

PATRICIA ALONSO RUIZ

CONTACT INFORMATION

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- RESEARCH INTERESTS Analysis and stochastic processes on fractals, limit theorems, random fields, exchangeability.
- EMPLOYMENT Postdoctoral Fellow, *University of Connecticut*, August 2016 - present.
Postdoc, *Ulm University*, October 2013 - July 2016.
- EDUCATION Ph.D. in mathematics, *University of Siegen*, May 2013, Thesis advisor: Prof. Uta Freiberg.
Thesis title: “Dirichlet forms on non self-similar sets: Hanoi attractors and the Sierpiński gasket”.
Licenciatura en Ciencias Matemáticas, *Universidad Complutense Madrid*, 2004 - 2009.
- FURTHER QUALIFICATIONS Professional teaching competence for university-level teaching, *University of Siegen*.
- SELECTED AWARDS Feodor Lynen fellowship, Alexander von Humboldt Foundation, October 2016 - August 2018.
Grant program for female scientists (1200 EUR), *Ulm University*, October 2015 - April 2016.
DAAD Ph.D. scholarship, September 2009 - April 2012.
- PUBLICATIONS AND PREPRINTS [1] *Power dissipation in fractal Feynman-Sierpinski AC circuits*, submitted (2017), arXiv:1701.08039.
[2] *Entropy-based inhomogeneity detection in porous media*, with E. Spodarev, submitted (2016), arXiv:1611.02241.
[3] *Completely symmetric resistance forms on the Stretched Sierpinski gasket*, with U. Freiberg and J. Kigami, arXiv:1606.08582. To appear in: *Journal of Fractal Geometry*.
[4] *Nonparametric estimation of entropy for marked Poisson point processes*, with E. Spodarev, arXiv:1511.03830. To appear in: *Advances in Applied Probability*, **49** (2017), no. 1.
[5] *Weyl asymptotics for Hanoi attractors*, with U. Freiberg, arXiv:1307.6719. To appear in: *Forum Mathematicum* (2016).
[6] *The limit theorem for maximum of partial sums of exchangeable random variables*, with A. Rakitko. *Statistics and Probability Letters* **119** (2016), 357-362.
[7] *Energy and Laplacian on Hanoi-type fractal quantum graphs*, with D. Kelleher, and A. Teplyaev, *Journal of Physics A: Mathematical and Theoretical* **49** (2016), no. 4, 1501–1533 (electronic).
[8] *Dirichlet forms on Hanoi attractors*, with U. Freiberg, *Int. J. Applied Nonlinear Science*, **1** (2014), no. 3, 247–274.
[9] *Hanoi attractors and the Sierpiński Gasket*, with U. Freiberg, Special issue of *Int. J. Math. Model. Numer. Optim. on Fractals, Fractal-based Methods and Applications* **3** (2012), no. 3, 251–265.
- INVITED TALKS *Lehigh Math Colloquium*, Lehigh University, 2017.
Analysis Seminar, Cornell University, 2017.
German Probability and Stochastic Days, University of Bochum, 2016.
Mathematisches Kolloquium, University of Bremen, 2015.

Workshop: "Probability, Analysis and Geometry", Moscow State University, 2014.

The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Universidad Autónoma de Madrid, 2014.

5th Cornell Conference on Analysis, Probability, and Mathematical Physics on Fractals Cornell University, 2014.

Stochastics Seminar, Moscow State University, 2014.

Fractal geometry and Stochastics V, Tabarz, Germany, 2014.

Probability Seminar, University of Essen, 2013.

Workshop: "Probability, Analysis and Geometry", Ulm University, 2013.

Mathematisches Kolloquium, University of Bremen, 2013.

Analysis and Probability Seminar, University of Connecticut, 2013.

International Conference of Advances on Fractals and Related Topics, Hong Kong University, 2012.

SUPERVISION Co-advisor of Bachelor's thesis "Estimation of entropy of directional distributions" by Jakob Schwarz, Spring 2016, Ulm University.

TEACHING At the University of Connecticut:

Probability, (two sections), Fall 2016.

Lecturer at Ulm University:

Random fields, Mathematics, Spring 2016.

Stochastic for Economic Sciences, Economic Sciences (approx. 180 students), Fall 2014.

Teaching assistant:

Fractal Geometry, Mathematics, Spring 2013, University of Siegen.

Mathematics III for engineers, Civil Engineering, Spring 2013, University of Siegen.

Linear Algebra I, Mathematics, Fall 2012, University of Siegen.

Fractal Geometry, Mathematics, Spring 2012, University of Siegen.

Discrete Mathematics for Computer Sciences, Computer Sciences, Fall 2011, University of Siegen.

Analysis I, Mathematics, Fall 2010, LMU Munich.

Ordinary Differential Equations, Mathematics, Spring 2010, LMU Munich.

Introductory course in Mathematics, Mathematics, Fall 2009, UCM Madrid.

Student seminar organization:

Stochastic Geometry and its Applications, Spring 2014, Ulm University.

Distance course teaching assistant, Academy of Sciences, Finance and Technology, Ulm:

Stochastic risk modelling and statistical methods, Spring 2015.

Stochastic risk modelling and statistical methods, Spring 2014.

Insurance claim mathematics, Spring 2014.

SERVICE Referee: *Monatshefte für Mathematik, Statistics & Probability Letters, Stochastic Processes and their Applications*.

LANGUAGES Spanish (Native), German (Fluent), English (Fluent), French (Good).