KFUPM

Mathematics & Statistics Department

Curriculum Vitae

Dr. Boubaker Smii

Contents

1. Personal Information

Name: Boubaker Smii
Birth date & place: May, 23 1977, Kasserine (Tunisia)
Marital Status: Married with three children
Address:King Fahd University of Petroleum and Minerals / Department of Mathematics and Statistics, P. O Box 82/Dhahran 31261 / Saudi Arabia.
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E-mail: boubaker@kfupm.edu.sa
Function: Assistant Professor
Major Field: Stochastic Analysis
Area of research interest: SDEs driven by Lévy noise, Asymptotic expansions of SDEs, Applications of the Graphs to SPDE's driven by Lévy noise, Graph Theory, Stochastic partial differential equation, Mathematical Physics.

2. Background

2.1. Education

University	Year	Degree Obtained
Bonn University (Germany)	2006	Ph. D. In Math
Tunis ElManar University (Tunisia)	2003	M S. In Math
University of Bizerte (Tunisia)	2001	D.E.S. (BS) In Math.

2.2. Scholarships and Honors

2009-2010: Scholarship from the German Academic Exchange Service (**DAAD).**
2006-2007: Member of the Excellence Cluster, University of Bonn, Germany.
2004-2006: Member of the Bonn International graduate student-**BIGS-**Germany.
2004-2007: Scholarship from the German Academic Exchange Service (**DAAD**).

3. Teaching *3.1. Teaching Experience*

University	Period of Service	Position
KFUPM, Dhahran, KSA	2008 – now	Assistant Professor
Aljouf University, Skaka, KSA	2007 – 2008	Assistant Professor
Bonn University, Germany	2006 – 2007	Visiting Assistant Professor
TunisElManar University , Tunisia	2003 – 2004	Teaching Assistant

3.2. Courses Taught

a. <u>Undergraduate and Graduate Courses:</u>

University	Year	Courses
University of Tunis	2003 – 2004	Analysis 1, Analysis 2, Algebra 1, Algebra 2
University of Bonn	2006 – 2007	Probability
University Aljouf	2007 – 2008	Calculus I, Calculus II, Graph Theory
KFUPM	2008 – 2009	Calculus II (MATH 102)
KFUPM	2009 – 2010	Elements of differential equations (Math202)
KFUPM	2010-2011	Math202, Math 280, Math 102
KFUPM	2011-2012	**Stat 416** : Stochastic processes for actuaries.
KFUPM	2012-2013	**Math 590 :** Introduction to stochastic differential equations and applications.

KFUPM	2013-2014	**Math 605 :** Asymptotic expansion and Perturbation Theory. **Math 102 :** Calculus II
KFUPM	2014-2015	**Math 690 :** Stochastic differential equations and Applications**.** **Math 101 :** Calculus I

b. <u>Graduate course</u>:

*I developed new graduate course **Math 601" Introduction to stochastic processes and applications".***

4. Research Work

4.1. <u>Published and accepted Journal papers & Proceedings:</u>

► A Large diffusion Expansion for the Transition Function of Lévy Ornstein-Uhlenbeck Processes, **Appl.Math. Inf.Sci**. 10,No.4, pp. 1-8 (**2016**).

► On the representations of the canonical partition function and the Helmotz free energy. To **appear** in **Journal of Comp. and Theor. Nano**. (**2016**).

► A class of Lévy driven SDEs and their explicit invariant measures. To **appear** in **Potential analysis**. **DOI:** 10.1007/s11118-016-9544-3 (2016) (**2016**). (with S. Albeverio, L. Dipersio and E. Mastrogiacomo).

►Asymptotic expansions for SDE's with small multiplicative noise. **Stoch. Proc. Appl.** 125 (3) (**2015**) pp.1009-1031 (with S. Albeverio).

► Small noise asymptotic expansions for stochastic PDE's driven by dissipative nonlinearity and Lévy noise. **Stoch. Proc. Appl.** 123 (**2013**) pp. 2084-2109. (with S.Albeverio and E. Mastrogiacomo).

► Feynman Graph Representation to Stochastic Differential Equations Driven by Lévy noise . Proceeding of the International Conference on Mathematical Sciences and Statistics 2013, Kuala Lumpur., pp. 213-222, **Springer**, IX, **2014**.
http://www.springer.com/us/book/9789814585323

►A Linked Cluster Theorem of the solution of the generalized Burger equation.," ***Appl. Math. Scien.(Ruse)***, vol. 6, no. 1, pp. 21-38, **2012**.

► The Feynman graph representation of convolution semi-groups and its application to Lévy statistics. **Bernoulli** . 14 (2) **2008**. 322-351 pp(with H. Gottschalk and H. Thaler).

► How to determine the law of the solution to a SPDE driven by a Lévy space-time noise, **Journal of Mathematical Physics** v.48. Issue 03. **2007**. 1-22 pp(with H. Gottschalk).

►Convolution calculus on white noise spaces and Feynman graph representation of generalized renormalization flows. **Mathematical Analysis of Random Phenomena.Word Sci**. **2007**, 101-111 pp (with H. Gottschalk and H. Ouerdiane).

► Integral representation of positive Operator. Stochastic Analysis and Probability, **Tunisia-Japan** Symposium on culture and Science 2005, 51-53 pp (with H. Ouerdiane).

4.2 . <u>Submitted papers</u>:

► A graphical representation of the truncated moments of a mixed noise, Submitted (**2016**).
► Asymptotic character of the transition function of of Lévy Ornstein-Uhlenbeck processes. Submitted (**2016**).
► Explicit invariant measures for infinite dimensional SDE driven by Lévy noise with dissipative nonlinear drift I. Submitted (**2016**).(with S. Albeverio, L. Dipersio and E. Mastrogiacomo).

4.3. Conference Presentations

♪ Boubaker S. " On the representations of a SPDE driven by a multiplicative Lévy noise.'' ALEA in Europe Meeting 2016, Munich-**Germany**, February 22-26, **2016.**

♪ Boubaker S. " Applications of SDEs driven by Lévy noise." 12-th Workshop on Stochastic Models, Statistics and their Applications **,** Wroclaw-**Poland**, February 16-20, 2015.

♪ Boubaker S. " Asymptotic expansions of SDEs driven by Lévy noise." XVI-th International Summer Conference On Probability And Statistics (ISCPS-2014). Pomorie-**Bulgaria**. June 21-28, 2014.

♪ Boubaker S. "A Graphical representation of the Itô formula." International Conference on Mathematical Sciences and Statistics, **Malaysia**-Kuala Lumpur February 5-7th, 2013.

♪ Boubaker S. " SPDE's and their applications." 6th International Conference on Stochastic Analysis and Its Applications, Będlewo-**Poland**, September 10-14th, 2012.

♪ Boubaker S. "Feynman graph representations to the solution of the SDE driven by Lévy noise". Stochastic Analysis, Lévy processes and (B) SDEs, 03-07 October, 2011, Innsbruck-**Austria.**

♪ Boubaker S. "Application of the generalized Feynman graph to SPDE's driven by *Lévy noise*." 34th International Conference on Stochastic Analysis and its Applications, 06-10September 2010, Osaka. **Japan.**

♪ Boubaker S. "Summability of the solution of the generalized Burger equation". 6th International Conference on Lévy Processes:Theory and Applications, Dresden-**Germany**, July 26-30, 2010.

♪ Boubaker S. "Graphical solution of the generalized Burger equation". The first International Conference on Mathematics and Statistics, **Sharja**- UAE, March 18-21, 2010

♪ Boubaker S." *Applications of the graphs to generalized KPZ equation driven by Lévy noise*". 33rd International Conference on Stochastic Analysis and its Applications, 27-31July 2009, **Berlin**. Germany.

♪ *Boubaker S.” Application of the Feynman graphs to Stochastic equations” International Symposium on Global Analysis and Probability, May 27-28, 2008 .* Department of Mathematics, Qassim University, Saudi Arabia.

4.4. <u>Funded Projects:</u>

Title of the project	Period	Funded by	Role	Status
Invariant measures for stochastic differential equations driven by Lévy noise	May, 2013-October 2014	KFUPM	PI	Completed
Asymptotic expansions for SDE's with small multiplicative noise	June-July 2013	KFUPM (Summer Grant)	PI	Completed
Feynman graph representation of the transition density of the Lévy OU process	January, 2012- July 2013	KFUPM	PI	Completed
A graphical representation of the one dimensional Ito Formula	May, 2011-May 2012	KFUPM	PI	Completed
Summability of the solution of the generalized KPZ equations	Jan. 1st, 10 – Feb, 1st 11	KFUPM	Pricipal Investigator (PI)	Completed

4.5. <u>Conference Attendance</u> :

Name	Place	Date
ALEA in Europe Meeting 2016.	*Munich-Germany*	*February 22-26 2016*
12-th Workshop on Stochastic Models, Statistics and their Applications ,	*Wroclaw-Poland*	*February 16-20 2015*
XVI-th International Summer Conference On Probability And Statistics (ISCPS-2014).	*Pomorie-Bulgaria*	*June 21-28, 2014*
International Conference on Mathematical Sciences and Statistics	*Malaysia-Kuala Lumpur*	*February 5-7th, 2013*
6th International Conference on Stochastic Analysis and Its Applications	*Będlewo-Poland*	*September 10-14th, 2012*
4th Annual IAMCS Spring Symposium, KAUST,	*Jeddah, Saudi Arabia*	*May 6-7,2012*
Conference on Stochastic analaysis L\’evy processes and (B) SDEs	*Innsbruck-Austria*	*October 3-7, 2011*
34th Conference on Stochastic Processes and their Applications	*Osaka- Japan*	*September 6-10, 2010*
6th International Conference on Levy Processes:Theory and Applications	*Dresden- Germany*	*July 26-30,2010*
The first International Conference on Mathematics and Statistics	*Sharja- UAE, March*	*March 18-21,2010*
33rd Conference on stochastic processes and their applications	*Technische Universitat, Berlin. Germany.*	*july 27-31, 2009*

International Symposium on Global Analysis and Probability,	Qassim University, Saudi Arabia.	*May 27-28, 2008*
International Symposium on Mathematical Methods Applied to the Sciences	San José, Costa Rica	19-22 February, 2008.
International conference on Mathematical Analysis of Random Phenomena.	Hammamet, Tunisia	12-17, 2005
Tunisia-Japan Symposium on culture, Science and Technology	Sfax, Tunisia	May 23-29, 2004
International conference on Mathematical Analysis and Probability,	Hammamet, Tunisia.	October20-25, 2003

*** Refereed Reports:**

► **Smii. B.** Feynman Graph Representation of the transition density of the Lévy Ornstein-Uhlenbeck Process. Final report, KFUPM, Project IN111009, **April 2014.**

► **Smii. B.** Invariant measures for stochastic differential equations driven by Lévy noise. Final report, KFUPM, Project IN121060, (with S. Albeverio), **March 2016.**

► **Smii. B.** A graphical representation of the one dimensional Ito Formula. Final report, KFUPM, Project IN101025, November 2012.

4.6 Books :

1) Application of generalized Feynman graph to SPDE driven by Lévy noise. In Progress, Dhahran 2015.

4.7. International collaborations:

1- Prof. Sergio Albeverio, from the University of Bonn, Germany since 2003 until now.
2- Prof. Ernst Eberlein, from Freiburg University , Germany during 2014.
3- Prof. Dennis Sullivan, from Stony Brook University, USA during March 2013.

5. Visits / Seminars

5.1. * Attending the weekly department Colloquium with one presentation, at least, each year.

5.2. Seminars outside Department

Date	Title	Location
21 / 07/ 2009	Application of the graphs to burger equation driven by non Gaussian noise	University of Koblenz, Germany

5.3. ***Visits***

University	Location	Period of visit
University of Bonn, Germany	Bonn, Germany	June-July 2013
University of Bonn	Bonn, Germany	Two weeks (2013), two weeks (2012), two weeks (2011), two months (2009).
University of Dresden	Dresden, Germany	1 Week , Summer 2010
Technische Universitat	Berlin, Germany	Two weeks, Summer 2009
University of Koblenz	Koblenz, Germany	Three months, Summer 2009
Max Planck Institute	Bonn, Germany	Summers 2006 & 2007
University of Bielefield	Germany	1 week , Summer 2006

5.4. Short courses & Workshops Attended :

Date	Activity	Place
Summer 2006	Short course in Unix	Germany
Summer 2009	Short course in Financial Mathematics	Koblenz, Germany

6. Committees

2012-2013	Research Committee (member) Applied Math group (member) Graduate Committee (Revision program)
2010-2011	Applied Math Group (Member) Coordination Group (Member) Math-Olympiad Group(Member) hoc committees: Under-graduate program (Member)
2009-2010	Applied Math Group (Member) Combinatorics Group (Member) Awarness Committee (Member)

7. Languages

Arabic – English – French and German

8. Hobby

♣Leisure: Travel, reading

♣Sports: walking, Football , Kung Fu, Take wando, swimming