Alexandre RICHARD

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Born 19th Sept. 1988
Nationality: French

Academic career

2016–...	**Post-doctoral researcher** at École Polytechnique. *Topics*: Optimal Skorokhod embedding, in the team of N. Touzi.
2014–2016	**Post-doctoral researcher** at INRIA (Tosca and MathNeuro teams). *Topics*: Hitting times, fractional SDEs and particle systems appearing in neuroscience, with O. Faugeras, D. Talay and E. Tanré.
2010–2014	**PhD student**: joint PhD in mathematics between École Centrale Paris, France and Bar-Ilan University, Israel. Mention *très honorable*. Advisors: E. Herbin and E. Merzbach. *Title: Local regularity of some fractional Brownian fields.* **Jury:** C. Cuny (École Centrale), R. Dalang (EPFL), F. Russo (Ensta-Paristech), Y. Xiao (Michigan State University), E. Herbin (École Centrale, advisor), E. Merzbach (Bar-Ilan University, advisor).
2009–2010	**Part III of the mathematical tripos**, Queens' College, Cambridge. Obtained *with distinction*. Essay title: *The scaling limit of the long-range contact process and the wave solutions of the F-KPP equation. Advisor: N. Berestycki.*
2007–2010	Student at **École Centrale Paris**.
2007–2008	Licence 3 de mathématiques, **Paris 6 University**.
2005–2007	Classes préparatoires, Lycée Louis-le-Grand, Paris.

Publications and preprints

1. Local Hölder regularity for set-indexed processes (with E. Herbin), *Israel J. Math.* 215 (1), 397–440, 2016. doi:10.1007/s11856-016-1382-x

2. A fractional Brownian field indexed by L^2 and a varying Hurst parameter, *Stochastic Process. Appl.* 125 (4), 1394–1425, 2015. doi:10.1016/j.spa.2014.11.003

3. Increment stationarity of L^2-indexed stochastic processes: spectral representation and characterization, *Electron. Commun. Probab.* 21, paper no. 31, 1–15, 2016. doi:10.1214/16-ECP4727

4. Some singular sample path properties of a multiparameter fractional Brownian motion, *J. Theoret. Probab.*, 1–25, 2016. doi:10.1007/s10959-016-0694-4

5. Hölder continuity in the Hurst parameter of functionals of Stochastic Differential Equations driven by fractional Brownian motion (with D. Talay), *Preprint* (2016), 1–52. arXiv:1605.03475

6. Noise sensitivity of functionals of stochastic differential equations driven by fractional Brownian motion: Results and perspectives (with D. Talay), Accepted in Festschrift in honor of V. Konakov 70th birthday (2017), 1–15. arXiv:1702.03796

7. An integrate-and-fire model to generate spike trains with long memory (with P. Orio and E. Tanré), *Preprint* (2017), 1–24. arXiv:1702.03762

In preparation

* Reflected SDEs driven by fBm: existence, uniqueness and numerical approximation (with E. Tanré and S. Torres).
* Convergence of the R/S statistics of successive hitting times of diffusions (with E. Tanré).
* Multiple stationary measures for interacting FitzHugh-Nagumo neurons (with O. Faugeras).

Prize and Grants

- Prize for foundational research (Paris team), iGem (MIT competition in synthetic biology), 2010.
- Inria PhD grant, 2010-2014.
- Inria PostDoc grant, 2014-2016.
- ECOS grant (PIs: S. Torres, E. Tanré, C. Tudor) on long-memory processes in neuroscience.

Research stays

Bar-Ilan University, Israel	April 2011 (two weeks), May 2012 (three weeks), June 2013 (three weeks), February 2014 (one month).
Universidad de Valparaíso and Universidad Católica, Chile	January 2015 (two weeks), June 2015 (two weeks, invited by S. Torres and R. Rebolledo), December 2016 (two weeks, ECOS program).

Teaching

- Teaching assistant in "Stochastic calculus for finance" (computer set problems), 3rd year students at École Polytechnique, 2016.
- Teaching "Numerical probability for mathematical finance", Mathmods Master, Univ. Nice-Sophia-Antipolis (UNSA), 2015.
- Teaching assistant in "Numerical methods for mathematical finance", Imafa Master, UNSA, 2015.
- Teaching assistant in Probability and Statistics to 1st year students at École Centrale Paris (equivalent last year of Bachelor), 2010–2013.
- Teaching assistant in Advanced Probability, 2nd year students at École Centrale (first year of Master), 2010–2013.
- Mentoring 1st and 2nd year students' projects at École Centrale, 2010–2013.
- Oral examiner in classes préparatoires at Lycée Sainte-Marie, Antony, 2007–2009.

Other academic activities

- Organizer of the TOSCA seminar, 2015-2016.
- Joint organizer of the conference in honour of K. Falconer's 60th birthday, held at Inria Saclay, 12–14 May 2014.

Main Talks and Seminars

2010	∗ iGem Jamboree, MIT, November: graduate competition in synthetic biology.
2011	∗ Journées de probabilité (French Probability Days), Nancy, June.
2012	∗ Bar-Ilan University Probability seminar, June.
2013	∗ Journées de probabilité, Orléans, June.
	∗ Saint-Flour summer school, July.
2014	∗ Inria evaluation seminar, Paris, March.
	∗ Workshop in Stochastic processes in infinite dimensional spaces, London, April.
	∗ Colloque Jeunes probabilistes et statisticiens, Rouen, April.
	∗ Conference in honour of K. Falconer's 60th birthday, Paris, May.
	∗ Tosca seminar, Sophia-Antipolis, May.
2015	∗ Nancy Probability seminar, March.
	∗ Seminar of the CIMFAV, Valparaíso, June.
	∗ French-Maghrebi conference on stochastic analysis, Nice, November.
2016	∗ LPMA (Paris 6) probability seminar, February.
	∗ IMT (Toulouse) probability seminar, February.
	∗ Working group on stochastic models and finance of Ecole Polytechnique (France), April.
	∗ Barcelona probability seminar, April.
	∗ International Conference on Mathematical Neuroscience (Juan-les-Pins), June.
2017	∗ Probability seminar, Angers, February.

Languages

English	Fluent.
French	Mother tongue.
Spanish	Average reading and speaking skills.

Computer skills

C, Matlab, Python, R (statistical software)	good working skills.
C++	basic skills.