

# Constanza Rojas-Molina

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*Born on April 7th, 1983 in La Serena, Chile (Chilean citizenship).*

*Married to Athanasios (Thanos) Manos, no children.*

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## Education

- Sept **Ph.D. in Mathematics**, *Laboratoire AGM, Université de Cergy-Pontoise, France.*  
2008–Aug Thesis: The mathematical study of electronic transport in random Schrödinger operators with  
2012 quasicrystalline structures.  
Advisor: Prof. François Germinet.
- 2007–2008 **Master in Fundamental Mathematics (Master 2 Recherche)**, *mention “très bien”,*  
*Université Pierre et Marie Curie-Paris 6, France.*
- 2005–2007 **Studies in the M.Sc. in Mathematics Program**, *Universidad de La Serena, Chile.*  
All courses approved, Master thesis incomplete due to starting Master in France.
- 2001–2005 **B. Sc. in Mathematics**, *obtained with honours, Universidad de La Serena, Chile.*

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## Experience

- 2019– **Enseignante-Chercheuse**, *(fixed-term lecturer, equivalent MCF), Université de Cergy-Pontoise.*
- 2018–2019 **Junior-Professor (W1)**, *(fixed-term Assistant Professor) Group of Mathematical Statistics and Probability Theory, University of Düsseldorf.*
- 2015–2018 **Postdoctoral researcher**, *Group of Probability, Mathematics Center University of Bonn,*  
Supervisors: Prof. Anton Bovier and Prof. Margherita Disertori.
- 2013–2015 **Postdoctoral Researcher- Marie Curie Fellow**, *Group of Analysis, Mathematisches Institut, LMU University of Munich,*  
Supervisor: Prof. Peter Müller.  
Project: A Mathematical Study of Electronic Transport in Aperiodic Media (ETAM)
- Jan-Sep 2013 **Visiting Researcher**, *Center for Applied Mathematics and Theoretical Physics (CAMTP),*  
University of Maribor, Slovenia.
- Sep-Dec 2012 **Postdoctoral Researcher**, *Mittag-Leffler Institute, Sweden.*
- 2008–2012 **PhD Student-Teaching Assistant (Moniteur)**, *Mathematics Department-Laboratoire AGM, Université de Cergy-Pontoise, France.*

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## Awards and Grants

- 2020 **Research in Paris (RIP) Programme**, One-month research stay (May 2020) at Institut Henri Poincaré for collaboration with Martin Gebert (UC Davis), 2500 Euros.
- 2019-2022 **DFG Research Grant**, *Project: "Random Schrödinger Operators arising in the study of reinforced random processes"*, Current Manager: Prof. Margherita Disertori, Bonn. 196.000 Euros, includes one PhD student position and funding for trips
- 2016 **Romberg Grant to participate in the 4th Heidelberg Laureate Forum**, 18-23 September, Heidelberg.
- 2015 **Visiting Fellowship**, *Isaac Newton Institute for Mathematical Sciences*, Program Periodic and Ergodic Spectral Problems.  
Housing covered by INI
- 2013-2015 **Marie Curie Intra-European Fellowship (IEF) for Career Development**, *Seventh Framework Programme (FP7) of the European Commission*.  
168.794 Euros for postdoctoral stay at LMU Munich
- 2013 **Humboldt Research Fellowship for Postdoctoral Researchers**.  
63.600 Euros in Total Netto Income for 24 months (declined in favor of Marie Curie IEF)
- 2012 **Postdoctoral grant - Mittag Leffler Institute**, *Participation in the program "Hamiltonians in magnetic fields"*.  
ca. 7197 Euros : 60.000 SEK plus housing and trips (at Sep 2012 conversion rate)
- 2011 **Erasmus mobility fellowship for PhD students**, *Université de Cergy-Pontoise*.  
900 Euros Support
- 2011 **Oberwolfach Leibniz Graduate Student Grant**, *M. F. Oberwolfach, Germany*.
- 2008- 2012 **PhD Student Member of ANR BLAN 0261 (French National Research Agency)**,  
*Coordinators: F. Klopp and F. Germinet*.
- 2008-2012 **Grant CONICYT for Doctoral Studies**, *Beca de Gestion Propia para Doctorado en el Extranjero, Comisión Nacional de Investigación Científica y Tecnológica, Chile*.  
ca. 67.200 Euros Total Netto income for 4 years
- 2006 **Awards "Universidad de La Serena" and "Facultad de Ciencias"**, *Universidad de La Serena, Chile*, For graduating with honours.
- [In course of application](#)
- 2020 **ANR Jeune-Chercheurs/Jeune Chercheuses, Principal Investigator**, *Preproject selected in the first phase and invited to present full project by May 2020*, Collaborators: Xiaolin Zeng (U. Strasbourg) and H. Boumaza (U. Paris 13).

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## Publications

- P. Müller, C. Rojas-Molina, *Localisation for Delone operators via Bernoulli randomisation*. Submitted. Preprint arXiv:2003.06325. (2020).
- C. Rojas-Molina, *Random Schrödinger Operators and Anderson localization in aperiodic media*. To appear in QMath14 proceedings, Rev. in Math. Phys. Preprint arXiv:2002.01725 (2020).
- M. Gebert, C. Rojas-Molina, *Lifshitz tails for the fractional Anderson model*. J. Stat. Phys. (Online first, 2020). Preprint arXiv:1910.02077 (2019)
- C. Rojas-Molina, *Random Schrödinger Operators on discrete structures*. Collection Séminaires et Congrès SMF 32, 147-187 (2018).

- A. Klein, S. Nguyen, C. Rojas-Molina, *Characterization of the Anderson metal-insulator transport transition for the two-particle Anderson model*. Ann. Henri Poincaré 18, 2327-2365 (2017).
- F. Germinet, P. Müller, C. Rojas-Molina, *Ergodicity and dynamical localization for Delone-Anderson operators*. Reviews in Mathematical Physics 27 (9) (2015).
- C. Rojas-Molina, *The Anderson model with missing sites*, Operators and Matrices 8 (1) 287-299 (2014).
- C. Rojas-Molina, I. Veselić, *Scale-free unique continuation estimates and applications to random Schrödinger operators*, Commun. Math. Physics 320 (1) 245-274 (2013).
- C. Rojas-Molina, *Characterization of the Anderson metal-insulator transport transition for non ergodic operators and application*, Ann. Henri Poincaré 13 (7) 1575-1611 (2012).
- F. Germinet, C. Rojas-Molina, *Dynamical mobility edge for various random Landau Hamiltonians*, RIMS Kokyuroku Bessatsu, Proceedings of the Conference "Spectra of Random Operators and Related Topics", B27, 25-34 (2011).
- M. Corgini, C. Rojas-Molina, D.P. Sankovich, *Coexistence of Non-Conventional Condensates in Two-Level Bose Atom System*, International Journal of Modern Physics B, Vol 22, (27): 4799-4815 (2008).

## Teaching 2005–

- 2020 **(SoSe19) Project-based-learning week on Filter Bubbles and web personalization (15h)**, *International Bachelor Ygrec in Data Science*, CY Cergy Paris Université.
- 2020 **(SoSe19) Topology and functional analysis (in French)**, *3th year Engineering Students in Mathematics and Finance*, EISTI Engineering School- CY Cergy Paris Université..
- 2019 **(WiSe19) Linear Algebra II**, *International Bachelor Ygrec in Data Science*, Université de Cergy-Pontoise.
- 2019 **(WiSe19) Distribution theory and PDEs (in French)**, *4th year Engineering Students in Mathematics and Finance*, EISTI Engineering School, Cergy..
- 2029 **(WiSe19) Data Visualization -Project-based-learning (15h)**, *International Bachelor Ygrec in Data Science*, Université de Cergy-Pontoise.
- 2019 **(SoSe19) Stochastic Processes and Stochastic Analysis I**, *Master Programme, Mathematics Insitute, University of Düsseldorf*.
- 2018/19 **(WiSe19, co-responsible) Seminar for Bachelor and Master students, with Dr. Ercan sönmez**, *Mathematics Insitute, University of Düsseldorf*.  
Topic: Random Graphs and Complex Networks.
- 2018/19 **(WiSe18/19) Stochastic Processes and Stochastic Analysis II**, *Master Programme, Mathematics Insitute, University of Düsseldorf*.
- 2018 **(SoSe18) Stochastic Processes and Stochastic Analysis I**, *Master Programme, Mathematics Insitute, University of Düsseldorf*.
- 2017 **(WiSe 2017/2018) Assistant for Master and Bachelor Seminar**, *Institute of Applied Mathematics, University of Bonn*.  
Assistant to Prof. Anton Bovier, Topic: Extreme Value Theory
- 2017 **(WiSe 2017/18) Assistant for Master Seminar**, *Institute of Applied Mathematics, University of Bonn*.  
Assistant to Prof. Patrik Ferrari, Topic: Random Matrices

- 2018 **(WiSe 2017/18) Assistant for Master Seminar**, *Institute of Applied Mathematics, University of Bonn*.  
Assistant to Prof. Margherita Disertori, Topic: Operator kernels and their applications
- 2017 **(SoSe 2017) Assistant for Master Seminar**, *Institute of Applied Mathematics, University of Bonn*.  
Assistant to Prof. Margherita Disertori, Topic: The ubiquity of Gaussian measures
- 2016 **(WiSe 2016/17) Assistant for Master Seminar**, *Institute of Applied Mathematics, University of Bonn*.  
Assistant to Prof. Margherita Disertori, Topic: Random Schrödinger Operators and localization
- 2008–2011 **Teaching Assistant for undergraduates (Monitrice)**, *Mathematics Department, Université de Cergy-Pontoise (Calculus, Variational Methods, C2I (Certification Informatique et Internet))*.
- 2005–2007 **Lecturer for undergraduates**, *Mathematics Department, Universidad de La Serena*.  
Courses: Calculus, Algebra, Functional Analysis, Analysis of Complex Variable
- Mini-courses**
- 2021 **(to come) Mini-course on Random Schrödinger Operators**, *Summer School on Periodic and Ergodic Spectral Problems*, Montreal.
- 2018 **Mini-course (5h)**, *Summer School on Operator Algebras, Spectral Theory and Applications to Topological Insulators, 17-21 September, Tbilisi, Georgia*.  
Topic: Random Schrödinger Operators
- 2016 **Mini-course (7.5h)**, *CIMPA School 'Spectral Theory on Graphs and Manifolds', 7-19 November, Kairouan, Tunisia*.

## Supervision of Theses

- April 2019– **Co-direction PhD Thesis**, *Mr. Roberto Maturana*, funded by DFG Research Grant.  
Topic: Study of Random Schrödinger operators in connection with reinforced random processes.  
Co-mentor: Prof. Margherita Disertori (Bonn)
- March 2019 **Bachelor Thesis at University of Düsseldorf**, *Mr. Lennart Sperling*.  
Topic: Scale-free percolation. Co-mentor: Prof. P. Kern (Düsseldorf) and Dr. Ercan Snönmez
- Oct 2018-August 2019 **PhD Thesis at University of Düsseldorf**, *Mr. Leonard Pleschberger*, funded by the Mathematics Institute of the University of Düsseldorf.  
Topic: The Integrated Density of States of the fractional Anderson Model.  
Co-mentor: Prof. P. Kern (Düsseldorf). Currently, Mr Pleschberger is continuing his PhD with Prof. Kern at the University of Düsseldorf.

## Visits

- May 2020 **Research visit**, (pending due to COVID-19) *One-month research stay at Institut Henri Poincaré*.
- March 2020 **Research visit**, (cancelled due to COVID-19) *Institute Bernoulli, University of Groningen (Prof. M. Seri)*.
- Jan 2020 **Research visit**, *Institute of Applied Mathematics, University of Bonn (Prof. M. Disertori)*.
- Dec 2019 **Research visit**, *Mathematics Faculty, University of Warsaw (Prof. K. Pietruska-Paluba)*.
- Dec 2018 **Research visit**, *Mathematics Faculty, P. Universidad Católica de Chile (Prof. O. Bourget)*.
- Feb 2016 **Research visit**, *Mathematics Faculty, P. Universidad Católica de Chile (Prof. O. Bourget)*.

- Jan-Jun 2015 **Visiting Fellowship**, *Newton Institute for Mathematical Sciences*, Program Periodic and Ergodic Spectral Problems.
- Oct 2014 **Research visit**, *Physics Faculty, P. Universidad Católica de Chile (Prof. E. Stockmeyer)*.
- Apr/Jun 2013 **Research visit**, *Insitut Henri Poincaré, France*, Trimestre thématique "Variational and spectral methods in quantum mechanics".
- Sep-Dec 2012 **Research visit**, *Mittag-Leffler Institute, Sweden*.
- Jul/Nov 2011 **Research visit**, *TU Chemnitz, Germany (Prof. I. Veselić)*.
- May 2011 **Research visit**, *Friedrich-Schiller Universität Jena, Germany (Prof. D. Lenz)*.
- Apr-Jun 2011 **Erasmus Ph.D. student**, *Ludwig-Maximilians-Universität, Munich, Germany*.  
Under the direction of Prof. Peter Müller.
- May/Jun 2010 **Ph.D. Student visitor**, *Centre Interfacultaire Bernoulli, EPFL-Lausanne, Switzerland*.

## Talks 2012–

- June 2020 **(postponed to 2021 due to COVID-19) 5th Great Lakes Mathematical-Physics Meeting, Plenary speaker**, *Oberlin College, USA*.
- June 2020 **(cancelled due to COVID-19) Group retreat, Probability Group**, *University of Bonn, Germany*.
- Mar 2020 **(cancelled due to COVID-19) Mathematics Colloquium**, *University of Groningen, Netherlands*.
- Feb 2020 **Workshop on NCG, analysis and topological insulators**, *Leiden University, Netherlands*.
- Aug 2019 **QMath 14, Session on Random Systems**, *University of Aarhus, Denmark*.
- May 2019 **Mini-Conference Spectral Theory and Probability in Mathematical Physics**, *University of Strasbourg, France*.
- Dec 2018 **Results in Contemporary Mathematical Physics**, *P. Univ. Católica de Chile, Santiago, Chile*.
- Dec 2018 **Conference Random Physical Systems, Patagonia 2018**, *Puerto Natales, Chile*.
- Dec 2018 **Conference Spectral Theory and Mathematical Physics**, *P. Univ. Católica de Chile, Santiago, Chile*.
- Nov 2018 **Workshop Spectral Theory of Quasi-Periodic and Random Operators**, *Centre de Recherches Mathématiques, Montréal, Canada*.
- Sep 2018 **Young Women in Mathematical Physics**, *University of Bonn, Germany*.
- Jul 2018 **Seminar series Konstanz: Women in Maths**, *University of Konstanz, Germany*.
- May 2018 **Kolloquium of the Mathematics Institute**, *University of Düsseldorf, Germany*.
- Feb 2018 **Annual meeting of the DMV, Session on PDEs and Dynamical Systems**, *Paderborn, Germany*.
- Jul 2017 **Workshop "Women in Probability"**, *TU Munich, Germany*.
- Apr 2017 **Analysis Seminar**, *TU Delft, Netherlands*.
- Apr 2017 **Aachen-Augsburg Applied Analysis Workshop**, *RWTH Aachen, Germany*.
- Jan 2017 **Mathematical-Physics Seminar**, *Université de Grenoble, France*.
- Jan 2017 **Seminar Probability and Applications**, *Queen Mary University of London, UK*.

- Oct 2016 **Seminar 'Spectral Problems in Mathematical Physics'**, *Institut Henri Poincaré, France.*
- Nov 2015 **Probability Seminar**, *University of Bonn, Germany.*
- Apr 2015 **Department Seminar**, *Department of Mathematics and Statistics, Open University, Milton Keynes, UK.*
- Apr 2015 **Workshop "Almost-Periodic and Other Ergodic Problems"**, *Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.*
- Dec 2014 **Lamé Conference "The Mathematics of Quantum Disordered System"**, *Euler International Mathematical Institute, St. Petersburg, Russia.*
- Sep 2014 **Spectral Analysis Seminar**, *P. Univ. Católica de Chile, Santiago, Chile.*
- Jun 2014 **London Analysis and Probability Seminar**, *King's College, London, UK.*
- Jul 2014 **Mathematical Physics Seminar**, *U. of Erlangen, Germany.*
- Dec 2013 **Analysis Seminar**, *Université de Nantes, France.*
- Nov 2013 **Analysis Seminar**, *Université de Bordeaux, France.*
- Apr 2013 **Young Researchers Seminar**, *Program VSMQM, Institut Henri Poincaré, France.*
- Jan 2013 **Thematic School GDR CHANT**, *Grenoble, France.*
- Oct 2012 **Institute Mittag-Leffler Seminar**, *Stockholm, Sweden.*
- Aug 2012 **Conference on Spectral Theory**, *TU Graz, Austria.*
- Jun 2012 **PhD Students Seminar**, *Université de Cergy-Pontoise, France.*
- Jan 2012 **Mathematical-Physics Seminar**, *University of Ljubljana, Slovenia.*
- Jan 2012 **Department Seminar**, *CAMTP and Department of Mathematics, University of Maribor, Slovenia.*

## Other academic activities

### Organization of scientific events

**Co-organizer of the Conference "New Directions in Disordered Systems" in honor of Abel Klein's 75th Birthday, June 2020**, *University of Cergy-Pontoise*, With A. Elgart (Virginia Tech), F. Germinet (Cergy), S. Jitomirskaya (UC Irvine).

**Co-organizer of event "Women in Maths Get-Together", May 8, 2019**, *University of Düsseldorf*, With C. Helzel (Düsseldorf) and J. Ryan (East-Anglia/Düsseldorf).

**Working Session on Topological Insulators, Feb 27, 2019**, *Max Lein (Sendai, Japan)* gave a mini-course and seminar talk on topological insulators addressed to Master students, as part of an on-going collaboration.

**Co-organizer of event "The Mathematics of Disorder", 4 - 8 October 2016**, *University of Bonn, Germany*, With M. Disertori.

**Co-organizer of the meeting "Electrons in quantum disordered media", 12 March 2014**, *Université de Cergy-Pontoise*, With F. Germinet and P. Müller.

### Responsibilities

**June 2020 (to come) Member of PhD Committee of Mr. Sylvain Zalczer**, *Université de Toulon - CPT Marseille*.

**Co-responsible for Group Oberseminar April 2018-August 2019**, *Group of Mathematical Statistics and Probability Theory, University of Düsseldorf.*

**Co-responsible for Group Oberseminar October 2016-March 2018**, *Group of Probability Theory, University of Bonn.*

**Researcher in the Programme MATH.en.JEANS for school students**, *Lycée Français de Düsseldorf.*

#### Referee for Journals

**Journal of Spectral Theory.**

**Journal of Functional Analysis.**

**Annales Henri Poincaré.**

**Operators and Matrices.**

**Reviewer for Mathscinet and zbMATH.**

#### Memberships

**Member of IAMP (International Association of Mathematical Physics).**

**Member of the European Women in Mathematics Association.**

**Member of the Lise-Meitner-Gesellschaft e.V.**

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#### Languages

Spanish Native

English Fluent

French Fluent

German Intermediate (B2)

Greek Beginner (A2)