

ANIS BEN GHORBAL

PERSONAL DETAILS

Date and Place of Birth: May 22, 1972 Tunis, TUNISIA

Marital status: Married, two Childs.

Citizenship: Tunisian

Addresses in Saudi Arabia (Since September 2006)

University: Al-Imam Mohammad Ibn Saud Islamic University
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EDUCATION AND DEGREES

- Ph.D. of Sciences in Mathematics, Henri Poincaré University Nancy 1, France, January 2001.
 - **Thesis Title:** *Algebraic foundations of the quantum probability and quantum stochastic calculus on Boolean Fock space.*
 - **Research Supervisors:**
 - Prof. Michael Schürmann, Faculty of Mathematics and Natural Science, Department of Mathematics and Computer Science, Ernst-Moritz-Arndt University Greifswald, Germany.
 - Prof. René Schott, LORIA (Lorraine Laboratory of IT Research and its Applications) & Elie Cartan Institute, Henri Poincaré University, Nancy1, France.
 - **Thesis Committee:**
 - Prof. Luigi Accardi (Reviewer), Centro Vito Volterra, Faculty of Economics, University of Rome Tor Vergata, Italy.
 - Prof. Stéphane Attal (Reviewer), Fourier Institute, Joseph Fourier University Grenoble 1, France.
 - Prof. Michel Emery (Chairman Committee), IRMA (Advanced Mathematics Research Institute), Louis Pasteur University Strasbourg1, France.
 - Prof. Rémi Léandre (Committee Member), Elie Cartan Institute, Henri Poincaré University Nancy 1, France.
- Master of Sciences in Mathematics, Louis Pasteur University Strasbourg1, France, May 1997.
Thesis: *On the classification of the universal products.* **Thesis Advisor:** Prof. Michael Schürmann.
- Bachelor of Sciences in Mathematics (*Maîtrise Es-Sciences de Mathématiques*), Faculty of Sciences of Tunis, University of Tunis 2 (Tunisia), May 1996.

TRAINING PERIODS & PROFESSIONAL EXPERIENCE

- Assistant Professor, Department of Mathematics, College of Sciences, Al-Imam Muhammad Ibn Saud Islamic University, September 2006, Up to Now.
- Teaching assistant, Department of Mathematics Francesco Brioschi, Politecnico di Milano (Italy), September 2005-September 2006.
- Teaching assistant, Centro Vito Volterra, Faculty of Economics, University of Rome Tor Vergata (Italy), September 2003-August 2005.
- Postdoctoral position under the framework of the European Commission Program: *Research Training Networks, -Quantum Probability with Applications to Physics, Information Theory and Biology*, Contract HPRN-CT-2002-00279. October 2002 - September 2006.
- Postdoctoral position under the framework of the Italian National Research Program: *Quantum probability and Infinite Dimensional Analysis*. September 2001-September 2002.
 - Centro Vito Volterra, Faculty of Economics, University of Rome Tor Vergata (Italy), January 2002-September 2002.
 - Department of Mathematics, University of Genoa (Italy), September 2001-December 2001.

- Teaching assistant (Attaché Temporaire d'Enseignement et de Recherches), Henri Poincaré University Nancy 1 (France), September 2000- August 2001.
- Teaching assistant ("Monitorat"), Henri Poincaré University Nancy 1 (France), October 1998- August 2000.
- 2 months (July, August 1992) training period in Seismic processing center, E.T.A.P. (Tunisian National Oil Company).

RESEARCH INTERESTS


- Statistical stochastic independence and its application on the Central Limit Theorem.
- Quantum stochastic processes, in particular quantum stochastic processes with independent and stationary increments (quantum Lévy processes).
- Quantum stochastic calculus, in particular on the Boolean Fock space.
- Quantum Markov (dynamical) semigroups.
- Survival data analysis and their applications.

PUBLICATIONS


1. *Non-commutative notions of stochastic independence*, (with Prof. M. Schürmann) Published in *Mathematical Proceedings of the Cambridge Philosophical Society* **133**, pages 531-561, 2002.
2. *Boolean independence and the time consecutive principle*, Centro Vito Volterra Preprint 2002/0530, 2002 (with Prof. L. Accardi and Prof. Y.G. Lu).
3. *Quantum stochastic calculus on Boolean Fock space*, EMAU Greifswald Preprint-Reihe Mathematik 2003/18, 2004 (with Prof. M. Schürmann). Published in *Infinite Dimensional Analysis, Quantum Probability and Related Topics*, **Vol. 7**, No.4, pages 631-650, 2004.
4. *Monotone Independence and Comb Product of Graphs*, EMAU Greifswald Preprint- Reihe Mathematik Preprint 2003/37, 2003 (with Prof. L. Accardi and Prof. N. Obata). Published in *Infinite Dimensional Analysis, Quantum Probability and Related Topics*, **Vol. 7**, No.3 pages 419-435, 2004.
5. *Quantum Lévy processes on the dual groups*, EMAU Greifswald Preprint-Reihe Mathematik 2003/38, 2003 (with Prof. M. Schürmann). Published in *Mathematische Zeitschrift* **251**, pages 147-165, 2005.
6. *A constructive Boolean central limit theorem*, Centro Vito Volterra Preprint 2005/583, 2005 (with Prof. V. Crismale and Prof. Y.G. Lu), Published in *Bollettino dell Unione Matematica Italiana. Sezione B*, **Vol. 10**, N° 3, pages. 593-604, 2007.
7. *Boson cocycle as the second quantization of the Boolean cocycle*, Centro Vito Volterra Preprint 2005/593, 2005 (with Prof. F. Fagnola), Published in Proceedings of 26th Conference of Quantum Probability and Infinite Analysis, Levico, Italy 20-26 February, 2005, QP-PQ: Quantum Probability and White Noise Analysis - Vol. 20, pages 134-144, 2007.
8. *Generic Rock Quantum Markov Semigroups with Instantaneous States*, Centro Vito Volterra Preprint 2005/592, 2005 (with Prof. F. Fagnola, Prof. S. Hachicha and H. Ouerdiane), Published in *Communications on Stochastic Analysis*, **Vol. 2**, No. 2, pages 177-192, August 2008.
9. *Singleton Conditions and Quantum De Finetti's Theorem*, (with Prof. L. Accardi, Prof. V. Crismale and Prof. Y.G. Lu), Published in *Infinite Dimensional Analysis, Quantum Probability and Related Topics*, **Vol. 11**, No.4, pages 639-660, 2008.
10. *Projective independence arising from interacting Fock spaces and related central limit theorems*, (with Prof. V. Crismale), Published in *Probability and Mathematical Statistics*, Vol. 29 Fasc. 2, pages 400-419, 2009.
11. *Using WinBUGS to Cox Model with Changing from the Baseline Hazard Function*, (with Dr. A. Mostafa), *Applied Mathematical Sciences*, Vol. 5, no. 45, 2217 – 2240, 2011.
12. *Bayesian and non-Bayesian analysis for random change point problem*, (with Dr. A. Mostafa), *International Journal of Mathematical Archive* 2 (10), pages 1963-1979, 2011.
13. *The Hamiltonian operator associated to the Boolean quantum stochastic differential equation*, in preparation (with Prof. F. Fagnola).

PRESENTATIONS

- *Bose-Einstein condensation in inhomogeneous Josephson arrays*, KACST Third Meeting on Quantum Optics and Informatics, KASCT (KSA), May 22, 2011.

- *The Hamiltonian associated to the Boolean-QSDE and its Boson second quantization*, Workshop on Quantum Probability and Its Applications, Politecnico di Milano (Italy), May 04-06, 2006.
- *Quantum stochastic independence approaches*, 26th Conference on Quantum Probability and Infinite Dimensional Analysis & Mid-Term Review EC--RTN, Levico Terme-Trento (Italy), February 20-26, 2005.
- *How quantum stochastic independence and central limit theorems are related to graphs?* 14th Pan-African Congress of Mathematicians, Tunis (Tunisia), September 01-06, 2004.
- *HP-QSDE by second quantization of the solution of the Boolean-QSDE*, 25th Conference on Quantum Probability and Infinite Dimensional Analysis, Bedlewo (Poland), June 20-26, 2004.
- *Quantum probabilistic approach to spectral analysis of comb graph*, Tunisian Mathematician Congress, Mahdia (Tunisia), March 15-18, 2004.
- *Boolean quantum stochastic calculus and the Second quantization*, 24th Conference on Quantum Probability and Infinite Dimensional Analysis, Greifswald (Germany), June 23-27, 2003.
- *On the Boolean independence and the time consecutive principle*, 23rd Conference on Infinite Dimensional Analysis and Quantum Probability, Levico Terme-Trento (Italy), June 10-15, 2002.
- *On the quantum stochastic calculus on Boolean Fock space*, International conference on Stochastic Analysis and Applications, Hammamet (Tunisia), October 22-27, 2001.
- *Quantum stochastic integration on the Boolean Fock space*, 20th Conference on Quantum Probability and Infinite Dimensional Analysis, Burg (Germany), March 15-20, 2001.
- *Quantum stochastic integration on the Boolean Fock space*, mini-Workshop on Quantum stochastic analysis, Lubmin (Germany), March 13-14, 2001.
- *On the realization of the additive Lévy processes*, Workshop on Quantum Stochastic analysis, Blaubeuren (Germany), May 15-17, 2000.
- *From the classical independence to the quantum one*, 3rd Meeting Every-Nancy-Strasbourg on probability and statistics, IRMA Louis Pasteur University Strasbourg 1 (France), May 26-27, 1999.

ACADEMIC AWARDS

- Grant from the European Commission: Research Training Networks, -Quantum Probability with Applications to Physics, Information Theory and Biology, Contract HPRN-CT-2002-00279. October 2002-September 2006.
- Grant from the Centro Vito Volterra, Faculty of Economics, University of Rome Tor Vergata, September 2002.
- Grant from the Italian Ministry of Education, University and Research (*Ministero dell'Istruzione, dell'Università e della Ricerca*), Quantum probability and Infinite Dimensional Analysis project, September 2001-August 2002.
- Scholarship from the French Foreign Ministry, (*Bourse de Coopération Franco-Tunisienne*), September 1997-August 2001.
- Scholarship from the Tunisian Higher Education Ministry (*Bourse de Troisième cycle en France*), September 1996-August 1997.
- Grant from French and German governments under the PROCOPE project between Nancy-Strasbourg-Greifswald Universities, November 1998-December 2001.

TECHNICAL SKILLS

- Computing skills
 - Operating Systems: Windows 98/NT/XP, UNIX.
 - Programming: C++, Visual Basic, HTML.
 - Software: L^AT_EX, L^AT_EX₂ε, Maple, Matlab, Microsoft Office (Word, Excel, Access, Power Point, Front Page).
- Statistical Software: MINITAB, SPSS, SAS.

LANGUAGES

- Bilingual Arabic/French
- English: Excellent
- Italian: Excellent
- German: Basic knowledge