015/2016
ASSIGNMENT	Teaching assistant for the course <i>Analisi Matematica I</i> , Faculty of Engineering, University of Rome Tor Vergata
DATES	September 2015
ASSIGNMENT	Precorso di Matematica, Faculty of Architecture, University of Rome Sapienza
DATES	spring semester A.Y. 2014/2015
ASSIGNMENT	Teaching assistant for the course <i>Analisi Matematica I</i> , Bachelor of Mathematics, University of Rome Sapienza
DATES	winter semester A.Y. 2014/2015
ASSIGNMENT	Teaching assistant for the course <i>Analisi Matematica I</i> , Faculty of Engineering, University of Rome Tor Vergata
DATES	September 2014
ASSIGNMENT	Precorso di Matematica, Faculty of Architecture, University of Rome Sapienza
DATES	winter semester A.Y. 2012/2013
ASSIGNMENT	Teaching assistant for the course <i>Mathematical Analysis II</i> , Bachelor of Industrial Engineering, University of Rome Tor Vergata
DATES	winter semester A.Y. 2011/2012
ASSIGNMENT	Tutoraggio OFA (Obblighi Formativi Aggiuntivi), Faculty of Sciences, University of Rome Sapienza
DATES	September 2011
ASSIGNMENT	Precorso di Matematica, Faculty of Architecture, University of Rome Sapienza
DATES	spring semester A.Y. 2010/2011
ASSIGNMENT	Teaching assistant for the course <i>Algebra I</i> , Bachelor of Mathematics, University of Rome Sapienza
DATES	November – December 2010
ASSIGNMENT	Minicourse of 4 seminars: <i>Some results on Liouville-type equations</i> , SISSA, Trieste
DATES	spring semester A.Y. 2009/2010
ASSIGNMENT	Teaching assistant for the course <i>Meccanica Analitica</i> , Bachelor of Mathematics, University of Trieste