Lijun Bo

Contact Information

Department of Probability and Statistics
School of Mathematical Sciences
University of Science and Technology of China
No. 96 Jinzhai Road
Anhui Province, Heifei 230026, CHINA

(086) 0551-63600313
lijunbo@ustc.edu.cn
http://staff.ustc.edu.cn/~lijunbo

Research Interests

- Applied probability and stochastic processes; mathematical finance; stochastic control and optimization; numerical methods and statistical inference in stochastic systems; queueing systems and inventory theory.

Education

School of Mathematical Sciences, Nankai University

- Ph.D., in Probability and Mathematical Finance, Sep. 2006–June 2009
  - Dissertation Topic: Stochastic Equations and Applications in Credit Risk
  - Advisor: Prof. Yongjin Wang
- M.S. in Probability Theory, Sep. 2002–June 2006
  - Dissertation Topic: Reflected SDEs with Non-Lipschitzian Coefficients
  - Advisor: Prof. Yongjin Wang

University of Electronic Science and Technology at Xi'an

B.A. in Mathematics, Sep. 1999–June 2003

Professional Experience

- Apr. 2015-present: Professor, School of Mathematical Sciences, University of Science and Technology of China (USTC)
- Jul. 2013-Mar. 2015: Professor, School of Mathematics and Statistics, University of Electronic Science and Technology at Xi'an (Xidian University)
- Oct. 2013-Oct. 2014: Visiting Scholar, Department of Applied Mathematics and Statistics, The John-Hopkins University (JHU)
- Jul. 2010-Jun. 2013: Associate Professor, Department of Mathematics, University of Electronic Science and Technology at Xi'an
- Jul. 2009-Jun. 2010: Assistant Professor, Department of Mathematics, University of Electronic Science and Technology at Xi'an

Preprints

- Risk Sensitive Portfolio Optimization with Regime-Switching (with H. Liao and X. Yu). pp. 1-30, 2018. To appear in **SIAM Journal on Control and Optimization**.
- Risk Minimal Hedging of Counterparty Risk (with C. Ceci). pp. 1-32.
- Optimal Credit Investment and Risk Control of an Insurer with Regime-Switching (with H. Liao and Y. Wang). pp. 1-26, 2018. To appear in **Mathematics and Financial Economics**.

Publications

- Portfolio Choice with Market-Credit Risk Dependencies. (with A. Capponi) **SIAM Journal on Control and Optimization**, Forthcoming, pp. 1-38.
- Credit Portfolio Selection with Decaying Contagion Intensities. (with A. Capponi and P.C. Chen) **Mathematical Finance**, Forthcoming, pp. 1-29.

- Optimal Investment of Variance-Swaps in Jump-Diffusion Market with Regime-Switching. (with D. Tang and Y. Wang) **Journal of Economic Dynamics and Control**, Vol. 83, pp. 175-197, 2017.
- Risk Sensitive Asset Management and Cascading Defaults. (with J. Birge and A. Capponi) **Mathematics of Operations Research**, Forthcoming, pp. 1-28.
- Optimal Investment and Risk Control for an Insurer with Stochastic Factor. (with S.H. Wang) **Operations Research Letters**, Vol. 45, No. 3, pp. 259-265, 2017.
- The Pricing of Basket Options: A Weak Convergence Approach. (with Y. Wang) **Operations Research Letters**, Vol. 45, No. 2, pp. 119-125, 2017.
- Optimal Investment under Information Driven Default Contagion. (with A. Capponi) **SIAM Journal of Control and Optimization**, Vol. 55, No. 2, pp. 1020-1068, 2017.
- Optimal Credit Investment with Borrowing Costs. (with A. Capponi) **Mathematics of Operations Research**, Vol. 42, No. 2, pp. 546-575, 2017.
- Stochastic Delay Differential Equations with Jump Reflection: Invariant Measure (with C.G. Yuan) **Stochastics**, Vol. 88, No. 6, pp. 841-863, 2016.
- Dynamic Investment and Counterparty Risk. (with A. Capponi) **Applied Mathematics and Optimization**, Articles in Advance, doi: 10.1007/s00245-016-9364-2, pp. 1-45, 2016.
- Robust Optimization of Credit Portfolios. (with A. Capponi) **Mathematics of Operations Research**, Vol. **42**, No. 1, pp. 30-56, 2017.
- Stability in Distribution of Markov-Modulated Stochastic Differential Delay Equations with Reflection. (with C.G. Yuan) **Stochastic Models**, Vol. 32, No. 3, pp. 392-413, 2016.
- Optimal Investment in Credit Derivatives Portfolio under Contagion Risk. (with A. Capponi) **Mathematical Finance**, Vol. 26, No. 4, pp. 785-834, 2016.
- Systemic Risk in Interbanking Networks (featured paper). (with A. Capponi) **SIAM Journal on Financial Mathematics**, Vol. 6, pp. 386-424, 2015.
- Counterparty Risk for CDS: Default Clustering Effects. (with A. Capponi) **Journal of Banking and Finance**, Vol. 52, pp. 29-42, 2015.
- Bilateral Credit Valuation Adjustment for Large Credit Derivatives Portfolios. (with A. Capponi) **Finance and Stochastics**, Vol. 18, No. 2, pp. 431-482, 2014.
- On the Default Probability in a Regime-Switching Regulated Market. (with Y. Wang, and X. Yang) **Methodology and Computing in Applied Probability**, Vol. 16, No. 1, pp. 101-113, 2014.
- Kernel Correlated Levy Field Driven Forward Rate and Application to Derivative Pricing. (with Y. Wang, and X. Yang) **Applied Mathematics and Optimization**, Vol. 68, No. 1, pp. 21-41, 2013.
- Optimal Investment and Consumption with Default Risk: HARA Utility. (with D. Li, Y. Wang and X. Yang) **Asia-Pacific Financial Market**, Vol. 20, No. 3, pp. 261-281, 2013.
- Large deviation for the nonlocal Kuramoto-Sivashinsky SPDE. (with Y. Jiang) **Nonlinear Analysis: Theory, Methods & Applications**, Vol. 82, No. C, pp. 100-114, 2013.
- On the Conditional Default Probability in a Regulated Market with Jump Risk.

(with D. Li, Y. Wang, and X. Yang) **Quantitative Finance**, Vol. 13, No. 12, pp. 1967-1975, 2013.

- First Passage Times of Reflected O-U Processes with Two-Sided Jumps. **Queueing Systems: Theory and Applications**, Vol. 73, No. 1, pp. 105-118, 2013.
- Lévy Risk Model with Two-Sided Jumps and a Barrier Dividend Strategy. (with R. Song, D. Tang, Y. Wang and X. Yang) **Insurance: Mathematics and Economics**, Vol. 50, No. 2, pp. 280-291, 2012.
- First Passage Times of Constant-Elasticity-of-Variance Processes with Two-Sided Reflecting Barriers. (with C. Hao) **Journal of Applied Probability**, Vol. 49, No. 4, pp. 1119-1133, 2012.
- Sequential maximum likelihood estimation for reflected generalized O-U processes. (with X. Yang) **Statistics and Probability Letters**, Vol. 82, No. 7, pp. 1374-1382, 2012.
- Derivative Pricing Based on the Exchange Rate in a Target Zone with Realignment. (with Y. Wang, and X. Yang) **International Journal of Theoretical and Applied Finance**, Vol. 14, No. 6, pp. 945-956, 2011.
- Exponential Change of Measure Applied to Term Structures of Interest Rates and Exchange Rates. **Insurance: Mathematics and Economics**, Vol. 49, No. 2, pp. 216-225, 2011.
- On the Conditional Default Probability in a Regulated Market: A Structural Approach (featured paper). (with D. Tang, Y. Wang, and X. Yang) **Quantitative Finance**, Vol. 11, No. 12, pp. 1695-1702, 2011.
- First Passage Times of (Reflected) Ornstein-Uhlenbeck Processes Over Random Jump Boundaries. (with Y. Wang, and X. Yang) **Journal of Applied Probability**, Vol. 48, No. 3, pp. 723-732, 2011.
- Maximum Likelihood Estimation for Reflected Ornstein-Uhlenbeck Processes. (with Y. Wang, X. Yang, and G. Zhang) **Journal of Statistical Planning and Inference**, Vol. 141, No. 1, pp. 588-596, 2011.
- Some Integral Functionals of Reflected SDEs and Their Applications in Finance (featured paper). (with Y. Wang, and X. Yang) **Quantitative Finance**, Vol. 11, No. 3, pp. 343-348, 2011.
- Markov-Modulated Jump-Diffusions for Currency Option Pricing. (with Y. Wang, and X. Yang) **Insurance: Mathematics and Economics**, Vol. 46, No. 3, pp. 461-469, 2010.
- An Optimal Portfolio Problem in a Defaultable Market. (with Y. Wang, and X. Yang) **Advances in Applied Probability**, Vol. 42, No. 3, pp. 689-705, 2010.
- Support Theorem for A Stochastic Cahn-Hilliard Equation. (with K. Shi, and Y. Wang) **Electronic Journal of Probability**, Vol. 15, No. 1, pp. 484-525, 2010.
- On a Stochastic Wave Equation Driven by a Non-Gaussian Lévy Process. (with K. Shi, and Y. Wang) **Journal of Theoretical Probability**, Vol. 23, No. 1, pp. 328-343, 2010.
- Large Deviations for Perturbed Reflected Diffusion Processes. (with T. Zhang) **Stochastics**, Vol. 81, No. 6, pp. 531-543, 2009.
- Lyapunov Exponent Estimates of a Class of Higher-Order Stochastic Anderson Models. (with D. Tang) **Proceedings of AMS**, Vol. 136, No. 11, pp. 4033-4043, 2008.

- Explosive Solutions of Stochastic Wave Equations with Damping on R^d. (with D. Tang, and Y. Wang) **Journal of Differential Equations**, Vol. 244, No. 1, pp. 170-187, 2008.
- On the First Passage Times of Reflected OU Processes with Two-Sided Barriers. (with Y. Wang, and L. Zhang) **Queueing Systems: Theory and Applications**, Vol. 54, No. 4, pp. 313-316, 2006.
- Stochastic Cahn-Hilliard Partial Differential Equations with Lévy Spacetime White Noises. (with Y. Wang) **Stochastics and Dynamics**, Vol. 6, No. 2, pp. 229-244, 2006.

Invited Talks

- Risk Sensitive Portfolio Optimization with Default Contagion and Regime-Switching, *Probability and Mathematical Finance Seminar*, School of Mathematical Sciences, Shandong University, Jinan. (March 30, 2018)
- Analysis of Inter-Banking Network using Interacting Jump-Diffusion System: A Weak Convergence Approach, *Probability Seminar*, School of Mathematical Sciences, South China Normal University, Guangzhou. (December 22, 2017)
- Analysis of Inter-Banking Network using Interacting Jump-Diffusion System: A Weak Convergence Approach, *Management Science Seminar*, Lingnan (University) College, Sun Yat-sen University, Guangzhou. (December 22, 2017)
- Risk Minimal Hedging of Counterparty Risk, *2017 Annual Meeting of Chinese Mathematics Society (CMS)*, Xiangtan. (October 21-23, 2017)
- Risk Minimal Hedging of Counterparty Risk, *Annual Meeting of Financial Engineering and Risk Management of ORSC*, Hunan University, Changsha. (September 23-24, 2017)
- Risk-Sensitive Asset Management and Cascading Defaults, *Control of Stochastic Nonlinear Systems and Related Fields*, Shandong University, Qingdao. (June 23-25, 2017)
- Risk Sensitive Control and Applications in Cascading Default, *2017 Workshop on Stochastic Processes and Applied Probability*, Jilin University, Changchun, Jilin. (June 17-18, 2017)
- Risk Sensitive Control and Cascading Defaults, *Silk Road Young Scholars Forum*, Xi'an Jiaotong University, Xi'an. (December, 20-22, 2016)
- Risk Sensitive Asset Management and Cascading Defaults, *International Conference on Probability Theory and Related Fields*, South University of Science and Technology, Shenzhen. (November 26-29, 2016)
- Systemic Risk of Interbanking Network, *Second Workshop on Risk Measures, XVA Analysis, Capital Allocation and Central Counterparties*, Shanghai Advanced Institute for Finance (SAIF), Shanghai Jiao Tong University, Shanghai. (October 27-29, 2016)
- Optimal Credit Investment with Borrowing Costs, *Guangzhou 2016 Symposium on Financial Engineering and Risk Management (FERM 2016)*, Sun Yat-Sen University, Guangzhou. (June 12-13, 2016)
- Optimal Credit Investment with Borrowing Costs, *Statistics Seminar*, Guanghua School of Management, Peking University, Beijing. (June 8, 2016)
- Systemic Risk in Mean-Field Interacting Jump-Diffusion Networks: A Weak Convergence Approach, *Mathematical Finance Seminar*, East China Normal University, Shanghai. (January 6, 2016)
- Portfolio Optimization and Valuations of Credit Portfolios, *Financial Seminar*, Nankai University, Tianjin. (December 29, 2015)

- Robust Portfolio Optimization of Credit Portfolios, *International Workshop on Credit Risk*, Beihang University, Beijing. (December 27, 2015)
- Approximation of Stochastic Differential Equations with Mean-Field Interaction and Lévy Noises, *SPDE Seminar*, Huazhong University of Science and Technology, Mathematical Center, Wuhan. (December 19, 2015)
- Robust Dynamic Optimization of Credit Portfolios, *International Conference on Control Theory and Mathematical Finance*, Fudan University, Shanghai. (August 16-18, 2015)
- Systemic Risk in Interbanking Networks: A Weak Convergence Approach, *Workshop on Markov Processes and Stochastic Models*, The Central South University, Changsha. (June 23-25, 2015)
- Optimal Investment under Information Driven Default Contagion, *2015 Peking University Youth Probability Forum*, Peking University, Beijing. (July 6th-8th, 2015)
- Credit Portfolio Optimization Problem under Default Contagion Risk, *Mathematical Finance Seminar*, Nanjing Normal University, Nanjing. (May 15th, 2015)
- Systemic Risk in Interbanking Networks: A Weak Convergence Approach, *The Youth Probability Forum*, Wuhan University, Wuhan. (May 1st-4th, 2015)
- Optimal Investment in Defaultable Securities under Information Driven Default Contagion, *AMS Spring Eastern Sectional Meeting Special Session on Mathematical Finance*, University of Maryland, Baltimore County, Baltimore, MD, USA. (March 29th-30th, 2014)
- Bilateral Credit Valuation Adjustment for Large Credit Derivatives Portfolios, *Mathematical Finance and Partial Differential Equations*, New Brunswick, New Jersey, USA. (November 1th-2th, 2013)
- Bilateral Credit Valuation Adjustment for Large Credit Derivatives Portfolios, *Sino-French Research Program in Financial Mathematics*, Peking University, Beijing. (June 19th-28th, 2013)
- Some Results on Reflected Lévy Processes with Two-Sided Jumps, *Beijing-Swansea Workshop on Stochastic Processes*, Beijing Normal University, Beijing. (April 14th-17th, 2012)
- Exponential Change of Measure Applied to Term Structure Modelings, *Probability Seminar*, LPMA and University of Pair 7, Paris. (May 6th-30th, 2011)
- An Optimal Portfolio Problem with Default Risk, *Probability and Statistics Seminar*, University of Melbourne, Melbourne. (July-August, 2009)

Teaching Experience

Fall	2013	Applied Stochastic Processes
Spring	2013	Probability Theory I
Fall	2014	Stochastic Differential Equations
Fall	2015	Advanced Probability Theory
Spring	2016	Stochastic Processes

Grants and Awards

2017	First Prize of Excellent Papers of Wu Wen Tsun Key Laboratory of Mathematics, Chinese Academy of Science
2016-2020	The Key Research Program of Frontier Sciences, Chinese Academy of Science (grant no. QYZDB-SSW-SYS009)
2015–2018	National Science Foundation of China (grant no. 11471254)
2013–2015	Program for New Century Excellent Talents in University (grant no. NCET-12-0914)
2011–2013	National Science Foundation of China (grant no. 11001213)

Professional Activities

Conference Organization:

- 2017 Youth Forum of Stochastic Processes and Mathematical Finance, Organizers: Lijun Bo and Bencong Li.
- 2016 USTC Youth Probability Forum, Organizers: Lijun Bo (USTC), Prof. Tusheng Zhang (University of Manchester) and Prof. Elton P Hsu (Northwestern University).

Reviewer for Journals:

- Acta Mathematica Scientia
- Acta Mathematica Sinica
- Applied Mathematics and Mechanics
- Asia-Pacific Journal of Operational Research
- Automatica
- Economic Modelling
- IIE Transactions
- Insurance: Mathematics and Economics
- International Journal of Information Technology & Decision Making
- International Journal of Theoretical and Applied Finance
- International Review of Financial Analysis
- Journal of Economic Dynamics and Control
- Journal of Mathematical Analysis and Applications
- Journal of Credit Risk
- Journal of Theoretical Probability
- Mathematics and Computers in Simulation
- Mathematical Finance
- Mathematical Reviews
- North American Journal of Economics and Finance
- Operations Research
- Operations Research Letters
- Potential Analysis
- Probability in the Engineering and Informational Sciences
- Quantitative Finance
- Science China: Mathematics
- Statistical Papers
- Stochastics and Stochastic Report
- Stochastic Analysis and Applications
- Transactions of AMS