

## Daniel CONUS

Birthdate : 12<sup>th</sup> June 1980.  
Swiss citizen.  
Single.

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## Research Interests.

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- Probability theory, stochastic analysis, stochastic partial differential equations and random fields.
- Stochastic optimization, mathematical finance.

## Studies.

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2003 – **PhD student** under the supervision of Prof. R.C. Dalang.  
Institute of Mathematics, Swiss Federal Institute of Technology  
(EPFL), Lausanne (Switzerland).

**PhD thesis** : *The non-linear stochastic wave equation in high dimensions*. (Expected completion date : August 2008).

### **Doctoral Courses :**

- *Markov Processes*. Prof. R.Dalang (Feb 2006)
- *Random Matrices and Communication Systems*. Dr. O.Lévêque (Summer 2005)
- *Parabolic Anderson Model*. Prof. T.Mountford (Summer 2005)
- *Introduction to SPDE's*. Prof. R.Dalang (Feb 2005)
- *Conformal Invariance and Lattice Models*. Prof. S.Smirnov (Winter 2004-2005)
- *Dirichlet Forms and Symmetric Markov Processes*. Prof. T.Mountford. (Summer 2004)
- *Lévy Processes*. Prof. R.Dalang (Feb 2004)
- *Malliavin Calculus*. Prof. M.Sanz-Solé (Winter 2003-2004)

1998 – 2003      **Master of Science** in Mathematical Sciences. EPFL, Lausanne (Switzerland).

**Master thesis** : *Approximating Snell Envelopes and American Options Pricing*. (Supervised by Prof. R.Dalang).

**Semester projects** :

- *Stochastic Integration and Calculus*. (Prof. G.Ben Arous)
- *Percolation Models*. (Prof. G.Ben Arous)
- *Optimal Stopping Theory and Application in Options Pricing*. (Prof. A.Dubey)
- *Fermat's Last Theorem*. (Science-Technology-Society). (Dr. J.Sesiano)

1995 – 1998      **Swiss High School Degree** (type C). Gymnase Auguste Piccard, Lausanne (Switzerland). Mathematics award, physics-mathematics award and annual best results award.

## Employment.

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2003 –              **Research and teaching assistant**. Chair of Probability, Institute of Mathematics, EPFL, Lausanne (Switzerland).

2001 – 2003      Student teaching assistant. Section of Mathematics, EPFL, Lausanne (Switzerland). Tutorial sessions in calculus, probability and statistics.

## Publications.

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[1] Conus D. & Dalang R.C. *The non-linear stochastic wave equation in high dimensions*. Electronic Journal of Probability, Vol. 13 (2008), 629-670.

[2] Dalang R.C. & Conus D. *Introduction à la théorie des probabilités*. Lecture notes, EPFL. (First edition Sept. 2006, Second edition Sept. 2007, to be published by EPFL Press).

## Work in Progress.

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Itô-Taylor expansion for the solution of the non-linear stochastic wave equation. Joint work with Prof. R.C.Dalang.

## Seminars delivered.

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- *6<sup>th</sup> Seminar on Stochastic Analysis, Random Fields and Applications*. Ascona (Switzerland). 19-23 May 2008. Poster referring to [1].
- *VIII<sup>th</sup> International Conference on Stochastic Partial Differential Equations and Applications*. Levico Terme (Trento, Italy). 6-12 Jan. 2008. Poster referring to [1].

- *The Mittag-Leffler Institute*, Djursholm (Sweden). Semester on « Stochastic Partial Differential Equations ». 2-28 Sept. 2007. Grant to stay one month, talk concerning [1] during the « *Workshop on SPDE's* » and presentation concerning the stochastic integration of martingale measures in the Young Researchers' Seminar.
- *University of Barcelona*, Spain. Probability Seminar. Invited by Prof. M.Sanz-Solé. Talk concerning [1]. 16-20 Oct. 2006.
- *EPFL*, Lausanne, Switzerland. Probability Seminar. Talk concerning [1]. 5 Oct. 2006.

## Conferences attended.

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- *31<sup>st</sup> International Conference on Stochastic Processes and Their Applications*. University René Descartes (Paris 5), Paris, France. 17-21 Jul 2006.
- *Workshop on Stochastic Partial Differential Equations*. Centro di Ricerca Matematica Ennio de Giorgi, Scuola Normale Superiore, Pisa, Italy. 3-7 Apr 2006.
- *5<sup>th</sup> Seminar on Stochastic Analysis, Random Fields and Applications*. Centro Stefano Franscini, Ascona, Switzerland. 30 May – 3 Jun 2005.

## Teaching Activities.

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### **Courses for students in Mathematics.**

- Probability (Bachelor course, 40 students). Introduction to probability theory, see [2]. Head assistant, 2004-2007 (Preparing and attending tutorial sessions, correcting tests and exams).
- Stochastic Control (Master course, 10 students). Head assistant, 2004 + 2006.
- Stochastic Processes. (Bachelor course, 30 students). Head assistant, 2006.
- Martingales and Applications. (Bachelor course, 20 students). Head assistant, 2004.

### **Courses for students in Engineering.**

- Analysis IV (Microtechnology, Life Sciences, 140 students). Fourier Analysis, ODEs, PDEs. Assistant, 2007-2008 (Attending tutorial sessions, correcting exams).
- Linear Algebra. (Communication Sciences, 120 students). Assistant, 2003-2005.
- Analysis I (Computer Sciences, 100 students). Basic calculus. Assistant, 2003. (Attending tutorial sessions).

### **Supervising students in Mathematics.**

- Master thesis on *Levy processes and financial assets modelling*. Master student, 2007.
- Master thesis on *Optimal control of a Poisson process*. Master student, 2005.
- Six term projects on subjects like : *Brownian motion : theory and simulation*, *Stochastic integration*, and *The optimal strategy for « Who wants to be a Millionaire ? »*. Master and bachelor students, 2004-2008.

### **Awards.**

Two awards for high quality teaching by the Mathematics Dept. EPFL. (2005 and 2007)

## References.

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Prof. Robert C. Dalang  
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Station 8  
CH-1015 Lausanne  
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Prof. Marta Sanz-Solé  
Facultat de Matemàtiques  
Universitat de Barcelona  
Gran Via, 585  
E-08007 Barcelona  
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Prof. Thomas Mountford  
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## Administrative Tasks.

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- 2005 – Representative for the teaching assistants in the Council of the Mathematics Department, EPFL.
- 2002 - 2003 Representative for the mathematics students in the Council of the School of Basic Sciences, EPFL. Representative for the mathematics students in the Council of the Mathematics Department, EPFL.

## Languages.

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French : Mother tongue.  
English : Very good knowledge (reading, writing and speaking). Working language.  
German : Good knowledge.

## Computer skills.

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Operating systems : Windows, Linux.  
Office softwares : Office, Latex, HTML.  
Scientific softwares : R, Matlab, Octave.  
Programming : C++, VBA.

## Miscellaneous.

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Military service : sergeant in the Swiss Army.

Activities : mountain hiking and climbing, ice hockey, card games.