

# Curriculum Vitae

## Lluís Quer-Sardanyons

### Personal information

Place and date of birth: Juneda (Lleida, Spain), 1977 June 11th.

Current position: **Tenure Track Lecturer** of Statistics and Operational Research at the Department of Mathematics of the Universitat Autònoma de Barcelona, since 15th September 2007.

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### Academic Background

- PhD in Mathematics with European mention, Universitat de Barcelona, February 2005. Advisor: Marta Sanz-Solé.
- Degree in Mathematics, Universitat de Barcelona, January 2000.

### Academic Awards

- Research and teaching fellowship *BRD* from the Universitat de Barcelona, May 2000 to July 2001.
- Research fellowship *FPI* from the Ministerio de Educación y Ciencia, August 2001 to July 2005.
- Postdoc position of INRIA Lorraine (Institut National de Recherche en Informatique et en Automatique) at the Institut de Mathématiques Elie Cartan de Nancy (Université Henri Poincaré Nancy 1, France), September 2005 to August 2006.
- Research position *Juan de la Cierva* of the Ministerio de Educación y Ciencia in the Department of Mathematics at the Universitat Autònoma de Barcelona, September 2006 to September 2007.

**Research interests:** stochastic analysis, stochastic partial differential equations, Malliavin calculus.

## **Publications**

1. Existence of density for the solution to the three-dimensional stochastic wave equation (with Marta Sanz-Solé), *RACSAM Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Mat.* 97 (2003), no. 1, 63-68.
2. Absolute continuity of the law of the solution to the 3-dimensional stochastic wave equation (with Marta Sanz-Solé), *Journal of Functional Analysis* 206 (2004), no. 1, 1-32.
3. A stochastic wave equation in dimension 3: smoothness of the law (with Marta Sanz-Solé), *Bernoulli* 10 (2004), no. 1, 165-186.
4. The stochastic wave equation: study of the law and approximations, PhD-Thesis Universitat de Barcelona 2005.
5. Space semi-discretisations for a stochastic wave equation (with Marta Sanz-Solé), *Potential Analysis* 24 (2006), no. 4, 303-332.
6. The 1-d stochastic wave equation driven by a fractional Brownian sheet (with Samy Tindel), *Stochastic Processes and their Applications* 117 (2007), 1448-1472.
7. Existence and smoothness of the density for spatially homogeneous SPDEs (with David Nualart), *Potential Analysis* 27 (2007), 281-299.
8. Gaussian density estimates for solutions to quasi-linear stochastic partial differential equations (with David Nualart), *Stochastic Processes and their Applications* 119 (2009), 3914-3938.
9. Weak convergence for the stochastic heat equation driven by Gaussian white noise (with Xavier Bardina and Maria Jolis), *Electronic Journal of Probability* 15 (2010), 1267-1295.
10. Optimal Gaussian density estimates for a class of stochastic equations with additive noise (with David Nualart), *Infinite Dimensional Analysis, Quantum Probability and Related Topics* 14 (2011), no. 1, 25-34.
11. Stochastic integrals for spde's: a comparison (with Robert C. Dalang), *Expositiones Mathematicae* 29 (2011), 67-109.
12. Gaussian estimates for the density of the non-linear stochastic heat equation in any space dimension (with Eulàlia Nualart), *Stochastic Processes and their Applications*, to appear.

13. Pathwise definition of second order SDEs (with Samy Tindel), *Stochastic Processes and their Applications*, to appear.
14. Existence of weak solutions for a class of semilinear stochastic wave equations (with Carlo Marinelli), *SIAM Journal on Mathematical Analysis*, to appear.

### **Research Stays**

1. Institut Galilée, Université Paris 13, Paris (2001, 1 month).
2. Institut für Mathematik, Humboldt Universität, Berlin (2003, 3 months, and 2004, 2 months).
3. Institut Elie Cartan Nancy, France (March and May 2005, and one year September 2005 - September 2006).
4. Institut Mittag-Leffler, Sweden (2007, 1 month).
5. Department of Mathematics, University of Kansas (2008, 1 month).
6. Dipartimento di Matematica, Università degli Studi di Trento, Italy (2009, 1 month).
7. Hausdorff Research Institute for Mathematics, Bonn, Germany (2010, 4 months).
8. Institut Galilée, Université Paris 13, Paris (2011, 1 month).

Short visits (less than one month) at the Institut Elie Cartan Nancy (2004, 2006, 2009, 2010), Fachbereich Mathematik at the Universität Salzburg (2005, 2006), Ecole Polytechnique Fédérale de Lausanne (2007, 2009), School of Mathematics at the University of Manchester (2009), Department of Mathematics at the University of Ottawa (2011).

### **Talks in congresses**

1. XXXIIème Ecole d'été de Calcul de Probabilités de Saint Flour, France (2002).
2. Journées de Probabilités, Institut Elie Cartan Nancy, France (2005).
3. Third Conference on Stochastic Analysis and Probability, Marrakesh, Morocco (2005).
4. Exploratory Workshop: Computational Aspects of Stochastic Partial Differential Equations, sponsored by the European Science Foundation, Salzburg, Austria (2006).

5. International Colloquium on Stochastic and Potential Analysis URASCM 2007, Hammamet, Tunisia (2007).
6. Swiss Probability Seminar, Bern, Switzerland (2007).
7. International Multidisciplinary Workshop on Stochastic Modeling, Sevilla, Spain (2007).
8. Applications of Partial Differential Equations, Institut Mittag-Leffler, Sweden (2007).
9. International Conference on Stochastic Analysis and Random Dynamical Systems, Lviv, Ukraine (2009).
10. 33rd Conference on Stochastic Processes and Their Applications, Berlin (2009).
11. ICM Satellite Conference on Probability and Stochastic Processes, Indian Statistical Institute, Bangalore, India (2010).
12. International Conference on Malliavin Calculus and Stochastic Analysis, An event in honor of Professor David Nualart. March 19-21, 2011, University of Kansas, United States.
13. Seventh Seminar on Stochastic Analysis, Random Fields and Applications. May 23-27, 2011, Centro Stefano Franscini, Ascona, Switzerland.
14. The ACMAC workshop on Stochastic Partial Differential Equations, June 13-17, 2011, University of Crete, Heraklion, Greece.

#### **Poster presentations in congresses**

1. Stochastic Partial Differential Equations and Applications, Levico Terme (Trento, Italy) (2004).
2. 31st Conference on Stochastic Processes and their Applications, Paris (2006).
3. International Congress of Mathematicians 2006, Madrid. 2nd Prize of the Poster Competition corresponding to the section Probability and Statistics.
4. Stochastic Partial Differential Equations, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom, January 2010.

#### **Talks in seminars**

1. Seminaire de Probabilités of the Institut Galilée Université Paris 13, Paris (2001, 2011).

2. Berliner Probability Theory Colloquium, Humboldt Universität, Berlin (2003).
3. Seminar Stochastic Analysis and Finance, Humboldt Universität, Berlin (2004).
4. Seminari de Probabilitats de Barcelona (2003, 2004, 2006, 2007, 2009, 2010).
5. Seminaire de Probabilités of the Institut Elie Cartan Nancy, France (2004, 2006, 2009).
6. Seminar of the Mathematics Department, Universität Salzburg, Austria (2005, 2006).
7. Séminaire de théorie et applications numériques des processus stochastiques, INRIA Sophia Antipolis, France (2006).
8. Postgraduate seminar of the SPDE semester at the Mittag-Leffler Institut, Sweden (2007).
9. Probability Seminar at the University of Kansas, USA (2008).
10. Seminaire de Probabilités de l'Ecole Polytechnique Fédérale de Lausanne (2009).
11. Probability Seminar of the School of Mathematics at the University of Manchester (2009).
12. Seminario Dipartimento di Matematica at the Università degli Studi di Trento (2009).
13. Oberseminar Stochastics at the Universität Bonn, Germany (2010).
14. Stochastics seminar of the Junior Trimester Program on Stochastics at the Hausdorff Research Institute for Mathematics (Bonn, Germany), 2-hours session (2010).

### **Courses given**

1. Introduction to Stochastic Partial Differential Equations. Departament de Matemàtiques, Universitat Autònoma de Barcelona (June 2008). 5 hours.
2. Tutorials on Malliavin Calculus applied to Stochastic Partial Differential Equations. Imperial College London (July 2008). 3 hours.
3. Introduction to Stochastic Partial Differential Equations. Institut Galilée, Université Paris 13 (January 2011). 4 hours.

### **Teaching Experience at the *Universitat de Barcelona***

- *Facultat de Matemàtiques*: introduction to the probability theory (2000-2001), statistics (2000-2001), probability theory (2003-2004).
- *Facultat de Geologia*: calculus multivariable and elementary theory of ordinary differential equations (2000-2001).
- *Facultat de Biologia*: biostatistics (2000-2001).

### **Teaching Experience at the *Universitat Autònoma de Barcelona*:**

- *Facultat de Filosofia i Lletres*: Statistics for Social Sciences (2006-2007, 2007-2008 and 2008-2009).
- *Facultat de Ciències Empresarials i Econòmiques*: Inferential Statistics (2007-2008, 2008-2009 and 2009-2010).
- *Facultat de Ciències*: Probability Theory (2007-2008, 2008-2009 and 2009-2010), Stochastic Processes (2010-2011).

### **Language Skills**

Catalan: mother tongue. English, French and Spanish: speaking, reading and writing correctly. German: speaking, reading and writing upper-intermediate. Italian: speaking, reading and writing intermediate.

### **Others**

1. Referee for *Acta Applicanda Mathematicae*, *Stochastics and Dynamics*, *Central European Journal of Mathematics* and several proceedings.
2. Reviewer for *Mathematical Reviews* and *Zentralblatt Mathematik*.