

Mirko D'Ovidio

“ai fini della pubblicazione”

CURRENT POSITION

Researcher (Assistant Professor), Mathematical Statistics and Probability - MAT/06
Department of Basic and Applied Sciences for Engineering
Sapienza University of Rome
Via Antonio Scarpa, 16 - 00161 Rome, (Italy)

Italian National Habilitation as Associate Professor: March 28, 2017 - March 27, 2023.

PERSONAL DATA

Homepage : <http://sites.google.com/site/mirkodovidio/home>
<http://www.sbai.uniroma1.it/~mirko.dovidio>

FIELDS OF INTEREST

- *Fractional and anomalous diffusions*: diffusions on manifolds, partial differential equations of fractional and higher order (fractional calculus, fractional powers of operators), time change and boundary value problems.
- *Diffusions on irregular domains*: diffusions on fractal domains, irregular boundaries, transmission conditions, trace processes and time changes.
- *Random fields on manifolds*: applications to cosmological data (Cosmic Microwave Background radiation, Harmonic analysis, Clebsch - Gordan coefficients), coordinates changes of random fields.
- *Non linear equations*: fractional logistic equation, probabilistic viewpoint and numerical solutions.

REFEREE FOR

International projects.

International Journals: Stochastics, International Journal of Stochastic Analysis, Statistical Methods and Applications, Journal of Multivariate Analysis, Sankhya A - The Indian Journal of Statistics, Physica A, Differential and Integral Equations, Probability Theory and Related Fields, Fractional Calculus and Applied Analysis, Stochastic Processes and their Applications, Journal of Theoretical Probability, Statistics and Probability Letters

REVIEWER FOR

MathSciNet

EDUCATION AND TRAINING

2017, July 2 - 14, Saint-Flour, France. *Ecole d'Eté de Calcul des Probabilités de Saint-Flour.*

- *Large scale dynamics of dilute gases*, Thierry Bodineau.
- *Stochastic processes on random graphs*, Remco Van Der Hofstad.
- *Elements of combinatorial statistics*, Gabor Lugosi .

2013, July 7 - 20, Saint-Flour, France. *Ecole d'Eté de Calcul des Probabilités de Saint-Flour.*

- *Brownian motion and its applications to mathematical analysis*, Krzysztof Burdzy.

- *Aggregation and high-dimensional statistics*, Alexandre Tsybakov.

- *Statistical mechanics on random graphs*, Andrea Montanari.

2012, March - present, Researcher in Mathematical Statistics and Probability

2011, March - **2012**, February. Postdoctoral fellow in Probability at Sapienza University of Rome

Title : "Anomalous diffusions and PDEs connections".

(Supervisor : Prof. Enzo Orsingher)

2011, April - May, Contract: "IT support ", Department of Statistics, Sapienza University of Rome.

2011, January 21. PhD in Methodological Statistics, Sapienza University of Rome

Ph.D. Thesis : Random times and partial differential equations (Supervisor: Enzo Orsingher).

2010, July 4 - 17, Saint-Flour, France. *Ecole d'Eté de Calcul des Probabilités de Saint-Flour*.

- *Random perturbation of PDEs and fluid dynamic models*, Franco Flandoli.

- *Disorder and critical phenomena through basic probability models*, Giambattista Giacomin.

- *Random walks on disordered media and their scaling limits*, Takashi Kumagai.

2009, July 5 - 18, Saint-Flour, France. *Ecole d'Eté de Calcul des Probabilités de Saint-Flour*.

- *Topological complexity of smooth random functions*, Robert Adler.

- *Some mathematical problems from population genetics*, Alison Etheridge.

2009, March 17 - 26, Rome. *Sapienza University of Rome*.

- *Brownian motion in hyperbolic spaces*, Enzo Orsingher.

2008, June 11 - 18, Vancouver, Canada. *PIMS 2008 Summer school in Probability at UBC*.

- *Discrete Spatial Processes in Probability*, Geoffrey Grimmett.

- *Brownian Motion and Analysis*, Krzysztof Burdzy.

2007, October 1, Ph.D. fellow (student position) in Methodological Statistics.

2007, May 23, Degree in Statistics at Sapienza University of Rome

M.S. Thesis : Stima basata sulla trasformata wavelet discreta per serie temporali a memoria lunga.

(Supervisor: Francesco Battaglia).

LANGUAGES

Italian : Mother Tongue

English : Intermediate proficiency

French : Intermediate proficiency

COMPUTER SKILLS

Operating systems : Linux/Unix, Windows

Programming Languages : C, C++, Java, JavaScript, Php, Sql

Scientific Languages : Matlab, Octave, R

Markup Languages : Html, Latex

TEACHING

Italian lectures:

B.S., Probabilità e Statistica (Ing. per l'Ambiente e il Territorio), 6 CFU

B.S., Calcolo delle Probabilità (Ing. Gestionale), 6 CFU

English lectures:

M.S., Mathematical Methods for Chemical Engineering II (Chemical Engineering), 3CFU

PhD program, Fractional Calculus and Singular Equations (Reading course), 3 CFU

ACADEMIC EXPERIENCES

I was teacher for the following courses at Sapienza University of Rome:

Faculties of Engineering

2016 - 2017,

B.S., Calcolo delle Probabilità (I3S / Ing. Gestionale)

B.S., Probabilità e Statistica (ICI / Ing. per l'Ambiente e il Territorio)

2015 - 2016,

B.S., Calcolo delle Probabilità (I3S / Ing. Gestionale)

B.S., Probabilità e Statistica (ICI / Ing. per l'Ambiente e il Territorio)

2014 - 2015,

B.S., Calcolo delle Probabilità (I3S / Ing. Gestionale)

B.S., Probabilità e Statistica (ICI / Ing. per l'Ambiente e il Territorio)

2013 - 2014,

B.S., Calcolo delle probabilità (I3S / Ing. Gestionale)

B.S., Probabilità e Statistica (ICI / Ing. per l'Ambiente e il Territorio)

2012 - 2013,

B.S., Calcolo delle probabilità (I3S / Ing. Gestionale)

B.S., Probabilità e Statistica (ICI / Ing. per l'Ambiente e il Territorio)

2011, B.S., Preparatory course of Mathematics, 2011 (ICI / I3S)

Faculty of Medicine and Surgery

2009, M.S., Probabilità

Faculty of Economics

2009, Master GFM (graduate students), Stochastic processes

Faculty of Statistics

2008, Introduction to R (The R Project for Statistical Computing)

I was teaching assistant for the following courses:

Department of Statistical Sciences

B.S., Matematica 1, Enrico Casadio Tarabusi, Fall **2011**.

B.S., Matematica 2, Peter Laurence, Summer **2011**.

B.S., Matematica 3, Attilio Le Donne, Fall **2011**.

B.S., Probabilità, Luisa Beghin, Fall **2011**.

Department of Statistics, Probability and Applied Statistics

B.S., Matematica 1, Enrico Casadio Tarabusi, Fall **2010**.

B.S., Matematica 2, Peter Laurence, Summer **2010**.

B.S., Matematica 3, Lucia Gambardella, Fall **2010**.

ACADEMIC ACTIVITIES

2012 -

Member of the PhD Board in “Mathematical Models for Engineering, Electromagnetism and Nanoscience”, SBAI Dpt. - Sapienza University of Rome.

I (am) have been co-adviser for the PhD Students:

Roberto Garra, Sima Sarv Ahrabi, Caterina Balzotti, Davide Cocco.

2015 -

Member of REPRISE “Register of Expert Peer Reviewers for Italian Scientific Evaluation”

2018 - 2019,

Thesis Adviser for the BS Student Antonucci Francesca

2013 - 2015,

Member of “Giunta di Dipartimento”, SBAI Dpt. - Sapienza University of Rome.

2013 - 2016,

Member of the Editorial Board of International Journal of Statistics and Probability, ISSN 1927-7032(Print), ISSN 1927-7040(Online)

OTHER ACADEMIC ACTIVITIES

2019, External evaluator for a PhD Thesis, contact person Gianni Pagnini, Research Line Leader in BCAM, Bilbao Basque Country - Spain.

2017, Contact person for the visiting Professor Mohammud Foondun, University of Strathclyde, Glasgow, Scotland. Talk: “Some properties of space-time fractional stochastic partial differential equations”.

2014, External evaluator for a PhD Thesis, contact person Prof. María Dolores Ruiz Medina, Department of Statistics and Operation Research, University of Granada, Spain.

PRINCIPAL INVESTIGATOR FOR THE FOLLOWING RESEARCH PROJECTS/GRANTS

2018 "Fractional Derivatives in Science and Engineering".

Ricerca Universitaria (Ateneo : progetto medio).

2017 "Diffusioni rallentate su domini irregolari".

Ricerca Universitaria (progetto INDAM-GNAMPA).

2016, "Campi aleatori sulla sfera e applicazioni".

Ricerca Universitaria (Ateneo : progetto piccolo).

PARTICIPANT FOR THE FOLLOWING RESEARCH PROJECTS

2018, "A state-of-the art TEM-based platform for advanced Imaging and Diffraction Analyses - TEMIDA". Grandi Attrezzature Scientifiche (progetto di Ateneo).

2017, "Modelli decisionali, processi inferenziali e loro applicazioni".

Ricerca Universitaria (Ateneo: progetto piccolo).

2016, "Variational inequalities on fractal structures".

Ricerca Universitaria (progetto INDAM-GNAMPA).

2015, "Numerical and probabilistic models for the management of information". Ricerca Universitaria (Ateneo : progetto piccolo).

2014, "Fractional D'Alembert operators and random flights".

Ricerca Universitaria (Ateneo : progetto piccolo).

2014, "Spettrometro ad assorbimento atomico con fiamma e fornetto di grafite con sorgente di emissione continua".

Acquisizione di medie e grandi attrezzature scientifiche (progetto di Ateneo).

2012, "Interazione tra equazioni frazionarie e processi aleatori con subordinatori stabili".
Ricerca Universitaria (Ateneo : progetto piccolo).

AWARDS

2017 Fondo finanziamento delle attività base di ricerca, FABBR-ANVUR.

TALKS

Delayed and Rushed motions (invited).

Nonlocal and Fractional Operators : In honour of Prof. Renato Spigler, April 12 -13, **2019**, Rome, Italy.

Random time changes: delayed and rushed motions (invited).

6th FCPNLO Workshop: Fractional Calculus, Probability and Non-Local Operators: Applications and Recent Developments, 26 - 28 September 2018, Bilbao, Spain.

Fractional equations and time-changed processes (invited).

5th FCPNLO Workshop: Fractional Calculus, Probability and Non-Local Operators, November 10, **2017**, Bilbao, Spain .

Skew diffusions across Koch interfaces.

First Italian Meeting on Probability and Mathematical Statistics, June 19 - June 22, **2017**, Torino, Italy (joint work with R. Capitanelli).

Delayed diffusions on random Koch domains (invited).

Recent Developments in Probability Theory and Stochastic Processes : A conference in honor of Enzo Orsingher, September 23, **2016**, Rome, Italy.

Delayed diffusions on random Koch domains (invited).

Stochastic Partial Differential Equations and Applications - X, May 30 - Jun 4, **2016**, Levico, Italy (joint work with R. Capitanelli).

Delayed diffusions on random Koch domains.

Fractality and Fractionality, May 17 - May 20, **2016**, Leiden, The Netherlands (joint work with R. Capitanelli).

Coordinates change and random fields (invited).

Ciclo di Seminari - Progetto ERC grant PASCAL, March 18, **2015**, Tor Vergata, Rome.

Transmission problems and trace processes on Koch domains (invited).

Special session "Fractals" at the 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, July 07 - 11, **2014** Madrid, Spain (joint work with R. Capitanelli).

Fractional Cauchy problems on S_1^2 and coordinates changed random fields.

ICFDA'14 - International Conference on Fractional Differentiation and its Applications, June 23 - 25, **2014**, Catania, Italy (joint work with E. Nane).

Transmission problems and time-changed diffusions on irregular domains.

Minisymposia "Degeneracies and Singularities in PDEs" at the 8th European Conference on Elliptic and Parabolic Problems, May 26 -30, **2014**, Gaeta, Italy (joint work with R. Capitanelli).

Fractional Cauchy problems on compact manifolds and coordinates changed random fields (invited).

Department of Mathematics "G. Peano", 17 January **2014**, Torino, Italy (joint work with E. Nane).

Time dependent Random fields on spherical non-homogeneous surfaces.

Contributed session "Gaussian and Related Processes and Random Fields" at Modern Stochastics: Theory and Applications III, September 10-14, **2012**, Kyiv, Ukraine (joint work with E. Nane).

Time dependent Random fields on spherical non-homogeneous surfaces (invited).

Contributed session "Anomalous Diffusion in Porous Media" at the 8th World Congress in Probability and Statistics, July 9-14, **2012**, Istanbul, Turkey (Bernoulli Society).

Partial differential equations of fractional order and processes with randomly varying time.
Dipartimento di Scienze di Base ed Applicate per l'ingegneria **2012**, Rome, Italy.

Time Dependent Random Fields on porous spheres.
Department of Mathematics, Tor Vergata University of Rome, December **2011**, Rome, Italy.

Vibrations and fractional vibrations of rods, plates and Fresnel pseudo-processes.
Workshop on Fractional Calculus and its Applications. Department of Statistical Sciences, Sapienza University of Rome, May **2011**, Rome, Italy (joint work with E. Orsingher).

Pseudo-processi di Fresnel ed equazioni di ordine superiore.
I Riunione Scientifica, Department of Statistical Sciences, Sapienza University of Rome, February **2011**, Rome, Italy (joint work with E. Orsingher).

Sulle rappresentazioni esplicite delle leggi stabili.
Comunicazione e ricerca - I giovani si incontrano, Department of Statistics, Probability and Applied Statistics, Sapienza University of Rome, June **2010**, Rome, Italy.

Explicit solutions of fractional diffusion equations via Mellin convolution of generalized gamma densities.
From Markov Processes to Brownian Motion and Beyond: An International Conference in Memory of Kai Lai Chung, June **2010**, Peking University, Beijing, China.

Processi di Bessel e del moto Browniano arrestati a differenti tempi aleatori.
XIV Riunione Scientifica, Department of Statistics, Probability and Applied Statistics, Sapienza University of Rome, February **2010**, Rome, Italy.

Processi iterati e collegamenti tra equazioni a derivate parziali di ordine frazionario ed intero.
XXIII Riunione Scientifica, Department of Statistics, Probability and Applied Statistics, Sapienza University of Rome, February **2009**, Rome, Italy.

OTHER CONFERENCES

Recent Advances in Random Processes: A conference in honour of Paola Baldi's 70-th birthday, September 10 - 11, **2018**, Rome, Italy.

Homogenization: Flows in collapsing domains and composite materials.
Department of Basic and Applied Sciences for Engineering, Sapienza University of Rome, 25-27 June **2012**, Rome, Italy.

OTHER WORKSHOPS AND SCHOOLS

Fifth FCPNLO Workshop: Fractional Calculus, Probability and Non-Local Operators,
Basque Center for Applied Mathematics: BCAM, November 8-10, **2017**, Bilbao, Spain

Spring school on nonlinear PDEs, courses by S. Le Coz, A. Malchiodi, L. Rossi, E. Valdinoci.
Department of Mathematics, Sapienza University of Rome, 24 - 28 April **2014**, Rome, Italy.

Workshop on Fractional Calculus and its Applications.
Department of Statistical Sciences, Sapienza University of Rome, 20 - 21 May **2011**, Rome, Italy.

PUBLICATIONS

1. M. D'OIDIO.
Explicit solutions to fractional diffusion equations via Generalized Gamma Convolution.
Electronic Communications in Probability **15**, (2010), 457 - 474.
DOI: 10.1214/ECP.v15-1570.
2. M. D'OIDIO, E. ORSINGER.
Compositions of processes and related partial differential equations.
Journal of Theoretical Probability **24**, (2011), 342 - 375.
DOI:10.1007/s10959-010-0284-9.

3. M. D'OVIDIO, E. ORSINGER.
Bessel processes and hyperbolic Brownian motions stopped at different random times.
Stochastic Processes and their Applications **121**, (2011) 441 - 465.
DOI:10.1016/j.spa.2010.11.002.
4. M. D'OVIDIO.
On the fractional counterpart of the higher-order equations.
Statistics and Probability Letters, **81**, (2011), 1929 - 1939.
DOI:10.1016/j.spl.2011.08.004.
5. E. ORSINGER, M. D'OVIDIO.
Vibrations and fractional vibrations of rods, plates and Fresnel pseudo-processes.
Journal of Statistical Physics, **145**, (2011), 143 - 174.
DOI:10.1007/s10955-011-0309-5.
6. M. D'OVIDIO.
From Sturm-Liouville problems to fractional and anomalous diffusions.
Stochastic Processes and their Applications, **122**, (2012), 3513 - 3544.
DOI:10.1016/j.spa.2012.06.002.
7. E. ORSINGER, M. D'OVIDIO.
Probabilistic representation of fundamental solutions to $\frac{\partial u}{\partial t} = \kappa_m \frac{\partial^m u}{\partial x^m}$.
Electronic Communications in Probability, **17**, (2012), 1-12.
DOI:10.1214/ECP.v17-1885
8. E. ORSINGER, M. D'OVIDIO.
Higher-order Laplace equations and hyper-Cauchy distributions.
Journal of Theoretical Probability (Published on line: 28 February 2013).
DOI:10.1007/s10959-013-0480-5.
9. M. D'OVIDIO.
Continuous random walks and fractional powers of operators.
Journal of Mathematical Analysis and Applications, **411**, (2014), 362-371.
DOI:10.1016/j.jmaa.2013.09.048.
10. M. D'OVIDIO.
Coordinates changed random fields on the sphere.
Journal of Statistical Physics, **164**, (2014), 1153-1176
DOI:10.1007/s10955-013-0911-9.
11. M. D'OVIDIO, E. NANE.
Time dependent random fields on spherical non-homogeneous surfaces.
Stochastic Processes and their Applications, **124**, (2014), 2098 - 2131.
DOI:10.1016/j.spa.2014.02.001.
12. M. D'OVIDIO, B. TOALDO, E. ORSINGER.
Fractional telegraph-type equations and hyperbolic Brownian motion.
Statistics and Probability Letters, **89**, (2014), 131 - 137.
DOI:10.1016/j.spl.2014.02.021
13. M. D'OVIDIO, R. GARRA.
Multidimensional fractional advection-dispersion equations and related stochastic processes.
(Fractional gradient and its application to the fractional advection equation).
Electronic Journal of Probability, **19**, (2014), no. 61, 1-31.
DOI: 10.1214/EJP.v19-2854
14. M. D'OVIDIO, B. TOALDO, E. ORSINGER.
Time changed processes governed by space-time fractional telegraph equations.

- Stochastic Analysis and Applications*, **32**, (2014), no. 6, 1009 - 1045.
DOI:10.1080/07362994.2014.962046.
15. M. D'OIDIO, F. POLITO.
Discussion on the paper "On simulation and properties of the stable law" by L. Devroye and L. James.
Stat. Methods Appl. **23** (2014), no. 3, 359-363.
DOI: 10.1007/s10260-014-0268-5.
 16. L. BEGHIN, M. D'OIDIO.
Fractional Poisson process with random drift.
Electronic Journal of Probability, **19**, (2014), no. 122, 1-26.
DOI:10.1214/EJP.v19-3258.
 17. M. D'OIDIO.
Wright functions governed by fractional directional derivatives and fractional advection diffusion equations.
Methods and Applications of Analysis, **22**, (2015), no. 1, 1-36.
DOI: 10.4310/MAA.2015.v22.n1.a1.
 18. M. D'OIDIO, E. NANE.
Fractional Cauchy problems on compact manifolds.
(Coordinate changed random fields on manifolds).
Stochastic Analysis and Applications, **34**, (2016), 232 - 257.
DOI: 10.1080/07362994.2015.1116997
 19. M. D'OIDIO, E. ORSINGHER, L. SAKHNO.
Spectral densities related to some fractional stochastic differential equations
Electronic Communications in Probability, **21**, (2016), 18, 1-15.
DOI: 10.1214/16-ECP4411
 20. M. D'OIDIO, N. LEONENKO, E. ORSINGHER.
Fractional spherical random fields.
Statistics and Probability Letters, **116**, (2016), 146 - 156.
DOI:10.1016/j.spl.2016.04.011
 21. R. CAPITANELLI, M. D'OIDIO.
Skew Brownian diffusions across Koch interfaces.
Potential Analysis, **46**, (2017), 431- 461.
DOI:10.1007/s11118-016-9588-4.
 22. R. CAPITANELLI, M. D'OIDIO.
Asymptotics for time-changed diffusions.
Probability Theory and Mathematical Statistics, **95**, (2017) 37- 54.
 23. M. D'OIDIO, F. POLITO.
Fractional Diffusion-Telegraph Equations and their Associated Stochastic Solutions.
Theory of Probability and its Applications, **62** (2017) 692 - 718.
 24. M. D'OIDIO, P. LORETI, S. S. AHRABI.
Modified Fractional Logistic Equation.
Physica A: Statistical Mechanics and its Applications, **505** (2018) 818 - 824.
 25. M. D'OIDIO, P. LORETI.
Solutions of fractional logistic equations by Euler's numbers.
Physica A: Statistical Mechanics and its Applications, **506** (2018) 1081 - 1092.
 26. M. D'OIDIO, P. LORETI, A. MOMENZADEH, S. S. AHRABI.
Determination of order in linear fractional differential equations.
Fractional Calculus and Applied Analysis, **21** (2018) 937 - 948.

27. M. D'OIDIO, F. IAFRATE, E. ORSINGHER.
Drifted Brownian motions governed by fractional tempered derivatives.
Modern Stochastics: Theory and Applications, **5** (2018) 445– 456.
28. M. D'OIDIO, S. VITALI, V. SPOSINI, O. SLIUSARENKO, P. PARADISI, G. CASTELLANI, G. PAGNINI.
Centre-of-mass like superposition of Ornstein-Uhlenbeck processes: a pathway to non-autonomous stochastic differential equations and to fractional diffusion.
Fractional Calculus and Applied Analysis, **21** (2018) 1420–1435.
29. S. BONACCORSI, M. D'OIDIO, S. MAZZUCCHI.
Probabilistic representation formula for the solution of fractional high order heat-type equations.
Journal of Evolution Equations, **19** (2019) 523–558.
30. R. CAPITANELLI, M. D'OIDIO.
Fractional equations via convergence of forms.
Fractional Calculus and Applied Analysis, **in press**.
31. M. GIONA, M. D'OIDIO, D. COCCO, A. CAIROLI, R. KLAGES.
Age representation of Lévy Walks: partial density waves, relaxation and first passage time statistics.
Journal of Physics A: Mathematical and Theoretical, **in press**.

SUMMARY OF SCIENTIFIC ACHIEVEMENTS ---

	Scopus	MathSciNet
Articles	28	29
Total Citations	147	96
Average Citations per article	5.25	3.31
Hirsch Index (H)	7	7
H normalized by academic seniority	0.7	0.7

Total Impact Factor (IF)	26.428
Articles in Journals with IF	26
Mean IF	1.016

IF collected by year of publications.

Lats update : August 28, 2019

