

Yuanyuan Xu

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Research Interests Probability Theory, Mathematical Physics and Mathematical Statistics, with a focus on Random Matrix Theory.

Employment **Postdoc/Researcher in Department of Mathematics** 2018-2021
KTH Royal Institute of Technology, Stockholm, Sweden
Mentor: Kevin Schnelli

Education **Ph.D. in Applied Mathematics** 2013-2018
University of California, Davis, CA, United States
Advisor: Alexander Soshnikov

B.S. in Mathematics and Applied Mathematics 2009-2013
University of Science and Technology of China, Hefei, China
Advisor: Xing Liang

Papers and preprints

1. Convergence rate to the Tracy-Widom laws for the largest eigenvalue of Wigner matrices (with Kevin Schnelli). Preprint arXiv:2102.04330 (2021).
2. On fluctuations of global and mesoscopic linear statistics of generalized Wigner matrices (with Yiting Li). Accepted by *Bernoulli* (2020).
3. Central limit theorem for mesoscopic eigenvalue statistics of free sum of matrices (with Zhigang Bao and Kevin Schnelli). Accepted by *International Mathematics Research Notices* (2020).
4. Central limit theorem for mesoscopic eigenvalue statistics of deformed Wigner matrices and sample covariance matrices (with Yiting Li and Kevin Schnelli). *Annales de l'Institut Henri Poincaré Probabilités et Statistiques*, Vol. 57, No. 1, 506-546 (2021).
5. Gaussian Approximation of the Distribution of Strongly Repelling Particles on the Unit Circle (with Alexander Soshnikov). *Theory of Probability and Its Applications*, Vol. 65, No. 4, 588-615 (2021).

Talks and conferences

Seminar talks:

- Stochastic Seminar, IRMA, Strasbourg, 2019.
- Random Matrix Theory Seminar, KTH, 2019.
- Probability Seminar, University of Science and Technology of Hong Kong, 2019.
- Random Matrix Theory Seminar, KTH, 2018.
- Seminar on Stochastic Processes (poster), ICERM, Brown University, 2018.
- Mathematical Physics and Probability Seminar, UC Davis, 2018.
- Student-Run Applied and Math Seminar, UC Davis, 2017.

Attended conferences and Summer schools:

- Random Matrix EurAsia 2020, Singapore, 2020 (postponed to 2022).
- QMATH 14: Mathematical Results in Quantum Physics, Special Session of Random Systems (contributed talk), Aarhus University, 2019.
- Fall Western Sectional Meeting, UC Riverside, 2017.
- Graduate Summer School of the 2017 PCMI Summer Session on Random Matrix Theory, IAS/PCMI, 2017.
- Graduate Summer School of Subfactors: planar algebras, quantum symmetries, and random matrices, MSRI, 2017.
- Summer School of Stochastic Processes and Random Matrices, Les Houches, France, 2015.

Honors and Awards

1. Travel Grant, Karl Engvers Foundation, 2020-2021 (postponed).
2. Travel Support, ICERM, 2018.
3. Travel Support, IAS/PCMI, 2017.
4. Travel Support, MSRI, 2017.
5. Department Travel Award, UC Davis, 2015, 2017.
6. Department/Graduate Program Fellowship, UC Davis, 2013-2018.
7. Cyrus Tang Scholarship, Cyrus Tang Foundation, 2013.
8. Outstanding Student Scholarship, USTC, 2013.

Teaching

Instructor:

- Calculus: Integral Calculus, Summer Session I, UC Davis, 2016.

Teaching Assistant at UC Davis:

- Applied Mathematics (graduate course), Fall 2014.
- Real Analysis, Spring 2017.
- Linear Algebra, Fall 2013, Fall 2014, Fall 2017.
- Differential Equations, Winter 2014, Spring 2016.
- Calculus: Differential and Integral Calculus, Winter 2015, Winter 2016, Fall 2016.
- Calculus for Biology and Medicine, Spring 2014, Fall 2015, Winter 2017.

Services

Academic Supervision:

- Co-advise Samuel Modée (master student at KTH) with Kevin Schnelli.

Journal Referee: Bernoulli; Linear Algebra and its Applications; Journal of Mathematical Physics; Journal of Statistical Physics; Probability and Mathematical Physics; Statistics and Probability Letters.