

Research Interests

Interacting Particle Systems and their applications; Random Geometry, particularly Diffusion Limited Aggregations (DLA) and Random Interlacement models.

完整发表列表

- [1] Durrett, R., & Zhang, Y. (2014). Exact solution for a metapopulation version of Schelling's model. *Proceedings of the National Academy of Sciences – PNAS*, 111(39), 14036–14041. doi:10.1073/pnas.1414915111
- [2] Durrett, R., Liggett, T., & Zhang, Y. (2014). The contact process with fast voting. *Electronic Journal of Probability*, 19 doi:10.1214/EJP.v19–3021
- [3] Durrett, R., & Zhang, Y. (2015). Coexistence of grass, saplings and trees in the Staver–Levin forest model. *The Annals of Applied Probability*, 25(6), 3434–3464. doi:10.1214/14–AAP1079
- [4] Lanchier, N., & Zhang, Y. (2016). Some rigorous results for the stacked contact process. *Alea–Latin American Journal of Probability and Mathematical Statistics*, 13(1), 193–222. doi:10.30757/ALEA.v13–08
- [5] Liu, J., & Zhang, Y. (2016). Convergence of diffusion–drift many particle systems in probability under a Sobolev norm. (pp. 195–223). Cham: Springer International Publishing. doi:10.1007/978–3–319–32144–8_10
- [6] Liu, J., & Zhang, Y. (2016). Convergence of stochastic interacting particle systems in probability under a sobolev norm. *Annals of Mathematical Sciences and Applications*, 1(2), 251–299. doi:10.4310/AMSA.2016.v1.n2.a1

- [7] Procaccia, E. B., & Zhang, Y. (2018). On covering paths with 3 dimensional random walk. *Electronic Communications in Probability*, 23 doi:10.1214/18-ECP160
- [8] Procaccia, E. B., & Zhang, Y. (2019). Connectivity properties of branching interlacements. *Alea–Latin American Journal of Probability and Mathematical Statistics*, 16(1), 279–314. doi:10.30757/ALEA.v16-10
- [9] Wang, C., Zhang, Y., Bertozzi, A. L., & Short, M. B. (2019). A stochastic–statistical residential burglary model with finite size effects. (pp. 245–274). Cham: Springer International Publishing. doi:10.1007/978-3-030-20297-2_8
- [10] Procaccia, E. B., & Zhang, Y. (2019). Stationary harmonic measure and DLA in the upper half plane. *Journal of Statistical Physics*, 176(4), 946–980. doi:10.1007/s10955-019-02327-y
- [11] Wang, C., Zhang, Y., Bertozzi, A. L., & Short, M. B. (2020). A stochastic–statistical residential burglary model with independent poisson clocks. *European Journal of Applied Mathematics*, , 1–27. doi:10.1017/s0956792520000029
- [12] Procaccia, E. B., Rosenthal, R., & Zhang, Y. (2020). Stabilization of DLA in a wedge. *Electronic Journal of Probability*, 25 doi:10.1214/20-EJP446
- [13] Procaccia, E. B., Ye, J., & Zhang, Y. (2020). Stationary DLA is well defined. *Journal of Statistical Physics*, 181(4), 1089–1111. doi:10.1007/s10955-020-02619-8
- [14] Mu, Y. X., & Zhang, Y. (2020). On some threshold–one attractive interacting particle systems on homogeneous trees. *Journal of Applied Probability*, 57(3), 866–898. doi:10.1017/jpr.2020.38

- [15] Zhang, Y., You, C., Cai, Z., Sun, J., Hu, W., & Zhou, X. (2020). Prediction of the COVID-19 outbreak in china based on a new stochastic dynamic model. *Scientific Reports*, 10(1), 21522–21522. doi:10.1038/s41598-020-76630-0 (first author)
- [16] Procaccia, E. B., & Zhang, Y. (2020). On covering monotonic paths with simple random walk. *Electronic Journal of Probability*, 25, 1–39. <https://doi.org/10.1214/20-EJP545>
- [17] 张云俊, 张原, 尤翀, 周晓华. 2020, 新型冠状病毒肺炎(COVID-19)传染病传播动力学模型的综述, 中华医学科研管理杂志, 33: 网络预发表. DOI: 10.3760/cma.j.cn113565-20200214-00007
- [18] 张原, 尤翀, 蔡振豪, 孙嘉瑞, 胡文杰, 周晓华. 2020, 新冠肺炎(COVID-19)新型随机传播动力学模型及应用, 应用数学学报, 43(2), 440–451
- [19] Procaccia, E. B., & Zhang, Y. (2021). On sets of zero stationary harmonic measure. *Stochastic Processes and their Applications*, 131, 236–252. doi:10.1016/j.spa.2020.09.007
- [20] Cai, Z., Xiong, Y., & Zhang, Y. (2021). On (non-)monotonicity and phase diagram of finitary random interlacement. *Entropy (Basel, Switzerland)*, 23(1), 69. doi:10.3390/e23010069 (corresponding author)
- [21] Procaccia, E. B., Ye, J., & Zhang, Y. (2021). Percolation for the finitary random interlacements. *Alea*, 18(1), 265–287. <https://doi.org/10.30757/ALEA.V18-12>
- [22] Wang, C., & Zhang, Y. (2021). A Multiscale Stochastic Criminal Behavior Model under a Hybrid Scheme. *Electronic Research Archive*, 29(4): 2741–2753. doi:10.3934/era.2021011

- [23] Procaccia, E. B., Ye, J., & Zhang, Y. (2021). Stationary harmonic measure as the scaling limit of truncated harmonic measure. *Alea*, 18, 1529–1560. doi:10.30757/ALEA.v18–56
- [24] You, C., Gai, X., Zhang Y., & Zhou X. (2021). Determining the Covertness of COVID–19 — Wuhan, China, *China CDC Weekly*, 3(8), 170–173. doi:10.46234/ccdcw2021.048 (joint corresponding author)
- [25] Cai, Z., & Zhang, Y. (2021). Some Rigorous Results on the Phase Transition of Finitary Random Interlacement. *Electronic Communications in Probability*, 26: 1–11. doi: 10.1214/21–ECP424
- [26] Liu, J., Wang, Z., Zhang, Y., & Zhou, Z. (2021). Rigorous justification of the Fokker–Planck equations of neural networks based on an iteration perspective. *SIAM Journal on Mathematical Analysis*, accepted
- [27] Liu, J., Wang, Z., Xie, Y., Zhang, Y., & Zhou, Z. (2021). Investigating the integrate and fire model as the limit of a random discharge model: A stochastic analysis perspective. *Mathematical Neuroscience and Applications*, accepted
- [28] Zhang, Y., You, C., Gai, X., & Zhou X. (2021) On the coexistence with COVID–19: estimations and perspectives. *China CDC Weekly*, 2021, 3(50): 1057–1061. doi: 10.46234/ccdcw2021.245 (joint corresponding/first author)
- [29] Cai, Y., Wang, C., Zhang, Y. (2021). A multiscale stochastic criminal behavior model and the convergence to a piecewise–deterministic–Markov–process limit. *Mathematical Models and Methods in Applied Sciences*, accepted (corresponding author)
- [30] Wang, X., Cai, Y., Zhang, B., Zhang, X., Wang, L., Yan, X., Zhao X., Zhang, Y., Jia Z. (2022) Cost–effectiveness analysis on COVID–19

surveillance strategy of large-scale sports competition. Infectious Diseases of Poverty, accepted (joint/last corresponding author)

预印本列表

- [1] Mu, Y., Procaccia, E. B., & Zhang, Y. (2019). Scaling limit of DLA on a long line segment. arXiv:1912.02370
- [2] Cai, Z., Han, X., Ye, J., & Zhang, Y. (2020). On chemical distance and local uniqueness of a sufficiently supercritical finitary random interlacement. arXiv: 2009.04044
- [3] Cai, Z., Procaccia, E. B., & Zhang, Y. (2021) Continuity and uniqueness of percolation critical parameters in Finitary Random Interlacements. arXiv: 2109.11756
- [4] Zhang, Y., You, C., Gai, X., Zhang, H., Yin, P., Qi, J., Zhou, M., Liu, J., & Zhou, X-H. (2021) Household Heterogeneity of SARS-CoV-2 Transmission along the Evolution of Pandemic. Submitted
- [5] Cai, Z., & Zhang, Y. (2021) On the exact orders of critical value in Finitary Random Interlacements. arXiv:2112.01136
- [6] Tan, Y., Zhang, Y., Cheng, X., Zhou, X. (2022) Statistical Inference Using GLEaM Model with Spatial Heterogeneity and Correlation between Regions. medRxiv 2022.01.01.21268139

Recent Grant Supports

国家自然科学基金委员会，青年科学基金项目，11901012，带有边界条件的扩散限制凝聚模型(DLA) 研究，2020-01-2022-12，27 万元，在研，主持

国家重点研发计划，科技创新 2030“新一代人工智能”重大项目（课题），部分可观测马尔科夫过程的随机规划算法，2018AAA0101004，2019.12-2022.12，160 万元，在研，骨干

国家重点研发计划，重大项目（课题），粒子系统与渗透模型，2020YFA0712902，2020-12-2025-11，93 万元，在研，骨干

国家自然科学基金委员会，专项项目，82041023，2020-03-2022-03，147.42 万元，在研，参与

国家自然科学基金委员会，国家自然科学基金数学天元基金-数学与医疗健康交叉重点专项，面向儿童脑发育障碍性疾病的神经机制建模与辅助诊疗算法，12026606，2021-01-2021-12，100 万元，在研，参与

中国疾病预防控制中心委托“中国新型冠状病毒（新冠）疫苗优先使用策略模型研究”，2020/11-2020/12，参与