

# Qiang YAO

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Faculty of Economics and Management,  
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## Professional Employment

**East China Normal University** (July 2009–present)  
School of Statistics, Assistant Professor (2009–2013), Associate Professor (2014–present)

**NYU Shanghai** (December 2016–present)  
NYU–ECNU Institute for Mathematical Sciences at NYU Shanghai, Affiliated Member

**University of Michigan** (August 2018–July 2019)  
Department of Statistics, Visiting Scholar

**Curtin University** (January 2015–February 2015)  
Department of Mathematics, Visiting Scholar

**National University of Singapore** (July 2011–August 2012)  
School of Business & The Logistics Institute, Asia–Pacific (TLIAP), Research Fellow

**École Polytechnique Fédérale de Lausanne** (March 2011–May 2011)  
Institut de Mathématiques, Visiting Scholar

## Education

**Peking University** (September 2004–July 2009)  
School of Mathematical Sciences, Ph.D. in Mathematics  
Advisor: Dayue Chen

**Shandong Normal University** (September 2000–July 2004)  
Department of Mathematics, B.S. with honors in Mathematics

## Research Interests

Interacting particle systems, random walks, percolation, risk measures and their applications in stochastic programming, etc.

## Research Projects

### **Publications**

- Y. Li and **Q. Yao**: Large and moderate deviations for record numbers in some non-nearest neighbor random walks, *Electron. Comm. Probab.* **27** Article 57 (2022).
- S. Song and **Q. Yao**: A new method for computing the expected hitting time between arbitrary different configurations of the multiple–urn Ehrenfest model, *J. Math. Study* **55** 254-270 (2022).
- Y. Li and **Q. Yao**: Deviations for weak record numbers in simple random walks, *Chinese J. Appl. Probab. Statist.* **37** 515-522 (2021).
- **Q. Yao**: Phase transition for the contact process in a random environment on  $\mathbb{Z}^d \times \mathbb{Z}^+$ . In *Genealogies of Interacting Particle Systems*, pp 341-352, World Scientific (2020).

- J. Sun, X. Yang, **Q. Yao** and M. Zhang: Risk minimization, regret minimization and progressive hedging algorithms, *Math. Program.* **181** 509-530 (2020).
- C. Xin, M. Zhao, **Q. Yao** and E. Cui: On the distribution of the hitting time for the  $N$ -urn Ehrenfest model, *Stat. Prob. Letters* **157** 108625, 11pp (2020).
- L. Zhu and **Q. Yao**: An elementary proof for the recurrence of the product graph  $\mathbb{Z}^2 \times \{0, 1, \dots, l-1\}$  (in Chinese), *Chinese J. Appl. Probab. Statist.* **34** 275-283 (2018).
- J. Sun and **Q. Yao**: On coherency and other properties of MAXVAR, *Vietnam J. Math.* **46** 87-94 (2018).
- M. Ang, J. Sun and **Q. Yao**: On the dual representation of coherent risk measures, *Ann. Oper. Res.* **262** 29-46 (2018).
- T. Mountford, J-C Mourrat, D. Valesin and **Q. Yao**: Exponential extinction time of the contact process on finite graphs, *Stoch. Proc. Appl.* **126** 1974-2013 (2016).
- G. Qiao and **Q. Yao**: Weak convergence of equity derivatives pricing with default risk, *Stat. Prob. Letters* **103** 46-56 (2015).
- T. Mountford, D. Valesin and **Q. Yao**: Metastable densities for the contact process on power law random graphs, *Electron. J. Probab.* **18** Article 103 (2013).
- **Q. Yao** and X. X. Chen: The complete convergence theorem holds for contact processes in a random environment on  $\mathbb{Z}^d \times \mathbb{Z}^+$ , *Stoch. Proc. Appl.* **122** 3066-3099 (2012).
- **Q. Yao**: A proof of the complete convergence theorem for contact processes on some product graphs (in Chinese), *Acta Math. Scientia* **30A** 97-102 (2010).
- **Q. Yao** and Q. C. Li: Contact process on hexagonal lattice, *Acta Math. Scientia* **30B** 769-790 (2010).
- **Q. Yao**: The existence of an intermediate phase for the contact process on some product graphs (in Chinese), *Acta Math. Sinica* **52** 1055-1066 (2009).
- X. X. Chen and **Q. Yao**: The complete convergence theorem holds for contact processes on open clusters of  $\mathbb{Z}^d \times \mathbb{Z}^+$ , *J. Statist. Phys.* **135** 651-680 (2009).

#### Preprints on Arxiv

- S. Song and **Q. Yao**: The construction of two kinds of bijections in simple random walk paths. *Preprint*, current version available at <https://arxiv.org/pdf/1903.00158.pdf>.

#### Grants (as PI)

- The program of China Scholarships Council (No.201806145024), August 2018–July 2019
- National Natural Science Foundation of China (No.11201150), January 2013–December 2015
- National Natural Science Foundation of China (No.11126236), January 2012–December 2012
- The Fundamental Research Funds for the Central Universities (No.239201278210075), January 2011–December 2012
- Sino-Swiss Science and Technology Cooperation (SSSTC) Grant (No.EG 55-032010), March 2011–May 2011
- Start-up grant (No.77102706), East China Normal University, September 2009–December 2010

## Presentations

### **Invited**

- Probability Seminar (Xiamen University) May 2023
- Joint Seminar on Probability and Statistics (Hangzhou Normal University) May 2023
- Joint Seminar on Probability and Statistics (Zhejiang University) November 2019
- Probability Seminar (Peking University) October 2019
- The 4th Workshop on Branching Processes and Related Topics (East China Normal University) May 2018
- Program on Genealogies of Interacting Particle Systems (National University of Singapore) August 2017
- Joint Seminar on Probability and Statistics (Fudan University) June 2017
- The 2016 Forum on Stochastic Process Theory and Its Applications (Peking University) August 2016
- The 2015 Forum on Probability for Young Researchers (Peking University) July 2015
- Mathematics Seminar (Curtin University) February 2015
- Probability Seminar (NYU Shanghai) December 2014
- International Conference on Probability Theory and Mathematical Statistical Physics (NYU Shanghai) May 2014
- Probability Seminar (Shanghai Jiaotong University) December 2013
- Probability Day (National University of Singapore) September-2011
- Probability Seminar (National University of Singapore) January 2010
- The 1st Graduate Innovation Forum (Peking University) November 2008

### **Contributed/Others**

- Joint International Meeting of Chinese Mathematical Society and American Mathematical Society (Fudan University) June 2018
- The 11th Cross-Strait Conference on Probability and Statistics (National Taipei University) June 2018
- Chinese Mathematical Society 2017 Annual Conference (Xiangtan University) October 2017
- The 2nd International Conference on Optimization and Control (Chongqing Normal University) December 2015
- The 10th National Conference on Probability and Statistics (Shandong University) October 2014
- The 2013 Workshop on Random Graphs and Complex Networks (East China Normal University) November 2013
- The 3rd National Conference on Probability and Statistics for Young Researchers (Jiangsu Normal University) November 2013
- The IMS-China International Conference on Statistics and Probability (Southwestern University of Finance and Economics) July 2013
- The 9th National Conference on Probability and Statistics (Nankai University) October 2010
- The 187th Forum for Ph.D. Students (Tsinghua University) October 2008
- UBC/PIMS 2008 Summer School in Probability (University of British Columbia) June 2008
- The 12th Workshop on Probability and Statistics for Youths in Beijing-Tianjin Area (Peking University) May 2008

- The 11th Workshop on Probability and Statistics for Youths in Beijing-Tianjin Area (Peking University) May 2007

### **Teaching Experiences**

- Advanced Algebra I (Autumn 2015, Autumn 2016, Autumn 2017, Autumn 2019, Autumn 2020, Autumn 2021, Autumn 2022)
- Advanced Algebra II (Spring 2016, Spring 2017, Spring 2018, Spring 2020, Spring 2021, Spring 2022, Spring 2023)
- Applied Stochastic Processes (Spring 2017)
- Differential Equations (Spring 2013, Spring 2014, Spring 2018)
- Linear Algebra (Autumn 2009, Autumn 2010, Spring 2013, Spring 2014, Spring 2015, Autumn 2019, Autumn 2020)
- Methods of Statistical Investigation (Autumn 2013)
- Operations Research (Autumn 2013)
- Probability and Mathematical Statistics (Spring 2010, Autumn 2012, Spring 2013, Autumn 2013)
- Selected Topics on Mathematical Analysis (Autumn 2014)
- Stochastic Analysis (Autumn 2023)
- Stochastic Processes (Spring 2020, Spring 2021, Autumn 2021, Spring 2022, Autumn 2022, Spring 2023, Autumn 2023)
- Theory of Stochastic Processes (Autumn 2014)

### **Honors & Awards**

- The 7th Outstanding Undergraduate Instructor of East China Normal University (2013)
- Outstanding Graduate in School of Mathematical Sciences, Peking University (2009)
- Outstanding Graduate of Shandong Province (2004)