

Dong Wang 王东

School of Mathematical Sciences
University of Chinese Academy of Sciences
Beijing, China 100049

中国科学院大学
数学科学学院
中国, 北京, 100049

Email (research) 电子邮件 (科研相关):
Email (other stuff) 电子邮件 (其他):
Homepage 个人主页:

wangdong@wangd-math.xyz
wangdong21@ucas.ac.cn
<https://www.wangd-math.xyz/>

Education 教育经历

Ph.D. Mathematics, Brandeis University, 2008.
2008 年于 (美国) 布兰戴斯大学获得博士学位
Advisor 博士导师: Mark Adler.

B.S. Mathematics, Peking University, 2003.
2003 年于北京大学获得学士学位

Work Experience 工作经历

Associate Professor, School of Mathematical Sciences, University of Chinese Academy of Sciences, 2021–present.
2021 年至今: 中国科学院大学数学科学学院副教授

Associate Professor, Department of Mathematics, National University of Singapore, 2020–2021.
2020 年——2021 年: 新加坡国立大学数学系副教授

Assistant Professor, Department of Mathematics, National University of Singapore, 2012–2020.
2012 年——2020 年: 新加坡国立大学数学系助理教授

Post-Doc Assistant Professor, Department of Mathematics, University of Michigan, 2009–2012.
2009 年——2012 年: (美国) 密歇根大学数学系博士后

Postdoctoral Researcher, Institut de recherche en mathématique et physique (IRMP), Université catholique de Louvain, 2011, March–August.
2011 年三月——八月: (比利时) 鲁汶大学 (法语) 数学物理学研究所博士后

Postdoctoral Fellow, Centre de Recherches Mathématiques (CRM), Université de Montréal, 2008–2009.
2008 年——2009 年: (加拿大) 蒙特利尔大学数学研究中心 (CRM) 博士后

Teaching Assistant, Department of Mathematics, Brandeis University, 2003–2008.
2003 年——2008 年: (美国) 布兰戴斯大学数学系助教

Research 科研成果

I am an analyst working on probability problems, and the proper term describing my research interest is “integrable probability”. My research focuses on random matrix theory and interacting particle systems. I am also interested in integrable systems, multiple orthogonal polynomials and Riemann-Hilbert problems related to random matrices.

我从事“可积概率”研究，致力于用分析方法解决概率问题。具体来说，我关心随机矩阵和相互作用粒子系统，以及相关的可积系统、多正交多项式、黎曼—希尔伯特问题等分析问题。

Papers and Preprints 论文和预印本

29. Dong Wang, Hard edge universality of Muttalib-Borodin ensembles with real parameter θ , <https://arxiv.org/abs/2312.14840>.
28. Dong Wang, Biorthogonal polynomials related to quantum transport theory of disordered wires, <https://arxiv.org/abs/2307.03720>.
27. Tom Claeys and Dong Wang, Universality for random matrices with equi-spaced external source: a case study of a biorthogonal ensemble, *J. Stat. Phys.*, 188 (2022) no. 2, paper no. 11, 28 pp.
26. Dong Wang and Lun Zhang, A vector Riemann-Hilbert approach to the Muttalib-Borodin ensembles, *J. Funct. Anal.*, 282 (2022), no. 7, 109380, 84 pp.
25. Swapnil Yadav, Kazi Alam, Khandker Muttalib and Dong Wang, Non-monotonic confining potential and eigenvalue density transition for generalized random matrix model, *Phys. Rev. E*, 103 (2021), no. 4, 042137, 11 pp.
24. Zhigang Bao and Dong Wang, Eigenvector distribution in the critical regime of BBP transition, *Probab. Theory Related Fields*, 182 (2022), no. 1-2, 399–479.
23. Swapnil Yadav, Kazi Alam, Khandker Muttalib and Dong Wang, Generalized random matrix model with additional interactions, *J. Phys. A*, 53 (2020), no. 1, 015001, 15 pp.
22. Zhipeng Liu, Axel Saenz and Dong Wang, Integral formulas of ASEP and q -TAZRP on a ring, *Comm. Math. Phys.*, 379 (2020), 261–325.
21. Dang-Zheng Liu, Dong Wang and Yanhui Wang, Lyapunov exponent, universality and phase transition for products of random matrices, *Comm. Math. Phys.*, 399 (2023), 1811–1855.
20. Karl Liechty and Dong Wang, Asymptotics of free fermions in a quadratic well at finite temperature and the Moshe-Neuberger-Shapiro random matrix model, *Ann. Inst. Henri Poincaré Probab. Stat.*, 56 (2020), no. 2, 1072–1098.
19. Eunghyun Lee and Dong Wang, Distributions of a particle’s position and their asymptotics in the q -deformed totally asymmetric zero range process with site dependent jumping rates, *Stochastic Process. Appl.*, 129 (2019), no. 5, 1795–1828.

18. Karl Liechty and Dong Wang, Nonintersecting Brownian bridges between reflecting or absorbing walls, *Adv. Math.*, 309 (2017), 155–208.
17. Tom Claeys, Arno B. J. Kuijlaars, Karl Liechty and Dong Wang, Propagation of singular behavior for Gaussian perturbations of random matrices, *Comm. Math. Phys.*, 362 (2018), no. 1, 1–54.
16. Karl Liechty and Dong Wang, Two Lax systems for the Painlevé II equation, and two related kernels in random matrix theory, *SIAM J. Math. Anal.*, 48 (2016), no. 5, 3618–3666.
15. Dong Wang and David Waugh, The transition probability of the q -TAZRP (q -Bosons) with inhomogeneous jump rates, *SIGMA* 12 (2016), 036, 16 pp, Contribution to the special issue on Asymptotics and Universality in Random Matrices, Random Growth Processes, Integrable Systems and Statistics in honor of Percy Deift and Craig Tracy.
14. Tom Claeys, Arno B. J. Kuijlaars and Dong Wang, Correlation kernels for sums and products of random matrices, *Random Matrices Theory Appl.*, 4 (2015), no. 4, 1550017, 31pp.
13. Peter J. Forrester and Dong Wang, Muttalib–Borodin ensembles in random matrix theory — realisations and correlation functions, *Electron. J. Probab.*, 22 (2017), paper no. 54, 43pp.
12. Dang-Zheng Liu, Dong Wang and Lun Zhang, Bulk and soft-edge universality for singular values of products of Ginibre random matrices, *Ann. Inst. Henri Poincaré Probab. Stat.*, 52 (2016), no. 4, 1734–1762.
11. Ivan Corwin, Zhipeng Liu and Dong Wang, Fluctuations of TASEP and LPP with general initial data, *Ann. Appl. Probab.*, 26 (2016), no. 4, 2030–2082.
10. Karl Liechty and Dong Wang, Nonintersecting Brownian motions on the unit circle, *Ann. Probab.*, 44 (2016), no. 2, 1134–1211.
9. Mark Adler, Pierre van Moerbeke and Dong Wang, Random matrix minor processes related to percolation theory, *Random Matrices Theory Appl.*, 2 (2014), no. 4, 135008, 72pp.
8. Tom Claeys and Dong Wang, Random matrices with equispaced external source, *Comm. Math. Phys.*, 328 (2014), no. 3, 1023–1077.
7. Jinho Baik and Dong Wang, On a relationship between high rank cases and rank one cases of Hermitian random matrix models with external source, *Random Matrix Theory, Interacting Particle Systems and Integrable Systems*, Edited by Percy Deift and Peter Forrester, MSRI Publications 65 (2014), Cambridge University Press, Cambridge, 25–38.
6. Jinho Baik and Dong Wang, On the largest eigenvalue of a Hermitian random matrix model with spiked external source II. Higher rank case, *Int. Math. Res. Not. IMRN*, (2013) no. 14, 3304–3370.
5. Dong Wang, The largest eigenvalue of real symmetric, Hermitian and Hermitian self-dual random matrix models with rank one external source, part I, *J. Stat. Phys.*, 146 (2012) no. 4, 719–761.

4. Jinho Baik and Dong Wang, On the largest eigenvalue of a Hermitian random matrix model with spiked external source I. Rank 1 case, *Int. Math. Res. Not. IMRN*, (2011) no. 22, 5164–5240.
3. Dong Wang, Random matrices with external source and KP τ functions, *J. Math. Phys.*, 50 (2009), no. 7, 073506, 10pp.
2. Dong Wang, The largest sample eigenvalue distribution in the rank 1 quaternionic spiked model of Wishart ensemble, *Ann. Probab.*, 37 (2009), no. 4, 1273–1328.
1. Dong Wang, A PDE for the multi-time joint probability of the Airy process, *Phys. D*, 238 (2009), no. 8, 819–833.

Dissertation 博士论文

- Spiked Models in Wishart Ensemble.

Teaching 教学经历

National University of Singapore 新加坡国立大学

- Living with Mathematics, GEH1036/GEK1505, 2020/2021, Semester 2, (and a tutorial).
- Measure and Integration, MA4262, 2020/2021, Semester 1, (and two tutorials).
- Complex Analysis I, MA3111, 2019/2020 Semester 2, (and two tutorials).
- Complex Analysis I, MA3111, 2019/2020 Semester 1, (and three tutorials).
- Complex Analysis I, MA3111, 2018/2019 Semester 2, (and three tutorials).
- Complex Analysis I, MA3111, 2018/2019 Semester 1, (and two tutorials).
- Functional Analysis, MA4211, 2017/2018 Semester 2, (and a tutorial).
- Measure and Integration, MA4262, 2017/2018, Semester 1, (and a tutorial).
- Stochastic Processes I, MA3238/ST3236, 2016/2017, Semester 2, (and four tutorials).
- Measure and Integration, MA4262, 2016/2017, Semester 1, (and a tutorial).
- Stochastic Processes I, MA3238/ST3236, 2015/2016, Semester 2, (and five tutorials).
- Probability Theory I, MA5259, 2015/2016 Semester 1.
- Stochastic Processes I, MA3238/ST3236, 2014/2015 Semester 2, (and six tutorials).
- Mathematical Analysis III, MA3209, 2014/2015 Semester 1, (and two tutorials).
- Functional Analysis, MA4211, 2013/2014 Semester 2, (and a tutorial).
- Mathematical Analysis III, MA3209, 2013/2014 Semester 1, (and two tutorials).
- Topics in Random Matrix Theory, MA6252, 2012/2013 Semester 2.
- Mathematical Analysis III, MA3209, 2012/2013 Semester 1, (and two tutorials).

University of Michigan 密歇根大学

Multivariable Calculus, Math 217, Spring 2012,
Matrix Algebra, Math 417, Winter 2012 (two sections),
Integral Calculus, Math 116, Fall 2011 (two sections),
Differential Calculus, Math 115, Fall 2010 (two sections).
Differential Calculus, Math 115, Winter 2010 (two sections).
Differential Calculus, Math 115, Fall 2009 (two sections).

Brandeis University 布兰戴斯大学

Differential Calculus, Math 10a, Fall 2007.
Differential Calculus, Math 10a, Spring 2007.
Integral Calculus, Math 10b, Fall 2006.
Differential Calculus, Math 10a, Spring 2006.

Students mentored 指导学生

Master students 硕士生

David Waugh (NUS 2015)

Selected undergraduate students 优秀本科生

Mark Ng Say-Yao (NUS Undergraduate Research Opportunities Programme in Science (UROPS), winner of 2015/16 CRISP award)

Professional Activities 专业相关活动

Co-organizer of the workshop (共同) 组织学术研讨会
Random Matrix EurAsia 2020, Institute for Mathematical Sciences, Singapore, May 2020.

Co-organizer of the workshop (共同) 组织学术研讨会
Workshop on Stochastic Processes in Random Media, Institute for Mathematical Sciences, Singapore, May 2015.

Co-organizer of the seminar (共同) 组织讨论班
Working Group in Integrable Systems and Random Matrix Theory, University of Michigan, 2011–2012.

Grants 基金申请

Chinese NSFC grant (participant) 中国基金委面上项目 (参与)
11871425

Singapore AcRF Tier 1 Grant 新加坡教育部 Tier 1 项目
R-146-000-262-114

Singapore AcRF Tier 1 Grant 新加坡教育部 Tier 1 项目
R-146-000-217-112

Start-up grant in National University of Singapore 新加坡国立大学启动经费
R-146-000-164-133

Last updated: 26th December, 2023
2023 年 12 月 26 日更新