Curriculum Vitae

Personal information

- Name: Abdelkarem Berkaoui
- Current address: Department of Mathematics and Statistics, College of Sciences, Al-Imam Mohammed Ibn Saud Islamic University, Riyadh, Saudi Arabia.
- Email: berkaoui@yahoo.fr **&** aamberkaoui@imamu.edu.sa
- Website: http://imamu.academia.edu/berkaoui/

Research interests

- Financial Mathematics.
- Stochastic analysis.
- Numerical approximation.
- Malliavin Calculus.

Publications

- *A characterization of the set of local martingale measures*. To appear in Stochastics and Dynamics journal (2017).
- *On representations of the set of super-martingale measures and applications in discrete time*. To appear in Arabian journal of Mathematics (2017).
- *On characterizing the set of martingale measures in discrete time.* Stochastics and Dynamics **15** (3) (2015).
- *On a generalized optional decomposition theorem.* Stochastics **86** (6) 906-921, (2014).
- *On characterizing and generalizing the optional m-stability property for pricing set*. Statistics and Probability Letters **83** (3) (2013).
- *No arbitrage and closure results for trading cones with transaction costs*. Finance and Stochastics **12** (4) 583-600, (2008). (with S. Jacka, and J. Warren)
- *Strong convergence of the Euler scheme for SDE's with particular case of non-Lipchitz diffusion coefficient*. ESSAIM Probability and Statistics **12** 1-11, (2007). (with M. Bossy and A. Diop)
- *On the density of proper maximal claims in a financial market setting*. Annals of applied probability **17** (2) 716-740, (2007). (with S. Jacka)
- *Euler scheme for solutions of stochastic differential equations with non-Lipchitz coefficients*. Journal of Portugaliae Mathematica **61** (4) 461-478 (2004).
- *On large deviation principle in non-linear filtering theory*. Studia Mathematica **148** (1) 5-21 (2001). (with B. Djehich and Y. Ouknine)
- *On the approximation of the solution of an anticipating stochastic differential equation*. Annales de Blaise Pascal **6** (2) 29-39 (1999). (with Y. Ouknine)

- *Besov-regularity of the Skorohod process's trajectories*. Bulletins des Sciences Mathématiques **8** (123) 643-663 (1999). (with Y. Ouknine)
- *On the approximation in Besov-Orlicz norm of the solution of an EDS*. Stochastics **60** (1997).

Submitted papers

- *On backward stochastic differential equations, driven by a family of Ito's processes.* (with E. Essaky)

Papers in preparation

- *On representations of the set of super-martingale measures and applications in continuous time*.
- *An axiomatic approach to trading cones*.
- *On the continuous time version of the optional m-stability property and applications.*
- *On the dimensionality of a family of acceptance sets.*

Preprints

- *On decomposing risk in financial intermediary market and reserving*. arXiv math.PR/0603041 (with S. Jacka)
- *On representing and hedging claims for coherent risk measures*. arXiv math.PR /0708.0512v1 (with S. Jacka)
- *On portfolio optimization under a general pricing measure and applications*.
- *On super hedging claims under a reduced pricing set*.

Work experience

- February 2007-Present. Assistant Professor, Department of Mathematics and Statistics, College of Sciences, Al Imam Mohammed Ibn Saud Islamic University, Riyadh, Saudi Arabia.
- 2002-2006. Research fellow at the University of Warwick, Coventry (UK).
- 2001-2002. Post-doc position at the ETH institute Zurich (Switzerland).
- 2001. Post-doc position at INRIA Sophia Anti-polis (France).
- 2000. PhD from Cadi Ayyad University (Morocco) with Thesis's title: "***On the approximation of solutions of stochastic differential equations in Besov-Orlicz spaces***", supervised by Prof. Y. Ouknine.

Conferences, Schools and Seminars

- Conferences on Stochastic analysis and Probabilities in Marrakech, 1999.
- CIMPA School organized from 07 to 21, April 2000 in Marrakech: "Applied probabilistic Methods to Partial Differential Equations".

- OUKAIMDEN school organized 20 and 21, May 2000: “The integrated semi-groups “.
- Seminar on “Numerical Probabilities” at INRIA and Nancy University, France.
- Conference “Mathematical methods in engineering”, Liege, Belgium May 2002.
- Workshop “Interfaces between Quantitative finance and insurance” from 04 to 08 April 2005, Edinburgh UK.
- Stochastic analysis and probabilities, Marrakech December 2005, Morocco.
- Mathematics and its Applications, Al-Imam University, Riyadh (KSA), March 23-24, 2011.
- Days of Mathematics, King Saud University, Riyadh (KSA), April 2012.

Supervision

- Graduation project “Markov chain Monte Carlo methods”, (2012) (Student Saleh AlOtaibi).
- Graduation project “Random walks”, (2013) (Student Fawaz Ghazi).
- Graduation project “Branching process”, (2013) (Student Nasser Anassar).
- Graduation project “Renewal process”, (2016) (Student Asmae Alanazi).
- Graduation project “Poisson process”, (2016) (Student Amani Alshahri).

Projects

- On a super hedging formula for a class of financial markets. Supported by the deanery of Scientific Research at Al-Imam University, January 2008-December 2010.
- On portfolio optimization in a switch-stable financial market. Supported by the deanery of Scientific Research at Al-Imam University, January 2010-December 2010 .
- On super hedging in an incomplete financial market. Supported by the deanery of Scientific Research at Al-Imam University, January 2010-December 2010 (In collaboration with H. Faires)
- On characterizing the set of martingale measures in continuous time. Supported by the deanery of Scientific Research at Al-Imam University, January 2015-December 2015

Academic duties:

- Reviewer for some international journals.
- Reviewer of small projects for KACST and some Saudi Universities.

Administrative duties:

- Member of the Exam committee.
- Member of the committee for preparing academic plan for Statistics diploma in Science College.
- Member of the committee for preparing academic plan for financial mathematics diploma in Science College.
- Member of the committee supervising the Mathematics department website.
- Member of the coordination committee of Mathematical courses for Preparatory year.

Prizes and awards:

- International publishing awards 2013, 2014 and 2015 (IMSIU University) .