

# CURRICULUM VITAE

## CARLOS R MEJÍA MONASTERIO




Born on February 11th 1971. Acapulco, Mexico.  
Nationality: Mexican/Spanish



Professor of Physics & Complex Systems  
Laboratory of Physical Properties  
School of Agricultural, Food and Biosystems Engineering  
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 [webofscience.com/wos/author/record/A-5977-2009](https://www.webofscience.com/wos/author/record/A-5977-2009)

## Studies

- 1997 - 2001 **Ph.D. in Physics** National Autonomous University of Mexico  
Thesis supervisor: Christof Jung and Thomas Seligman  
Thesis: "Quantum chaotic scattering in terms of incomplete Smale horseshoes"  
Degree obtained in August 24th, 2001
- 1995 - 1996 **M. Sc. in Physics** National Autonomous University of Mexico  
Degree obtained in December 11th, 1996
- 1990 - 1995 **B. Sc. in Physics** National Autonomous University of Mexico  
Supervisor: Thomas Seligman  
Thesis: "Diffusion in a two-dimensional oscillating Lorentz gas"  
Degree obtained in September 7th, 1995

## Professional Academic career

- 01.09.2017 – 28.02.2018 **Invited Professor** Department of Mathematical Sciences, Polytechnic University of Turin. Turin, Italy.
- 01.09.2012 – 31.08.2013 **Guest Researcher** Department of Mathematics and Statistics, University of Helsinki. Helsinki, Finland.
- Since 10.04.2010 **Associate Professor** Laboratory of Physical Properties, Department of Rural Engineering, Technical University of Madrid. Madrid, Spain.
- 01.09.2009 – 09.04.2010 **Postdoctoral Researcher** (ERC and Academy of Finland) Department of Mathematics and Statistics, University of Helsinki. Helsinki, Finland.
- 15.04.2008 – 14.05.2009 **Postdoctoral Researcher** (CNR-Italy) Institute for Complex Systems, C.N.R. Florence, Italy.
- 01.11.2005 – 31.10.2007 **Postdoctoral Researcher** (Complex Systems - Lagrange Fellow, I.S.I.) Department of Mathematics, Polytechnical University of Turin. Turin, Italy.
- 01.03.2005 – 31.10.2005 **Associate Researcher** (Fonds National Suisse) Department of Theoretical Physics, University of Geneva. Geneva, Switzerland.
- 20.02.2003 – 28.02.2005 **Postdoctoral Researcher** (USA - ARO) Center for Nonlinear and Complex Systems, University of Insubria. Como, Italy.
- 01.09.2001 – 31.12.2002 **Postdoctoral Researcher** (National Science and Research Council of Mexico) Center for Physical Sciences, National University of Mexico. Cuernavaca, Mexico.

## Professional Administrative career

1.10.2013 - 1.09.2015      **Vice coordinator of Postgraduate Studies** Department of Agroforestry Engineering, Technical University of Madrid. Madrid, Spain.

## Research Keywords

Nonequilibrium statistical mechanics. Nonlinear dynamical systems. Thermoelectricity. Heat transport. Condensed matter. Open quantum systems. Many-body systems. Microfluidics. Complex systems. Stochastic processes. Soft matter. Active matter. Stochastic lattice systems First-passage time. Random walks. Optimal control.

## Awards and Distinctions

### Awards:

- Medal "Antonio Caso" to the University Merit (most distinguished PhD student); National University of Mexico, (2001)
- Best PhD thesis in physics of year 2001; PCF, National Autonomous University of Mexico, (2002)

### Distinctions:

- Member of the National Institute of High Mathematics, Italy (2005-2007).
- Member of the National System of Researchers S.N.I. (Level I), Mexico (since 2010).
- Member of the Royal Academy of Physical Sciences, Spain (Since (2015)).
- Member of the Italian Society of Statistical Physics, Italy (Since (2019)).
- Member of the European Physical Society (Since (2017)).
- French qualification "Professeur des Universités", Section 28 (Condensed Matter), number *09128194662* (2009-2018).
- French qualification "Professeur des Universités", Section 29 (Theoretical Physics), number *09129194662* (2009-2013).
- Italian habilitation "Full Professor" (A2 Theoretical Physics) (2012-2018).
- Spanish qualification "Profesor Contratado Doctor (13)", number *2010-6894*.
- Spanish distinguished researcher level 3-*sexenios*.
- Accredited scientific reviewer of the National Research Council of Mexico CONACyT, area 1 "Physics, Mathematics and Earth Sciences", number *RCEA-01-18977-2010*
- Regular scientific reviewer of: (a) Europhysics Letters (since 2005). (b) Journal of Statistical Physics (since 2008). (c) Physics Letters (since 2006). (d) Physical Review Letters (since 2009). (e) Physical Review E (since 2008). (f) Journal of Physics A: Math Theor (since 2008). (g) Mathematical Reviews (since 2008).

## Languages

Spanish	mother tongue
English	fluent (r/w/s)
Italian	fluent (r/w/s)
French	post-intermediate knowledge (r/w/s)
German	basic knowledge (r/s)

## Extended research visits

09.2020 – 09.2020	Invited Researcher Department of Condensed Matter (LPTMC), Sorbonne University. Paris, France.
02.2020 – 02.2020	Invited Researcher Higher School of Economics University. Moscow, Russia.
12.2019 – 12.2019	Invited Researcher Interdisciplinary Research Center J.-V. Poncelet. Moscow, Russia.
10.2019 – 10.2019	Invited Researcher Independent University of Moscow. Moscow, Russia.
06.2019 – 06.2019	Invited Researcher Interdisciplinary Research Center J.-V. Poncelet. Moscow, Russia.
07.2018 – 07.2018	Invited Researcher Department of Condensed Matter (LPTMC), Sorbonne University. Paris, France.
11.2015 – 11.2015	Invited Researcher Department of Condensed Matter (LPTMC), University Pierre and Marie Curie. Paris, France.
11.2013 – 11.2013	Invited Researcher Department of Mathematics, University of Lille 1. Lille, France.
09.2012 – 08.2013	Invited Researcher (Sabbatical research stay) Department of Mathematics and Statistics, University of Helsinki. Helsinki, Finland.
03.2008 – 03.2008	Invited researcher Department of Theoretical Physics, University of Geneva. Geneva, Switzerland.
02.2008 – 02.2008	Invited researcher Institute for Complex Systems, University of Insubria. Como, Italy.
11.2007 – 01.2008	Invited researcher Department of Theoretical Physics, University of Geneva. Geneva, Switzerland.
07.2004 – 08.2004	Invited researcher Department of Chemistry, Autonomous University of Madrid. Madrid Spain.
12.1997 – 05.1998	Invited researcher (PhD studies) Max-Planck Institute for Nuclear Physics. Heidelberg Germany.
06.1994 – 12.1994	Research stay (undergraduate theoretical studies) on <i>transport phenomena in thermonuclear plasmas</i> Nuclear Science Institute, National Autonomous University of Mexico. Mexico city, Mexico.
03.1994 – 04.1994	Research stay (undergraduate experimental studies) on <i>physics of nanostructured materials</i> Institute of Materials Science, National Autonomous University of Mexico. Mexico city, Mexico.

## Participation in Research Projects

03.2004 – 02.2007	Collaborating researcher. National Research Council of Mexico. “Classical and quantum chaotic scattering” (Ref.43375).
11.2005 – 10.2007	Principal Investigator. Institute for Scientific Interchange Foundation (Italy). <i>Lagrange fellow</i> . “Microscopic origin of molecular fluctuations in nonequilibrium complex systems” (Ref.66).
01.2007 – 12.2009	Collaborating researcher. National Autonomous University of Mexico (Mexico). “Transport phenomena in classical and quantum systems” (Ref.IN112307).
01.2010 – 12.2011	Collaborating researcher. Ministry of Education and Research (Italy). “Thermoelectric efficiency: a microscopic approach” (Ref.2008Y4W3CY).
01.2010 – 12.2014	Collaborating researcher (7 <sup>th</sup> Framework Programme, EU). “Robots fleets for highly effective agriculture and forestry” (Ref.CP-IP 245986-2 RHEA).
03.2011 – 02.2013	Collaborating researcher. Finlombarda, Region of Lombardia (Italy). “Coupled transport of heat and particles in systems subject to magnetic fields” (Ref.THERMOPOWER).
01.2013 – 12.2015	Collaborating researcher. Ministry of Economy and Competitiveness (Spain). “Chaos and quantum chaos in Hamiltonian systems and complexity” (Ref.MTM2012-39101-C02-01).
01.2016 – 12.2018	Collaborating researcher. Ministry of Economy and Competitiveness (Spain). “Chaos and quantum chaos in Hamiltonian dynamical and complexity” (Ref.MTM2015-63914-P).
01.2019 – 12.2021	Principal Investigator. Ministry of Science (Spain). “Active Transport and Probabilistic Searches in Complex Environments” (Ref.PGC2018-099944-B-I00).

09.2022 – 08.2025 Principal Investigator. Ministry of Science (Spain). “Nonequilibrium transport and emergent collective behaviour” (Ref.PID2021-127795NB-I00).

## Other Grants

- 1994-1995 (Undergraduate studies) Fundación UNAM (Mexico).
- 1995-1996 (Master studies) DGAPA, National Autonomous University of Mexico (Mexico).
- 1997-2000 (PhD studies) DGEP, National Autonomous University of Mexico (Mexico).
- (1999) Grant to attend the International School of Physics “Enrico Fermi”, CXLIII “New Directions in Quantum Chaos”, Varenna Italy.
- (1999) Grant to attend the International Summer School “Let’s face Chaos through Non-linear dynamics”, CAMTP Maribor Slovenia.
- 2001-2003 National Research Council (Mexico).
- 2005-2007 Institute for Scientific Interchange, “Lagrange Fellow” (Italy).
- 2008-2009 National Research Council (Italy).
- (2011) European Science Foundation (ESF) for the organization of the NORDITA scientific program on “Foundations and Applications of Non-Equilibrium Statistical Mechanics”.
- (2012) European Science Foundation (ESF) for the organization of the International workshop on “Search and Stochastic Phenomena in Complex Physical and Biological Systems”.
- (2012) Office of Naval Research (ONR USA) for the organization of the International workshop on “Search and Stochastic Phenomena in Complex Physical and Biological Systems”.
- (2019) International Center for Theoretical Sciences (Bangalore India) for the organization of the International workshop on “Classical and Quantum Transport Processes: current state and future directions”.

## Organization of conferences

- 1.- Scientific organizer. 4<sup>th</sup> International workshop “Quantum Chaos, Theory and Applications”.  
13.09.2010 – 17.09.2010. Castro Urdiales, Spain.
- 2.- Main organizer. NORDITA scientific program on “Foundations and Applications of Non-Equilibrium Statistical Mechanics”.  
19.09.2011 – 14.10.2011, NORDITA, Stockholm, Sweden.
- 3.- Main organizer, International workshop on “Search and Stochastic Phenomena in Complex Physical and Biological Systems”.  
28.05.2012 – 01.06.2012, IFISC, Palma de Mallorca, Spain.
- 4.- Main organizer, Special Session “Stochastic Processes in Complex Environments” of the International Conference on Statistical Physics.  
10.07.2017 -- 14/07.2017, Corfu Greece.
- 5.- Main organizer, International Program “Classical and Quantum Transport Processes: Current State and Future Directions”  
17.01.2022 -- 28/01.2022, International Center for Theoretical Sciences, Bangalore India.

## Invited presentations to international conferences (last 20 years)

- **June 2022** Invited talk: *On transport in open polygonal billiards*, International conference on “Mathematical Physics, at Coffee”), Geneva, Switzerland.
- **December 2021** Invited talk: *On polygons and their properties as models of transport*, 5-th Meeting of Mexican Mathematicians in the World CMO (online), Oaxaca, Mexico.
- **December 2021** Invited Keynote talk: *Diffusion and escape from polygonal channels: extreme values and geometric effects*, International MACSPRO Conference (online), Moscow, Russia.
- **October 2021** Invited talk: *Diffusion and escape from polygonal channels: extreme values and geometric effects*, International Venice meeting on “Fluctuations in Small Complex Systems V”, Venice, Italy.
- **October 2019** Invited talk: *On a class of anomalous diffusion dominated by rare but long ballistic excursions*, International Workshop on “ Stochastic processes in complex systems”, International Scientific Center J.V. Poncelet (ISCP), Moscow Russia.
- **September 2019** Invited talk: *On the anomalous diffusion in dynamics with rare ballistic excursions*, International conference on “ Anomalous Diffusion”, Bad Wildbad, Germany.
- **June 2019** Invited talk: *Random skating on ice disorder*, International RTST19 Workshop on “ Random Talks on Stochastic and Nonequilibrium Thermodynamics”, Santa Marinella Research Institute, Italy.
- **October 2018** Invited talk: *Random skating on ice disorder*, International Venice meeting on “Fluctuations in Small Complex Systems IV”, Venice, Italy.
- **September 2018** Invited talk: *On a universality class in anomalous diffusion*, International Workshop on “Probabilistic methods in statistical physics for extreme statistics and rare events”, Pisa, Italy.
- **September 2018** Participation. International Workshop on “Paths in Statistical Physics”, Paris, France.
- **May 2018** Invited talk: *Search processes in confined geometries*, International WE-Heraeus seminar on “Search and problem solving by random walks: drunkwards vs quantum computers”, Bad Honnef, Germany.
- **May 2018** Invited talk: *Estimating the Diffusion coefficient from Single Particle Trajectories*, Advanced Workshop on “Nonequilibrium Systems in Physics, Geosciences, and Life Sciences”, ICTP Trieste, Italy.
- **January 2018** Invited talk: *Thermalization of some kind of Hamiltonian systems*, International SRitp Workshop on “Correlations, Fluctuations and anomalous transport in systems far from equilibrium”, Weizmann Institute of Science, Rehovot, Israel.
- **September 2017** Participation. Second Arctic School on “Open Quantum Systems” Kevo, Finland.
- **July 2017** Invited talk: *Negative response to an excessive bias by a mixed population of voters*, International Conference on Statistical Physics. Corfu, Greece.
- **May 2017** Invited keynote speaker: *The thermodynamics of the small*, 8th Young Researcher Meeting, Calgliary, Italy.
- **January 2017** Participation. 1st Biology for Physics Conference: “Is there new Physics in Living Matter?”, Barcelona, Spain.
- **October 2016** Invited talk: *Equilibration pathways in many-body Hamiltonian systems*, International Venice meeting on “Fluctuations in small complex systems III”, Venice, Italy.
- **August 2016** Invited talk: *Dynamical mechanisms leading to equilibration in two-component gases*, International KITPC Program on “Nonequilibrium processes at the nanoscale”, Beijing, China.

- **December 2015** Participation , Artic School on “Open Quantum Systems” Kilpisjärvi, Finland.
- **October 2015** Invited talk: *Anomalous heat transport in small dimensional systems*, International Workshop on “Anomalous diffusion: bad and wild?”, Bad Wildbad, Germany.
- **May 2015** Invited talk: *Stochastic pairing of particles driven through a quiescent medium*, International Workshop on “Stochastic processes in random media”, Institute for Mathematical Sciences, Singapore.
- **March 2015** Invited talk: *Geometry-induced superdiffusion in driven crowded systems*, International Workshop on “Flowing matter across scales”, Istituto Nazionale di Studi Romani, Rome Italy.
- **October 2014** Invited talk: *Bias- and bath-mediated pairing of particles driven through a quiescent medium*, International Venice meeting on “Fluctuations in small complex systems II”, Istituto Veneto di Scienze, Lettere ed Arti, Venice Italy.
- **June 2014** Invited talk: *From Hamilton to Boltzmann: The scattering road to equilibrium*, International conference “Nonequilibrium problems in physics and mathematics”, Centro Stefano Franscini, Ascona, Switzerland.
- **May 2014** Invited talk: *Geometry-Induced Superdiffusion in Driven Crowded Systems*, International conference “Advances in Nonequilibrium Statistical Mechanics: large deviations and long-range correlations, extreme value statistics, anomalous transport and long-range interactions”, Galileo Galilei Institute for Theoretical Physics, Florence Italy.
- **December 2013** Invited talk: *Optimal nonequilibrium fast random processes*, International workshop on “Open systems: classical and quantum”, International Center for Sciences, Cuernavaca Mexico.
- **November 2013** Invited speaker: *Optimal nonequilibrium fast random processes*, International conference “Statistical Mechanics and Nonlinear Physics”, University of Lille 1, Lille France.
- **July 2013** Invited talk: *Optimal stochastic thermodynamics in discrete and continuous fast random processes*, International program on “Small system nonequilibrium fluctuations, dynamics and stochasticity, and anomalous behaviour”, Kavli Institute for theoretical physics, Beijing China.
- **June 2013** Invited talk: *Active olfactory search in restricted domains*, International workshop “Search and Exploration”, Institut d’Etudes Scientifiques de Cargèse, Corcega.
- **May 2013** Invited Keynote lecturer: *Active micro-rheology: learning about complex fluids by pulling intruders*, Annual workshop on Phase Transitions and Critical Phenomena “ISING LECTURES 2013”, Lviv Ukraine.
- **February 2013** Invited talk: *A biased intruder in a dense quiescent medium: Looking beyond the force-velocity relation*, Nonlinear Response in Complex Matter, Erlangen Germany.
- **October 2012** Invited talk: *Anomalous field-induced growth of fluctuations in dynamics of a biased intruder moving in a quiescent medium*, Venice meeting on “Fluctuations in small complex systems”, Venice, Italy.
- **September 2012** Invited Keynote lecturer: *Optimal processes in the physics of small systems*, Capri Fall Workshop on “Non-equilibrium processes & fluctuation-dissipation theorems”, Villa Orlandi Capri, Italy.
- **July 2012** Invited talk: *Single particle trajectories - making the most out of bad statistics*, 4<sup>th</sup> Conference on “Statistical Physics: Modern Trends and Applications”, University of Lviv, Lviv, Ukraine.
- **December 2011** Invited talk: *Optimal protocols in stochastic thermodynamics* International Workshop on “Fluctuations and Nonequilibrium Systems”, Physics Department, University of Chile, Santiago de Chile.
- **April 2011** Invited talk: *Cheating a pathfinder: deceptive tactics in bacteria/phage contests* International workshop “Search and Exploration”, Institut d’Etudes Scientifiques de Cargèse, Corcega.

- **September 2010** Invited talk: *Anomalous heat transport and fractional diffusion equation* 4th Workshop on "Quantum Chaos, Theory and Applications", CIEM, Castro Urdiales, Spain.
- **September 2010** Invited Participant: *Thermoelectric efficiency in low-dimensional Hamiltonian and stochastic systems* Expert Group in "Quantum Transport", Max-Planck Institute for Physics of Complex Systems, Dresden Germany.
- **March 2010** Invited talk: *A stochastic model of anomalous heat transport* Conference "Nordic Workshop on Statistical Physics: Biological, Complex and Non-equilibrium Systems", NORDITA-Stockholm Sweden.
- **March 2009** Invited talk: *A stochastic model of anomalous heat transport* Conference "Heat Transport in Low Dimensional Systems", International Center for Theoretical Sciences, Tata Institute of Fundamental Research, Bangalore India.
- **January 2009** Invited talk: *Superdiffusive heat and particle transport* International Workshop "New Paths for Random Walks", International Center for Sciences, Cuernavaca Mexico.
- **March 2008** Invited talk: *Fluctuations in Nonequilibrium Statistical Mechanics* Conference on "Open Dynamical Systems" Lille France.
- **December 2007** Invited talk: *On the Heat Flow in Quantum Spin Chains* Conference "Statistical Physics Out of Equilibrium", Institut Henri Poincaré, Paris France.
- **July 2007** Invited talk: *Nonequilibrium fluctuations for heat flow* International conference "Dynamics and thermodynamics of systems with long range interactions", Assisi Italy.
- **January 2004** Invited talk: *Quantum Chaos and Scattering Theory* Workshop on "Open and Closed Billiard Systems", International Center for Sciences, Cuernavaca México.
- **October 2002** Invited talk: *Classical mechanics: origins and perspectives'* XLI National Physics Meeting, S.M.F., León México.
- **June 2001** Invited talk: *Scattering echoes and the inverse scattering problem in simple Smale horse-shoes* XXXIII Latin American School of Physics "Classical and Quantum Chaos", México D.F. México.

## Research supervision

### Theses:

- Direction of the Ph.D. thesis of Juan R. Duque Rodríguez since 01.2012, on *stochastic search processes and their application to the localization of infection foci in crops*. Technical University of Madrid & International Campus of Excellency MONCLOA
- Direction of the Master thesis of Giulia Jansen, on *Bias and bath mediated clustering of driven particles through a quiescent bath*. University of Torino, Turin Italy (2018).
- Direction of the Master thesis of Carlo Brugo, on *Empirical model reduction in the study of climate sensibility and variability*. Polytechnic University of Torino, Turin Italy (2022).
- Direction of the Master thesis of Sonsoles Moreno Toledo, on *An application of the exact response theory to climate system perturbations*. Polytechnic University of Torino, Turin Italy (2022).
- Direction of the undergraduate thesis of Javier Gutiérrez López on the *design and programming of a robot platform for the evaluation of search algorithms*. Technical University of Madrid (2012).

### Research projects:

- Director of research stay project of Clément Gidel *Consensus and polarization of cautious diffusing voters*. École Normale Supérieure de Lyon, Lyon France (2019).
- Co-direction of the research stay project of Ricardo Gutiérrez Díez on *infotaxis: an information based search strategy*. Technical University of Madrid & Complutense University (2011).

## Teaching Experience

### Science Faculty, National Autonomous University of Mexico (Mexico city, Mexico)

05.1995 – 10.1995	Assistant	Classical Thermodynamics (L1, 48 hours)
11.1995 – 04.1996	Assistant	Classical Thermodynamics (L1, 48 hours)
05.1996 – 10.1996	Assistant	Classical Thermodynamics (L1, 48 hours)
11.1996 – 04.1997	Assistant	Classical Thermodynamics (L1, 48 hours)
05.1997 – 09.1997	Lecturer	Statistical Physics. (M1, 48 hours)
05.1997 – 09.1997	Lecturer	Selected Topics on Thermodynamics (M1, 24 hours)
08.1999 – 01.2000	Assistant	Nonlinear Dynamics (L2, 48 hours)
08.2000 – 01.2001	Assistant	Nonlinear Dynamics (L2, 48 hours)

### Technological Institute of Monterrey (Cuernavaca, Mexico)

08.1998–12.1998	Lecturer	Classical Mechanics (L1, 60 hours)
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### Science Faculty, State University of Morelos (Cuernavaca, Mexico)

08.2001 – 01.2002	Lecturer	Chaos and Statistical Mechanics (M1, 80 hours)
02.2002 – 07.2002	Lecturer	Computational Physics (M1, 80 hours)
08.2002 – 01.2003	Lecturer	Statistical Thermodynamics (M1, 80 hours)

### Faculty of Architecture I, Polytechnical University of Turin, (Turin Italy)

04.2006 – 07.2006	Lecturer	Probability and Statistics (L3, 60 hours)
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### Department of Agroforestry Engineering, Technical University of Madrid, (Madrid, Spain)

02.2012	Lecturer	Advanced Seminars on Population Dynamics (M2, 4 hours)
11.2014	Lecturer	Robotics applied to agriculture (M2, 16 hours)
02.2017 – 06.2017	Lecturer	Agri Food Technologies for Developing Countries (M2, 48 hours)
02.2018 – 06.2018	Lecturer	Agri Food Technologies for Developing Countries (M2, 48 hours)
06.2018 – 06.2018	Lecturer	Scientific Communication (M2, 20 hours)



06.2020 – 06.2020	Lecturer	Scientific Communication (M2, 20 hours)
06.2022 – 06.2022	Lecturer	Scientific Communication (M2, 20 hours)
02.2023 – 06.2023	Lecturer	Agri Food Technologies for Developing Countries (M2, 48 hours)
02.2023 – 06.2023	Lecturer	Environmental Management Systems (M2, 4 hours)

**Department of Physics, Technical University of Madrid, (Madrid, Spain)**

09.2011 – 02.2012	Lecturer	Semiclassical Methods in Chaotic Systems (M2, 10 hours)
09.2011 – 02.2012	Lecturer	Advanced Seminars of Chaos and Dynamical Systems (M2, 10 hours)
02.2014 – 07.2014	Lecturer	Semiclassical Methods in Chaotic Systems (M2, 10 hours)

**Department of Informatic Systems Technical University of Madrid, (Madrid, Spain)**

02.2023 – 06/2023	Lecturer	Foundations of Physics in Informatics (M1, 36 hours)
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**Department of Mathematics and Statistics, University of Helsinki, (Helsinki, Finland)**

09.2012 – 12.2012	Lecturer	Introduction to dynamical systems and chaotic systems (M1, 30 hours)
11.2017 – 02.2018	Lecturer	Mathematical Aspects of Nonequilibrium Stochastic Systems (M2, 45 hours)

**Department of Mathematical Sciences, Polytechnical University of Turin (Turin Italy)**

10.2017 – 02.2018	Lecturer	Mathematical Aspects of Nonequilibrium Stochastic Processes (PhD school, 45 hours)
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## Publication record

Number of scientific articles (published): 70  
 Proceedings articles with or without peer review: 7  
 Number of chapters in books: 3

Number of publications (according to ISI WoS): 70  
 Number of citations (self-citations): 1923 (136)  
 Average citations per paper: 27.5  
*h*-index: 26

Number of publications per journal:

- 11 Physical Review E
- 10 Physical Review Letters
- 6 Journal of Statistical Physics
- 5 Journal of Physics A: Mathematical Theory
- 4 Journal of Statistical Mechanics: Theory and Experiment
- 3 European Journal of Physics ST
- 3 New Journal of Physics
- 2 Soft Matter
- 2 Europhysics Letters
- 2 Physical Review A
- 2 Physica Scripta
- 1 Annals Henri Poincaré
- 1 Physical Review Research
- 1 Physical Review B
- 1 Nuclear Physics A
- 1 Nonlinearity
- 1 Chem Phys Phys Chem
- 1 Journal of Chemical Physics
- 1 Physics Letters A
- 1 Condensed Matter Physics
- 1 Frontiers in Physics
- 1 International Journal of Urology
- 1 Journal of the Korean Physical Society
- 1 Physica status solidi (b)
- 3 AIP Conference Proceedings

## Articles in scientific journals

1. J.-P. Eckmann, C. Mejía-Monasterio  
 Revisiting the Monge problem in the Landauer limit  
*Annals Henri Poincaré*, (2022) <https://doi.org/10.1007/s00023-022-01244-3>
2. J. Orchard, L. Rondoni, M. Tayyab, C. Mejía-Monasterio, F. Frascoli  
 Diffusion and escape from polygonal channels: extreme values and geometric effects  
*Journal of Statistical Mechanics: Theory and Experiment*, **2021** (2021) 073208
3. J. Vollmer, L. Rondoni, M. Tayyab, C. Giberti, C. Mejía-Monasterio  
 Displacement autocorrelation functions for strong anomalous diffusion: A scaling form, universal behavior, and corrections to scaling  
*Physical Review Research*, **3** (2021) 013067
4. C. Mejía-Monasterio, R. Metzler, J. Vollmer  
 Editorial: Anomalous Transport: Applications, Mathematical Perspectives, and Big Data  
*Frontiers in Physics*, **8** (2020) 622417

5. C. Mejía-Monasterio, S. Nechaev, G. Oshanin, O Vasilyev  
Tracer diffusion on a crowded random Manhattan lattice  
*New Journal of Physics*, **22** (2020) 033024
6. C. Mejía-Monasterio, A. Politi, L. Rondoni  
Heat flux in one-dimensional systems  
*Physical Review E*, **100** (2019) 032139
7. O.A. Vasilyev, O. Benichou, C. Mejía-Monasterio, E.R. Weeks, G. Oshanin  
Cooperative behavior of biased probes in crowded interacting systems  
*Soft Matter*, **13**  
(2017) 7617
8. J. Duque-Rodriguez, D. Gomez-Ullate, C. Mejía-Monasterio  
On the performance of blind-infotaxis under inaccurate modeling of the environment  
*European Journal of Physics Special Topics*, **226**, (2017) 2407
9. V.S. Dotsenko, C. Mejía-Monasterio, G. Oshanin  
Negative response to an excessive bias by a mixed population of voters  
*Condensed Matter Physics*, **20**  
(2017) 13801
10. O. Benichou, P. L. Krapivsky, C. Mejía-Monasterio, G. Oshanin  
Joint distributions of partial and global maxima of a Brownian Bridge  
*Journal of Physics A: Mathematical and General*, **49**  
(2016) 335002
11. O. Benichou, P. L. Krapivsky, C. Mejía-Monasterio, G. Oshanin  
Temporal correlations of the running maximum of a Brownian trajectory  
*Physical Review Letters*, **117** (2016) 080601
12. S. De Bièvre, C. Mejía-Monasterio, P. E. Parris  
Dynamical mechanisms leading to equilibration in two-component gases  
*Physical Review E*, **93** (2016) 050103
13. T. Prosen, C. Mejía-Monasterio  
Integrability of a deterministic cellular automaton driven by stochastic boundaries  
*Journal of Physics A: Mathematical and Theoretical*, **49** (2016) 185003
14. J. Duque-Rodriguez, D. Gomez-Ullate, C. Mejía-Monasterio  
Geometry-induced fluctuations of olfactory searches in bounded domains  
*Physical Review E*, **89** (2014) 042145
15. G. Benenti, G. Casati, C. Mejía-Monasterio  
Thermoelectric efficiency in momentum-conserving systems  
*New Journal of Physics*, **16** (2014) 015014
16. O. Bénichou, A. Bodrova, D. Chakraborty, P. Illien, A. Law, C. Mejía-Monasterio, G. Oshanin, R. Voituriez  
Geometry-induced superdiffusion in driven crowded systems  
*Physical Review Letters* **111**, (2013) 260601
17. P. Illien, O. Bénichou, C. Mejía-Monasterio, G. Oshanin, R. Voituriez  
Active transport in dense diffusive single-file systems  
*Physical Review Letters* **111**, (2013) 038102
18. O. Bénichou, P. Illien, C. Mejía-Monasterio, G. Oshanin  
A biased intruder in a dense quiescent medium: Looking beyond the force-velocity relation  
*Journal of Statistical Mechanics: Theory and Experiment*, **P05008** (2013)
19. D. Boyer, D. S. Dean, C. Mejia-Monasterio, G. Oshanin  
Distribution of the least-squares estimators of a single Brownian trajectory diffusion coefficient  
*Journal of Statistical Mechanics: Theory and Experiment*, **P04017** (2013)

20. D. Boyer, D. S. Dean, C. Mejía-Monasterio, G. Oshanin  
On ergodic least-squares estimators of the generalized diffusion coefficient for fractional Brownian motion  
*Physical Review E*, **87**, (2013) 030103
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## Editorial activities

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