PUBLICATIONS LIST

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Submitted

1. G. Barraquand, I. Corwin, and S. Das. KPZ exponents for the half-space log-gamma polymer.

2. E. Corwin, I. Corwin, and J. Hass. First Passage Time for Many Particle Diffusion in Space-Time Random Environments.

3. G. Barraquand, I. Corwin, and Z. Yang. Stationary measures for integrable polymers on a strip.

4. I. Corwin. Francis Comets' Gumbel last passage percolation.

5. G. Barraquand, I. Corwin. Markov duality and Bethe ansatz formula for half-line open ASEP.

6. I. Corwin, M. Hegde. The lower tail of q-pushTASEP.

7. G. Barraquand, I. Corwin, E. Dimitrov. Maximal free energy of the log-gamma polymer.

In print or to appear

8. G. Barraquand, I. Corwin. Stationary measures for the log-gamma polymer and KPZ equation in half-space. *Annals of Probability*, **51**:5 1830–1869 (2023).

9. I. Corwin, A. Knizel. Stationary measure for the open KPZ equation. *Communications on Pure and Applied Mathematics*, to appear (2023).

10. A. Aggarwal, I. Corwin, P. Ghosal. The ASEP speed process. *Advances in Mathematics*, **422**:1 109004 (2023).

11. A. Carroll-Godfrey, E. Corwin, I. Corwin, and J. Hass. Anomalous fluctuations of extremes in many-particle diffusion. *Physical Review E*, **107**: L022101 (2023).

12. I. Corwin, A. Hammond, M. Hegde, K. Matetski. Exceptional times when the KPZ fixed point violates Johansson's conjecture on maximizer uniqueness. *Electronic Journal of Probability*, **28**:11 1–81 (2023).

13. G. Barraquand, I. Corwin, E. Dimitrov. Spatial tightness at the edge of Gibbsian line ensembles. *Communications in Mathematical Physics*, **397**: 13091386 (2023).

14. G. Barraquand, I. Corwin, E. Dimitrov. Fluctuations of the log-gamma polymer free energy with general parameters and slopes. *Probability Theory and Related Fields*, **181**:113–195 (2021).

15. I. Corwin, A. Hammond, P. Ghosal KPZ equation correlations in time. *Annals of Probability*, **49**:832–876 (2021).

16. I. Corwin Invariance of polymer partition functions under the geometric RSK correspondence. Proceeding of the 12th Mathematical Society of Japan, Seasonal Institute (MSJ-SI) Stochastic Analysis, Random Fields and Integrable Probability, (2021)

17. I. Corwin, P. Ghosal. KPZ equation tails for general initial data. *Electronic Journal of Probability*, **25**:66 1–38 (2020).

18. I. Corwin, L. C. Tsai. SPDE limit of weakly inhomogeneous ASEP. *Electronic Journal of Probability*, **25**:1–55, (2020).

19. I. Corwin, H. Shen. Some recent progress in singular stochastic PDEs. *Bulletins of the American Mathematical Society*, **57**:409–454 (2020).

20. I. Corwin, P. Ghosal. Lower tail of the KPZ equation. *Duke Mathematics Journal*, **169**, 7:1329-1395 (2020).

21. I. Corwin, P. Ghosal, H. Shen, L. C. Tsai. Stochastic PDE limit of the six vertex model. *Communications in Mathematical Physics*, **375**:1945–2038 (2020).

22. I. Corwin, S. Parekh. Limit shape of sub-partition maximizing partitions. *Journal of Statistical Physics* (Special invited issue in honor of Joel Lebowitz) **180**:597–611 (2020).

23. I. Corwin, P. Ghosal, K. Matetski. Stochastic PDE limit of the dynamic ASEP. *Communications in Mathematical Physics*, **380**:1025–1089 (2020).

24. G. Barraquand, A. Borodin, I. Corwin. Half-space Macdonald processes. *Forum of Mathematics, PI*, **8**:e11 (2020).

25. I. Corwin, L. Petrov, K. Matveev. The q-Hahn PushTASEP *International Mathematics Research Notices* rnz106 (2019).

26. I. Corwin, H. Shen, L-C. Tsai. ASEP(q, j) converges to the KPZ equation. *Annales of the Institute Henri Poincare*, **54**:995–1012 (2018).

27. I. Corwin, H. Shen. Open ASEP in the weakly asymmetric regime. *Communications on Pure and Applied Mathematics*, **71**:2065–2128 (2018).

28. J. Baik, G. Barraquand, I. Corwin, T. Suidan. Pfaffian Schur processes and last passage percolation in a half-quadrant. *Annals of Probability*, **46**:3015–3089 (2018).

29. A. Borodin, I. Corwin, P. L. Ferrari. Anisotropic $(2 + 1)$D growth and Gaussian limits of q-Whittaker processes. *Probability Theory and Related Fields*, **172**:245–321 (2018).

30. A. Borodin, I. Corwin. Dynamic ASEP, duality and continuous q^{-1}-Hermite polynomials. *International Mathematics Research Notices*, rnx299 (2018).

31. I. Corwin, P. Ghosal, A. Krajenbrink, P. Le Doussal, L.-C. Tsai. Coulomb-gas electrostatics controls large fluctuations of the KPZ equation. *Physical Review Letters*, **121**, 060201 (2018).

32. I. Corwin, E. Dimitrov. Transversal fluctuations of the ASEP, stochastic six vertex model, and Hall-Littlewood Gibbsian line ensembles. *Communications in Mathematical Physics*, **363**: 435–501 (2018).

33. G. Barraquand, A. Borodin, I. Corwin, M. Wheeler. Stochastic six-vertex model in a half-quadrant and half-line open ASEP. *Duke Mathematics Journal*, **167**:2457–2529 (2018).

34. J. Baik, G. Barraquand, I. Corwin, T. Suidan. Facilitated exclusion process. Proceedings of the 2016 Abel Symposium (2018).

35. I. Corwin, L.-C. Tsai. KPZ equation limit of higher-spin exclusion processes. *Annals of Probability*, **45**:1771–1798 (2017).

36. G. Barraquand, I. Corwin. Random-walk in Beta-distributed random environment. *Probability Theory and Related Fields*, **167**:1057–1116 (2017).

37. I. Corwin, M. Nica. Intermediate disorder directed polymers and the multi-layer extension of the stochastic heat equation. *Electronic Journal of Probability*, **22** (2017).

38. I. Corwin, Y. Gu. Kardar-Parisi-Zhang equation and large deviations for random walks in weak random environments. *Journal of Statistical Physics*, **166**:150–168 (2017).

39. A. Borodin, I. Corwin, F. L. Toninelli. Stochastic heat equation limit of a $(2 + 1)$D growth model. *Communications in Mathematical Physics*, **350**:957–984 (2017).

40. I. Corwin, F. L. Toninelli. Periodized two-dimensional q-Whittaker dynamics with explicit stationary measure. *Electronic Communication in Probability*, **21**:44 (2016).

41. A. Bufetov, A. Borodin, I. Corwin. Directed random polymers via nested contour integrals. *Annals of Physics*, **368**:191–247 (2016).

42. G. Barraquand, I. Corwin. The q-Hahn asymmetric exclusion process. *Annals of Applied Probability*, **26**:2304–2356 (2016).

43. I. Corwin, A. Hammond. KPZ line ensemble. *Probability Theory and Related Fields*, **166**:67–185 (2016).

44. A. Borodin, I. Corwin, V. Gorin. Stochastic six-vertex model. *Duke Mathematics Journal*, **165**:563–624 (2016).

45. I. Corwin, L. Petrov. Stochastic higher spin vertex models on the line. *Communications in Mathematical Physics*, **343**:651–700 (2016).

46. I. Corwin, Z. Liu, D. Wang. Fluctuations of TASEP and LPP with general initial data. *Annals of Applied Probability*, **26**:2030–2082 (2016).

47. A. Borodin, I. Corwin, V. Gorin, Sh. Shakirov. Observables of Macdonald processes. *Transactions of the American Mathematical Society*, **368**:1517–1558 (2016).

48. A. Borodin, I. Corwin, D. Remenik. A classical limit of Noumi's q-integral operator *SIGMA*, 098 (2015).

49. A. Borodin, I. Corwin, P. L. Ferrari, B. Vető. Height fluctuations for the stationary KPZ equation. *Mathematical Physics Analysis and Geometry*, DOI 10.1007s11040-015-9189-2 (2015).

50. A. Borodin, I. Corwin, L. Petrov, T. Sasamoto. Spectral theory for interacting particle systems solvable by coordinate Bethe ansatz. *Communications in Mathematical Physics*, **339**:1167–1245 (2015).

51. I. Corwin, T. Seppäläinen, H. Shen. The strict-weak lattice polymer. *Journal of Statistical Physics*, **160**:027–1053 (2015).

52. I. Corwin, J. Quastel, D. Remenik. The renormalization fixed point of the Kardar-Parisi-Zhang universality class. *Journal of Statistical Physics*, **160**:815–834 (2015).

53. I. Corwin, L. Petrov. The q-pushASEP: A new integrable particle system in $1 + 1$ dimension. *Journal of Statistical Physics*, **160**:1005–1026 (2015).

54. A. Borodin, I. Corwin, L. Petrov, T. Sasamoto. Spectral theory for the q-Boson particle system. *Compositio Mathematica*, **151**:1–67 (2015).

55. A. Borodin, I. Corwin, D. Remenik. Multiplicative functionals on ensembles of non-intersecting paths. *Annales of the Institute Henri Poincare*, **51**:28–58 (2015).

56. I. Corwin, X. Sun. Ergodicity of the Airy line ensemble. *Electronic Communications in Probability.*, **19**:1–11 (2014).

57. I. Corwin. The q-Hahn Boson process and q-Hahn TASEP. *International Mathematics Resesarch Notices*, rnu094 (2014).

58. A. Borodin, I. Corwin. On moments of the parabolic Anderson model. *Annals of Applied Probability*, **24**:1171–1197 (2014).

59. A. Borodin, I. Corwin, P. L. Ferrari. Free energy fluctuations for directed polymers in random media in 1+1 dimension. *Communications on Pure and Applied Mathematics*, **67**:1129–1214 (2014).

60. A. Borodin, I. Corwin and T. Sasamoto. From duality to determinants for q-TASEP and ASEP. *Annals of Probability*, **42**:2314–2382 (2014).

61. I. Corwin, N. O'Connell, T. Seppäläinen, N. Zygouras. Tropical combinatorics and Whitakker functions. *Duke Mathematics Journal*, **163**:513–563 (2014).

62. I. Corwin, A. Hammond. Brownian Gibbs property for Airy line ensembles. *Inventiones Mathematicae*, **195**:441–508 (2014).

63. A. Borodin, I. Corwin. Macdonald Processes. *Probability Theory and Related Fields*, **158**:225–400 (2014).

64. A. Borodin, I. Corwin. Discrete time q-TASEPs. *International Mathematics Research Notices*, rnt206 (2013).

65. A. Borodin, I. Corwin, D. Remenik. Log-Gamma polymer free energy fluctuations via a Fredholm determinant identity. *Communications in Mathematical Physics*, **324**:215–232 (2013).

66. I. Corwin, J. Quastel, D. Remenik. Continuum statistics of the Airy2 process. *Communications in Mathematical Physics*, **317**:347–362 (2013).

67. I. Corwin, J. Quastel. Crossover distributions at the edge of the rarefaction fan. *Annals of Probability*, **41**:1243–1314 (2013).

68. I. Corwin, P.L. Ferrari, S. Péché. Universality of slow decorrelation in KPZ growth. *Annales of the Institute Henri Poincare*, **48**:134–150 (2012).

69. G. Amir, I. Corwin, J. Quastel. Probability distribution of the free energy of the continuum directed random polymer in $1+1$ dimensions. *Communications on Pure and Applied Mathematics*, **64**:466–537 (2011).

70. G. Ben Arous, I. Corwin. Current fluctuations for TASEP: A proof of the Prähofer-Spohn conjecture. *Annals of Probability*, **39**:104–138 (2011).

71. I. Corwin, F. Morgan. The Gauss-Bonnet formula on surfaces with densities. *Involve.* **4** (2011).

72. I. Corwin, P.L. Ferrari, S. Péché. Limit processes for TASEP with shocks and rarefaction fans. *Journal of Statistical Physics* **140**:232–267 (2010).

73. A. Othman, I. Corwin. Time inconsistency and uncertainty aversion in prediction markets. *Third Workshop on Prediction Markets, in conjunction with the ACM Conference on Electronic Commerce (EC)* (2008).

74. J. Corneli, I. Corwin S. Hurder, V. Sesum, Y. Xu, E. Adams, D. Davis, M. Lee, R. Visocchi. Double bubbles in Gauss space and spheres. *Houston Journal of Mathematics* **31** (2008).

75. E. Adams, I. Corwin, D. Davis, M. Lee, R. Visocchi. Isoperimetric regions in Gauss sectors. *Rose Hulman Undergradate Journal of Mathematics* **8** (2007).

76. I. Corwin, S. Hurder, V. Sesum, Y. Xu. Differential geometry of manifolds with density. *Rose Hulman Undergradate Journal of Mathematics* **7** (2006).

77. I. Corwin, S. Ganatra, N. Rozenblyum. A single-car interaction based model of traffic for a highway toll-plaza. *UMAP Journal* **26** (2005).

78. I. Corwin, S. Ganatra, N. Rozenblyum. A myopic aggregate-decision model for reservation systems in amusement parks. *UMAP Journal* **25** (2004).

79. I. Corwin, S. Ganatra, N. Rozenblyum. A time-independent model of box safety for stunt motorcyclists. *UMAP Journal* **24** (2003).

Books, proceedings and review articles

80. I. Corwin, M. Hilario, and A. Kassel. Probability and statistical physics in two and more dimensions (*Clay Mathematics Institute 2010 Summer School Report*; David Ellwood, Charles Newman, Vladas Sidoravicius and Wendelin Werner Organizers).

81. I. Corwin. The Kardar-Parisi-Zhang equation and universality class. *Random Matrices: Theory and Applications*, **1** (2012).

82. I. Corwin. Macdonald processes. *Proceedings of the XVIIth Congress on Mathematical Physics*, World Scientific (2012).

83. I. Corwin. Two ways to solve ASEP. *Pan-American Summer Institute: Topics in Percolative and Disordered Systems*, Springer. Editors: Gérard Ben Arous, Chuck Newman, Alejandro Ramirez, Vladas Sidoravicius, and Maria Eulalia Vares.

84. I. Corwin. Macdonald processes, quantum integrable systems and the Kardar-Parisi-Zhang universality class. *Proceedings of the International Congress of Mathematicians 2014*.

85. I. Corwin. Kardar-Parisi-Zhang universality. *Notices of the American Mathematical Society*, March 2016.

86. I. Corwin. Exactly solving the KPZ equation. In Random Growth Models *Proceedings of Symposia in Applied Mathematics, AMS*, March 2016.

87. I. Corwin. Commentary on "Longest increasing subsequences: from patience sorting to the Baik-Deift-Johansson theorem" by David Aldous and Persi Diaconis. *Bulletins of the American Mathematical Society* **55**, 363–374, 2018.

88. I. Corwin (Co-editor with A. Borodin and A. Guionnet). 2017 Park City Mathematics Institute Proceedings on Random Matrix Theory. AMS.

89. I. Corwin, P. Deift, A. Its. Harold Widom's work in random matrix theory. *Bulletins of the American Mathematical Society* **59**:155-173 (2022).

90. I. Corwin. Some recent progress on the stationary measure for the open KPZ equation. *Toeplitz Operators and Random Matrices – In Memory of Harold Widom*, Springer (2022).

Thesis

91. I. Corwin. The Kardar-Parisi-Zhang equation and universality class. Courant Institute (NYU) Ph.D. thesis (2011). Advisor: Gérard Ben Arous; Committee: Sourav Chatterjee, Percy Deift, Charles Newman, S.R.S. Varadhan.

92. I. Corwin. Automorphic distributions from cocompact Fuchsian groups. Harvard honors thesis (2006). Advisor: Professor W. Schmid.