

# 张鑫

## 个人简历

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东南大学九龙湖校区  
数学学院 (生医楼 206)  
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### 教育经历

2006.09–2009.06 博士, 南开大学数学科学学院概率论与数理统计专业, 天津  
2003.09–2006.06 硕士, 南开大学数学科学学院概率论与数理统计专业, 天津  
1999.09–2003.06 学士, 山东师范大学数学系, 山东省济南市

### 工作经历

2020.05–至今 教授, 东南大学数学学院  
2014.07–2020.04 副教授, 东南大学数学学院  
2012.12–2014.06 副教授, 南开大学数学科学学院  
2011.01–2012.01 博士后, 澳大利亚 Macquarie 大学商学院应用金融与精算系  
2009.07–2012.12 讲师, 南开大学数学科学学院

### 访问交流

2023.08–2023.09 访问学者, 南方科技大学数学系  
2023.07–2023.08 访问学者, 香港理工大学应用数学系  
2021.07–2021.09 访问学者, 南方科技大学数学系  
2019.08–2019.09 访问学者, 香港大学统计与精算系  
2019.07–2019.07 访问学者, 加拿大约克大学数学与统计系  
2019.01–2019.03 访问学者, 香港理工大学应用数学系  
2018.01–2018.02 访问学者, 香港理工大学应用数学系  
2016.06–2016.09 访问学者, 澳门大学数学系  
2014.02–2014.05 访问学者, 英国利物浦大学物理科学学院

### 教学情况

#### 本科生课程

- 高等数学 (III): 2010 秋季学期
- 现代精算风险理论: 2010-2013 每年春季学期
- 抽样调查: 2014-2016 每年秋季学期
- 概率论: 2014-2022 每年秋季学期
- 精算数学: 2015-2021 每年春季学期
- 随机过程: 2015-2016 每年春季学期

#### 研究生课程

- 精算数学: 2012-2013 每年春季学期

- 应用随机过程: 2012-2013 每年春季学期
- 测度与概率: 2012-2013 每年秋季学期
- 统计调查: 2014-2022 每年秋季学期

## 项目承担情况

- 2022.01-2025.12 国家自然科学基金面上项目 (12171086), Hawkes 跳-扩散模型随机控制问题研究及其在金融中的应用, 50 万, 主持
- 2018.01-2021.12 国家自然科学基金面上项目 (11771079), 金融保险中的定价与随机控制问题, 48 万, 主持
- 2014.01-2017.12 国家自然科学基金青年-面上延续项目 (11371020), 马尔科夫体制转换金融保险模型中的随机控制问题研究, 55 万, 主持
- 2011.01-2013.12 国家自然科学基金青年基金项目 (11001139), 马尔科夫体制转换模型下金融保险中的破产与随机优化问题研究, 16 万, 主持
- 2011.01-2013.12 省部级高等学校博士学科点专项科研基金 (20100031120002), 马氏调节金融保险模型中的破产与随机最优控制问题研究, 3.6 万, 主持
- 2010.01-2012.12 中央高校基本科研业务费专项资金, 金融保险领域中的优化与博弈问题, 12 万, 主持
- 2012.01-2015.12 国家自然科学基金面上项目 (11171164), 保险风险理论中的随机最优控制问题, 52 万, 参与
- 2010.01-2012.12 国家自然科学基金青年基金项目 (10901086), 分数布朗运动环境下金融保险中优化问题的研究, 16 万, 参与
- 2009.01-2011.12 国家自然科学基金面上项目 (10871102), 金融保险领域中的优化与博弈问题, 28 万, 参与
- 2019.09-2020.06 江苏省残疾人事业发展研究会 (2019SC03005), 信息技术在残疾人服务中的应用研究, 2 万, 主持
- 2019.10-2021.09 东南大学校级教改项目 (2019-057), 基于测度理论的《概率论》课程建设及研讨型与双语教学模式探索与实践, 0.8 万, 主持

## 已发表论文

- [1] Jiaqiang Wen, Xun Li, Jie Xiong, and **Xin Zhang**. Stochastic Linear-Quadratic Optimal Control Problems with Random Coefficients and Markovian Regime Switching System. *SIAM Journal on Control and Optimization*, 61(2): 949-979, 2023.
- [2] Siyu Lv, Jie Xiong, and **Xin Zhang**. Linear quadratic leader-follower stochastic differential games for mean-field switching diffusions. *Automatica*, 154: 111072, 2023.
- [3] **Xin Zhang**, Xun Li and Jie Xiong. Open-loop and closed-loop solvabilities for stochastic linear quadratic optimal control problems of Markovian regime switching system. *ESAIM: Control, Optimisation and Calculus of Variations*, 27:69, 2021.
- [4] **Xin Zhang**, Jie Xiong, Shuaiqi Zhang. Optimal reinsurance-investment and dividends problem with fixed transaction costs. *Journal of Industrial & Management Optimization*, 17(2): 981-999, 2021.
- [5] Zhongyang Sun, **Xin Zhang**, Kam Chuen Yuen. Mean-variance asset-liability

- management with affine diffusion factor process and a reinsurance option. *Scandinavian Actuarial Journal*, 2020(3): 218-244, 2020.
- [6] Shuaiqi Zhang, Jie Xiong, **Xin Zhang**. Optimal investment problem with delay under partial information. *Mathematical Control & Related Fields*, 10(2): 365-378, 2020.
- [7] Zhongyang Sun, **Xin Zhang**, Ya-Nan Li. A BSDE approach for bond pricing under interest rate models with self-exciting jumps. *Communications in Statistics-Theory and Methods*, 50(14):3249-3261, 2019.
- [8] **Xin Zhang**, Hui Meng, Jie Xiong, Yang Shen. Robust optimal investment and reinsurance of an insurer under jump-diffusion models. *Mathematical Control and Related Fields*, 9(1):59-76, 2019.
- [9] **Xin Zhang**, Zhongyang Sun, Jie Xiong. A general stochastic maximum principle for a Markov regime switching jump-diffusion model of mean-field type. *SIAM Journal on Control and Optimization*, 56(4):2563-2592, 2018.
- [10] **Xin Zhang**, Jie Xiong, Yang Shen. Bond and option pricing for interest rate model with clustering effects. *Quantitative Finance*, 18(6):969-981, 2018.
- [11] Zhongyang Sun, Junyi Guo, and **Xin Zhang**. Maximum principle for Markov regime-switching forward-backward stochastic control system with jumps and relation to dynamic programming. *Journal of Optimization Theory and Applications*, 176(2):319-350, 2018.
- [12] Qingbin Meng, **Xin Zhang**, Junna Bi. On optimal proportional reinsurance and investment in a hidden Markov financial market. *Acta Mathematicae Applicatae Sinica, English Series*, 33(1): 53-62, 2017.
- [13] Zhongyang Sun, **Xin Zhang**, and Junyi Guo. A stochastic maximum principle for processes driven by G-Brownian motion and applications to finance. *Optimal Control Applications and Methods*, 38(6):934-948, 2017.
- [14] Zhongyang Sun, Xiaoxiao Zheng, and **Xin Zhang**. Robust optimal investment and reinsurance of an insurer under variance premium principle and default risk. *Journal of Mathematical Analysis and Applications*, 446(2):1666-1686, 2017.
- [15] **Xin Zhang**, Hui Meng, and Yan Zeng. Optimal investment and reinsurance strategies for insurers with generalized mean-variance premium principle and no-short selling. *Insurance Mathematics & Economics*, 67:125-132, 2016.
- [16] Xiaoxiao Zheng, Zhongyang Sun, **Xin Zhang**. Optimal portfolio problems for an insurance company under default risk and model uncertainty. *Acta Mathematica Scientia Chinese Series*, 36A (2):362-379, 2016.
- [17] Yang Shen, **Xin Zhang**, and Tak Kuen Siu. Mean-variance portfolio selection under a constant elasticity of variance model. *Operations Research Letters*, 42(5):337-342, 2014.
- [18] Qingbin Meng, Zhendong Li, Menghai Wang, and **Xin Zhang**. Stochastic optimal control models for the insurance company with bankruptcy return. *Applied Mathematics & Information Sciences*, 7:273-282, 2013.

- [19] **Xin Zhang**. On optimal proportional reinsurance and investment in a partial Markovian regime-switching economy. *Communications on Stochastic Analysis*, 7(3):481–492, 2013.
- [20] **Xin Zhang**, Robert J. Elliott, and Tak Kuen Siu. A bayesian approach for optimal reinsurance and investment in a diffusion model. *Journal of Engineering Mathematics*, 76(1):195–206, 2012.
- [21] **Xin Zhang**, Robert J. Elliott, and Tak Kuen Siu. A stochastic maximum principle for a Markov regime-switching jump-diffusion model and its application to finance. *SIAM Journal on Control and Optimization*, 50(2):964–990, 2012.
- [22] **Xin Zhang**, Robert J. Elliott, Tak Kuen Siu, and Junyi Guo. Markovian regime-switching market completion using additional Markov jump assets. *IMA Journal of Management Mathematics*, 23(3):283–305, 2012.
- [23] **Xin Zhang** and Tak Kuen Siu. On optimal proportional reinsurance and investment in a Markovian regime-switching economy. *Acta Mathematica Sinica- English Series*, 28(1):67–82, 2012.
- [24] **Xin Zhang** and Min Song. Optimization of risk policy and dividends with fixed transaction costs under interest rate. *Frontiers of Mathematics in China*, 7(4):795–811, 2012.
- [25] Tongling Lv, Junyi Guo, and **Xin Zhang**. Some results on bivariate compound poisson risk model the distribution of the deficit at ruin. *Chinese Journal of Applied Probability and Statistics*, 27(5):449–453, 2011.
- [26] Hui Meng and **Xin Zhang**. Optimal risk control for the excess of loss reinsurance policies. *Astin Bulletin*, 40(1):179–197, 2010.
- [27] **Xin Zhang**, Tak Kuen Siu, and Qingbin Meng. Portfolio selection in the enlarged Markovian regime-switching market. *SIAM Journal on Control and Optimization*, 48(5):3368–3388, 2010.
- [28] Tong Ling Lv, Jun Yi Guo, and **Xin Zhang**. Ruin probabilities for a risk model with two classes of claims. *Acta Mathematica Sinica-English Series*, 26(9):1749–1760, 2010.
- [29] **Xin Zhang** and Tak Kuen Siu. Optimal investment and reinsurance of an insurer with model uncertainty. *Insurance Mathematics & Economics*, 45(1):81–88, 2009.
- [30] Qingbin Meng, **Xin Zhang**, and Junyi Guo. On a risk model with dependence between claim sizes and claim intervals. *Statistics & Probability Letters*, 78(13):1727–1734, 2008.
- [31] **Xin Zhang**. On the ruin problem in a Markov-modulated risk model. *Methodology and Computing in Applied Probability*, 10(2):225–238, 2008.
- [32] Min Song, Rong Wu, and **Xin Zhang**. Total duration of negative surplus for the dual model. *Applied Stochastic Models in Business and Industry*, 24(6):591–600, 2008.
- [33] **Xin Zhang**, Ming Zhou, and Junyi Guo. Optimal combinational quota-share and excess-of-loss reinsurance policies in a dynamic setting. *Applied Stochastic Models in Business and Industry*, 23(1):63–71, 2007.

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## 工作论文

- [1] **Xin Zhang**, Xiaojie Liang, Kam Chuen Yuen. 2019. On the Ruin Problems of a Self-exciting Risk Model.

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## 学术会议报告

- [1] **国家天元数学东南中心 2022 年随机分析及其应用研讨会**, 厦门大学, 厦门, 2022.11.26-28.
- [2] **The 9th International Congress of Chinese Mathematicians**, Nanjing, China, July 31- August 5, 2022.
- [3] **Workshop on Probability Theory and Stochastic Control**, SUSTech, Shenzhen, China, November 20-22, 2020.
- [4] **随机滤波与控制研讨会**, 南方科技大学, 深圳, 2019.10.25-27.
- [5] Robust optimal investment and reinsurance of an insurer under jump-diffusion models. **2019 IMS-China International Conference on Statistics and Probability**, Dalian, China, July 6 -10, 2019.
- [6] Bond and option pricing for interest rate model with clustering effects. **The Joint Optimization Conferences 2017 (JOC 2017)**, Perth, Australia, December 4-10, 2017
- [7] A Stochastic Maximum Principle for Processes Driven by G-Brownian Motion and Applications to Finance. **SIAM Conference on Control and Its Applications (CT17)**, Pittsburgh, USA, July 10-12, 2017
- [8] Optimal proportional reinsurance and investment under mean-variance criterion in the regime switching jump diffusion model. **International Workshop on Risk Analysis, Ruin and Extremes**, Tianjin, P.R. China, July 14-16, 2014
- [9] A Risk-Based Investment-Reinsurance Problem under a Markov Regime-Switching Jump-Diffusion Model. **Perspectives on Actuarial Risks in Talks of Young Researchers**, Ascona, Switzerland, Jan 26-Feb 1, 2013
- [10] A Stochastic Maximum Principle for a Markov Regime-Switching Jump-Diffusion Model and its Application to Finance. **The 16th International Congress on Insurance: Mathematics and Economics**, Hongkong, June 28-30, 2012.
- [11] Markowitz's Mean-Variance Portfolio Selection in the Markov-Switching Jump-Diffusion Market. **The 2010 International Conference on Insurance and Actuarial Science**, Chongqing, P.R. China, June 5-7, 2010.
- [12] Portfolio Selection in the Enlarged Markovian Regime-Switching Market. **IMS-China International Conference on Statistics and Probability**, Weihai, Shandong Province, P.R. China, July 3-6, 2009
- [13] Portfolio Optimization in Regime-Switching Market with Multiple Risky Assets. **The 12th International Congress on Insurance: Mathematics and Economics**, Dalian, P.R. China, July 16-18, 2008

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## 服务

### 社会兼职

- 江苏省应用统计学会常务理事
- 江苏省概率统计学会第 7 届理事会理事
- 江苏省工业与应用数学学会(JSIAM)金融数学委员会委员
- 中国工业与应用数学学会(CSIAM)金融数学与工程和精算保险分会精算保险青年专业委会委员
- 美国《数学评论》评论员

### 期刊审稿人

- SIAM Journal on Control and Optimization
- Insurance Mathematics and Economics
- Journal of Optimization Theory and Applications
- Journal of Applied Mathematics and Computing
- Optimal Control, Applications and Methods
- ESAIM: Control, Optimisation and Calculus of Variations
- Journal of Industrial and Management Optimization
- Communications in Statistics - Theory and Methods

### 荣誉

- 东南大学青年教师授课竞赛三等奖 2018
- 东南大学青年教师授课竞赛提名奖 2017