



Universiteit
Leiden
The Netherlands

Opinion dynamics on random graphs

Capannoli, F.

Citation

Capannoli, F. (2025, November 19). *Opinion dynamics on random graphs*. Retrieved from <https://hdl.handle.net/1887/4283502>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4283502>

Note: To cite this publication please use the final published version (if applicable).

Bibliography

- [AB92] David Aldous and Mark Brown. Inequalities for rare events in time-reversible Markov chains I. *Lecture Notes - Monograph Series*, pages 1–16, 1992.
- [ABBP20] Louigi Addario-Berry, Borja Balle, and Guillem Perarnau. Diameter and stationary distribution of random r -out digraphs. *Electronic Journal of Combinatorics*, 27(3):Paper No. 3.28, 41, 2020.
- [ABC⁺22] Aris Anagnostopoulos, Luca Becchetti, Emilio Cruciani, Francesco Pasquale, and Sara Rizzo. Biased opinion dynamics: when the devil is in the details. *Information Sciences*, 593:49–63, 2022.
- [ABH⁺24] Luca Avena, Rangel Baldasso, Rajat S. Hazra, Frank den Hollander, and Matteo Quattropani. Discordant edges for the voter model on regular random graphs. *ALEA, Latin American Journal of Probability and Mathematical Statistics*, 21(1):431–464, 2024.
- [ABH⁺25] Luca Avena, Rangel Baldasso, Rajat S. Hazra, Frank den Hollander, and Matteo Quattropani. The voter model on random regular graphs with random rewiring. *arXiv preprint, arXiv:2501.08703*, 2025.
- [ACF⁺15] Vincenzo Auletta, Ioannis Caragiannis, Diodato Ferraioli, Clemente Galdi, and Giuseppe Persiano. Minority becomes majority in social networks. In *International conference on web and internet economics*, pages 74–88. Springer, 2015.
- [ACF⁺17] Vincenzo Auletta, Ioannis Caragiannis, Diodato Ferraioli, Clemente Galdi, and Giuseppe Persiano. Information retention in heterogeneous majority dynamics. In *International Conference on Web and Internet Economics*, pages 30–43. Springer, 2017.
- [ACGH25] Luca Avena, Federico Capannoli, Diego Garlaschelli, and Rajat S. Hazra. Voter model on heterogeneous directed networks. *arXiv:2506.12169*, 2025.

- [ACHQ24] Luca Avena, Federico Capannoli, Rajat S. Hazra, and Matteo Quattropiani. Meeting, coalescence and consensus time on random directed graphs. *The Annals of Applied Probability*, 34(5):4940–4997, 2024.
- [AdHR25] Siva Athreya, Frank den Hollander, and Adrian Röllin. Co-evolving vertex and edge dynamics in dense graphs. *arXiv preprint, arXiv:2504.06493*, 2025.
- [AF02] David Aldous and James Allen Fill. Reversible markov chains and random walks on graphs, 2002. Unfinished monograph, recompiled 2014, available at <http://www.stat.berkeley.edu/~aldous/RWG/book.html>.
- [AFG18] Vincenzo Auletta, Diodato Ferraioli, and Gianluigi Greco. Reasoning about consensus when opinions diffuse through majority dynamics. In *International Joint Conference on Artificial Intelligence*, pages 49–55, 2018.
- [AGSS24] Sebastian Andres, Nina Gantert, Dominik Schmid, and Perla Sousi. Biased random walk on dynamical percolation. *The Annals of Probability*, 52(6):2051–2078, 2024.
- [Ald89] David Aldous. *Probability approximations via the Poisson clumping heuristic*, volume 77 of *Applied Mathematical Sciences*. Springer-Verlag, New York, 1989.
- [Ald13] David Aldous. Interacting particle systems as stochastic social dynamics. *Bernoulli*, 19(4):1122–1149, 2013.
- [ALMP19] Chen Avin, Zvi Lotker, Assaf Mizrachi, and David Peleg. Majority vote and monopolies in social networks. In *Proceedings of the 20th International Conference on Distributed Computing and Networking*, page 342–351, New York, NY, USA, 2019. Association for Computing Machinery.
- [ALP⁺17] Chen Avin, Zvi Lotker, David Peleg, Yvonne-Anne Pignolet, and Itzik Turkel. Elites in social networks: An axiomatic approach. In Erez Shmueli, Baruch Barzel, and Rami Puzis, editors, *3rd International Winter School and Conference on Network Science*, pages 75–87, Cham, 2017. Springer.
- [AS04] David Aldous and J. Michael Steele. The objective method: probabilistic combinatorial optimization and local weak convergence. In *Probability on Discrete Structures*, pages 1–72. Springer, 2004.

-
- [AvdHdHN25] Luca Avena, Remco van der Hofstad, Frank den Hollander, and Oliver Nagy. Mixing of fast random walks on dynamic random permutations. *Probability Theory and Related Fields*, 191(3-4):789–835, 2025.
 - [BA99] Albert-László Barabási and Réka Albert. Emergence of scaling in random networks. *Science*, 286(5439):509–512, 1999.
 - [BBCP23] Luca Becchetti, Vincenzo Bonifaci, Emilio Cruciani, and Francesco Pasquale. On a voter model with context-dependent opinion adoption. In *32nd International Joint Conference on Artificial Intelligence, IJCAI*, pages 38–45. ijcai.org, 2023.
 - [BBdHM24] Simone Baldassarri, Peter Braunsteins, Frank den Hollander, and Michel Mandjes. Opinion dynamics on dense dynamic random graphs. *arXiv preprint, arXiv:2410.14618*, 2024.
 - [BCPS11] Andrea Baronchelli, Claudio Castellano, and Romualdo Pastor-Satorras. Voter models on weighted networks. *Physical Review E*, 83:066117, 2011.
 - [BCS18] Charles Bordenave, Pietro Caputo, and Justin Salez. Random walk on sparse random digraphs. *Probability Theory and Related Fields*, 170(3-4):933–960, 2018.
 - [BCS19] Charles Bordenave, Pietro Caputo, and Justin Salez. Cutoff at the “entropic time” for sparse markov chains. *Probability Theory and Related Fields*, 173(1-2):261–292, 2019.
 - [BdHM⁺24] Anton Bovier, Frank den Hollander, Saeda Mareello, Elena Pulvirenti, and Martin Slowik. Metastability of glaufer dynamics with inhomogeneous coupling disorder. *ALEA, Latin American Journal of Probability and Mathematical Statistics*, 21:1249–1273, 2024.
 - [BGKM16] Petra Berenbrink, George Giakkoupis, Anne-Marie Kermarrec, and Frederik Mallmann-Trenn. Bounds on the voter model in dynamic networks. In *43rd International Colloquium on Automata, Languages, and Programming*, pages 146:1–146:15, 2016.
 - [BJR07] Béla Bollobás, Svante Janson, and Oliver Riordan. The phase transition in inhomogeneous random graphs. *Random Structures & Algorithms*, 31(1):3–122, 2007.
 - [BK24] Thomas van Belle and Anton Klimovsky. Meeting times of markov chains via singular value decomposition. *arXiv preprint, arXiv:2406.04958*, 2024.

- [BK25] Simone Baldassarri and Nikolai Kriukov. Functional central limit theorem for the subgraph count of the voter model on dynamic random graphs. *arXiv preprint, arXiv:2503.11541*, 2025.
- [BL10] Charles Bordenave and Marc Lelarge. Resolvent of large random graphs. *Random Structures & Algorithms*, 37(3):332–352, 2010.
- [BLPS18] Nathanael Berestycki, Eyal Lubetzky, Yuval Peres, and Allan Sly. Random walks on the random graph. *The Annals of Probability*, 46(1):456–490, 2018.
- [Bol80] Béla Bollobás. A probabilistic proof of an asymptotic formula for the number of labelled regular graphs. *European Journal of Combinatorics*, 1(4):311–316, 1980.
- [Bol01] Béla Bollobás. *Random Graphs*. Cambridge Studies in Advanced Mathematics. Cambridge University Press, second edition, 2001.
- [BP25] Alessandra Bianchi and Giacomo Passuello. Mixing cutoff for simple random walks on the Chung-Lu digraph. *Random Structures & Algorithms*, 66(1):Paper No. e21277, 20, 2025.
- [Bro99] Mark Brown. Interlacing eigenvalues in time reversible Markov chains. *Mathematics of Operation Research*, 24(4):847–864, 1999.
- [BS01] Itai Benjamini and Oded Schramm. Recurrence of distributional limits of finite planar graphs. *Electronic Journal of Probability*, 6:1–13, 2001.
- [BS17] Riddhipratim Basu and Allan Sly. Evolving voter model on dense random graphs. *The Annals of Applied Probability*, 27(2):1235 – 1288, 2017.
- [Cap25] Federico Capannoli. Evolution of discordant edges in the voter model on random sparse digraphs. *Electronic Journal of Probability*, 30:Paper No. 6, 24, 2025.
- [CC18] Yu-Ting Chen and J. Theodore Cox. Weak atomic convergence of finite voter models toward Fleming-Viot processes. *Stochastic Processes and their Applications*, 128:2463–2488, 2018.
- [CCC16] Yu-Ting Chen, Jihyeok Choi, and John T. Cox. On the convergence of densities of finite voter models to the Wright-Fisher diffusion. *Annales de l’Institut Henri Poincaré, Probabilités et Statistiques*, 52(1):286–322, 2016.

-
- [CCMQ25] Federico Capannoli, Emilio Cruciani, Hlafo Alfie Mimun, and Matteo Quattropani. A phase transition for opinion dynamics with competing biases. *Submitted*, 2025.
 - [CCPQ23] Xing S. Cai, Pietro Caputo, Guillem Perarnau, and Matteo Quattropani. Rankings in directed configuration models with heavy tailed in-degrees. *The Annals of Applied Probability*, 33(6B):5613–5667, 2023.
 - [CDFR18a] Colin Cooper, Martin Dyer, Alan Frieze, and Nicolás Rivera. Discordant voting processes on finite graphs. *SIAM Journal on Discrete Mathematics*, 32(4):2398–2420, 2018.
 - [CDFR18b] Colin Cooper, Martin Dyer, Alan Frieze, and Nicolás Rivera. Discordant voting processes on finite graphs. *SIAM Journal on Discrete Mathematics*, 32(4):2398–2420, 2018.
 - [CdH24] Federico Capannoli and Frank den Hollander. Interacting particle systems on random graphs. volume 40 of *Ensaaios Matemáticos*, pages 117–176. Sociedade Brasileira de Matemática, Rio de Janeiro, 2024.
 - [CEOR13a] Colin Cooper, Robert Elsässer, Hirotaka Ono, and Tomasz Radzik. Coalescing random walks and voting on connected graphs. *SIAM Journal on Discrete Mathematics*, 27(4):1748–1758, 2013.
 - [CEOR13b] Colin Cooper, Robert Elsässer, Hirotaka Ono, and Tomasz Radzik. Coalescing random walks and voting on connected graphs. *SIAM Journal on Discrete Mathematics*, 27(4):1748–1758, 2013.
 - [CF04] Colin Cooper and Alan Frieze. The size of the largest strongly connected component of a random digraph with a given degree sequence. *Combinatorics, Probability and Computing*, 13(3):319–337, 2004.
 - [CF05] Colin Cooper and Alan Frieze. The cover time of random regular graphs. *SIAM Journal on Discrete Mathematics*, 18(4):728–740, 2005.
 - [CF07] Colin Cooper and Alan Frieze. The cover time of sparse random graphs. *Random Structures & Algorithms*, 30(1-2):1–16, 2007.
 - [CF08] Colin Cooper and Alan Frieze. The cover time of the giant component of a random graph. *Random Structures & Algorithms*, 32(4):401–439, 2008.

- [CFL09] Claudio Castellano, Santo Fortunato, and Vittorio Loreto. Statistical physics of social dynamics. *Reviews of Modern Physics*, 81(2):591–646, 2009.
- [CFR10] Colin Cooper, Alan Frieze, and Tomasz Radzik. Multiple random walks in random regular graphs. *SIAM Journal on Discrete Mathematics*, 23(4):1738–1761, 2009/10.
- [CG90] John T. Cox and Andreas Greven. On the long term behavior of some finite particle systems. *Probability Theory and Related Fields*, 85(2):195–237, 1990.
- [CGRS16] Gioia Carinci, Cristian Giardinà, Frank Redig, and Tomohiro Sasamoto. A generalized asymmetric exclusion process with $u_q(sl_2)$ stochastic duality. *Probability Theory and Related Fields*, 166(3):887–933, 2016.
- [CGS95] John T. Cox, Andreas Greven, and Tokuzo Shiga. Finite and infinite systems of interacting diffusions. *Probability Theory and Related Fields*, 103(2):165–197, 1995.
- [CGS98] John T. Cox, Andreas Greven, and Tokuzo Shiga. Finite and infinite systems of interacting diffusions: cluster formation and universality properties. *Mathematische Nachrichten*, 192:105–124, 1998.
- [CHdHS21] Arijit Chakrabarty, Rajat S. Hazra, Frank den Hollander, and Matteo Sfragara. Spectra of adjacency and Laplacian matrices of inhomogeneous Erdős-Rényi random graphs. *Random Matrices. Theory and Applications*, 10(1):Paper No. 2150009, 34, 2021.
- [Che13] Yu-Ting Chen. Sharp benefit-to-cost rules for the evolution of cooperation in regular graphs. *The Annals of Applied Probability*, 23:637–664, 2013.
- [Che18] Yu-Ting Chen. Wright-Fisher diffusions for evolutionary games with death-birth updating. *The Annals of Applied Probability*, 28:3418–3490, 2018.
- [Che21] Yu-Ting Chen. Precise asymptotics of some meeting times arising from the voter model on large random regular graphs. *Electronic Communications in Probability*, 26:Paper No. 5, 13, 2021.
- [Che23] Yu-Ting Chen. The replicator equation in stochastic spatial evolutionary games. *Stochastic Processes and their Applications*, 157:94–139, 2023.

-
- [CHK18] Adam Coates, Liangxiu Han, and Anthony Kleerekoper. A unified framework for opinion dynamics. In *International Conference on Autonomous Agents and MultiAgent Systems*, pages 1079–1086, 2018.
 - [CHMS25] Alessandra Cipriani, Rajat S. Hazra, Nandan Malhotra, and Michele Salvi. The spectrum of dense kernel-based random graphs. *arXiv preprint, arXiv:2502.09415*, 2025.
 - [CL02a] Fan Chung and Linyuan Lu. The average distances in random graphs with given expected degrees. *Proceedings of the National Academy of Sciences*, 99(25):15879–15882, 2002.
 - [CL02b] Fan Chung and Linyuan Lu. Connected components in random graphs with given expected degree sequences. *Annals of Combinatorics*, 6(2):125–145, 2002.
 - [CLOC17] Ningyuan Chen, Nelly Litvak, and Mariana Olvera-Cravioto. Generalized PageRank on directed configuration networks. *Random Structures & Algorithms*, 51(2):237–274, 2017.
 - [CMnPS09] Claudio Castellano, Miguel A. Muñoz, and Romualdo Pastor-Satorras. Nonlinear q -voter model. *Physical Review E*, 80:041129, 2009.
 - [CMQR23] Emilio Cruciani, Hlafo Alfie Mimun, Matteo Quattropani, and Sara Rizzo. Phase transition of the k -majority dynamics in biased communication models. *Distributed Computing*, 36(2):107–135, 2023.
 - [CNNS21] Emilio Cruciani, Emanuele Natale, André Nusser, and Giacomo Scornavacca. Phase transition of the 2-choices dynamics on core–periphery networks. *Distributed Computing*, 34(3):207–225, 2021.
 - [Cox89] John T. Cox. Coalescing random walks and voter model consensus times on the torus in $\mathbf{Z}^d$. *The Annals of Probability*, 17(4):1333–1366, 1989.
 - [CP20] Xing S. Cai and Guillem Perarnau. Minimum stationary values of sparse random directed graphs. *arXiv preprint, arXiv:2010.07246*, 2020.
 - [CP21] Xing S. Cai and Guillem Perarnau. The giant component of the directed configuration model revisited. *ALEA, Latin American Journal of Probability and Mathematical Statistics*, 18(2):1517–1528, 2021.

- [CQ20] Pietro Caputo and Matteo Quattropani. Stationary distribution and cover time of sparse directed configuration models. *Probability Theory and Related Fields*, 178(3-4):1011–1066, 2020.
- [CQ21a] Pietro Caputo and Matteo Quattropani. Mixing time of PageRank surfers on sparse random digraphs. *Random Structures & Algorithms*, 59(3):376–406, 2021.
- [CQ21b] Pietro Caputo and Matteo Quattropani. Mixing time trichotomy in regenerating dynamic digraphs. *Stochastic Processes and their Applications*, 137:222–251, 2021.
- [CS73] Peter Clifford and Aidan Sudbury. A model for spatial conflict. *Biometrika*, 60:581–588, 1973.
- [dCN22] Francesco d’Amore, Andrea Clementi, and Emanuele Natale. Phase transition of a nonlinear opinion dynamics with noisy interactions. *Swarm Intelligence*, 16(4):261–304, 2022.
- [DDC23] Quentin Duchemin and Yohann De Castro. Random geometric graph: Some recent developments and perspectives. In Radosław Adamczak, Nathael Gozlan, Karim Lounici, and Mokshay Madiman, editors, *High Dimensional Probability IX*, pages 347–392, Cham, 2023. Springer International Publishing.
- [DeG74] Morris H. DeGroot. Reaching a consensus. *Journal of the American Statistical Association*, 69(345):118–121, 1974.
- [DGL⁺12] Richard Durrett, James P. Gleeson, Alun L. Lloyd, Peter J. Mucha, Feng Shi, David Sivakoff, Joshua E. S. Socolar, and Chris Varghese. Graph fission in an evolving voter model. *Proceedings of the National Academy of Sciences*, 109(10):3682–3687, 2012.
- [dHN22] Frank den Hollander and Shubhamoy Nandan. Spatially inhomogeneous populations with seed-banks: I. duality, existence and clustering. *Journal of Theoretical Probability*, 35(3):1055–1090, 2022.
- [dO92] Mário J. de Oliveira. Isotropic majority-vote model on a square lattice. *Journal of Statistical Physics*, 66(1-2):273–281, 1992.
- [Dob71] Roland L. Dobrushin. Markov processes with a large number of locally interacting components: existence of a limit process and its ergodicity. *Problemy Peredachi Informatsii*, 7(2):70–87, 1971.

-
- [DP09] Devdatt P. Dubhashi and Alessandro Panconesi. *Concentration of Measure for the Analysis of Randomized Algorithms*. Cambridge University Press, 2009.
 - [DS93] Richard Durrett and Jeffrey E. Steif. Fixation results for threshold voter systems. *The Annals of Probability*, 21(1):232–247, 1993.
 - [dSOV24] Gabriel L. B. da Silva, Roberto I. Oliveira, and Daniel Valesin. The contact process over a dynamical d -regular graph. *Annales de l’Institut Henri Poincaré, Probabilités et Statistiques*, 60(4):2849–2877, 2024.
 - [Dur88] Richard Durrett. *Lecture notes on particle systems and percolation*. The Wadsworth & Brooks/Cole Statistics/Probability Series. Wadsworth & Brooks/Cole Advanced Books & Software, Pacific Grove, CA, 1988.
 - [Dur07] Rick Durrett. *Random Graph Dynamics*, volume 20 of *Cambridge Series in Statistical and Probabilistic Mathematics*. Cambridge University Press, Cambridge, 2007.
 - [Dur10] Rick Durrett. Some features of the spread of epidemics and information on a random graph. *Proceedings of the National Academy of Sciences*, 107(10):4491–4498, 2010.
 - [Dur25] Rick Durrett. *Dynamics on Graphs*. Cambridge Series in Statistical and Probabilistic Mathematics. Cambridge University Press, second edition, 2025.
 - [DVBZ⁺16] Michela Del Vicario, Alessandro Bessi, Fabiana Zollo, Fabio Petroni, Antonio Scala, Guido Caldarelli, H Eugene Stanley, and Walter Quattrociocchi. The spreading of misinformation online. *Proceedings of the National Academy of Sciences*, 113(3):554–559, 2016.
 - [DW83] Peter Donnelly and Dominic Welsh. Finite particle systems and infection models. *Mathematical Proceedings of the Cambridge Philosophical Society*, 94(1):167–182, 1983.
 - [dZ22] Francesco d’Amore and Isabella Ziccardi. Phase transition of the 3-majority dynamics with uniform communication noise. In *International Colloquium on Structural Information and Communication Complexity*, pages 98–115. Springer, 2022.
 - [ER59] Paul Erdős and Alfréd Rényi. On random graphs I. *Publicationes Mathematicae Debrecen*, 6:290–297, 1959.

- [Fer24] John Fernley. Discursive voter models on the supercritical scale-free network. *SIAM Journal on Discrete Mathematics*, 38(2):1285–1314, 2024.
- [FG19] Chiara Franceschini and Cristian Giardinà. Stochastic duality and orthogonal polynomials. In *Sojourns in probability theory and statistical physics. III. Interacting particle systems and random walks, a Festschrift for Charles M. Newman*, volume 300 of *Springer Proceedings in Mathematics & Statistics*, pages 187–214. Springer, Singapore, 2019.
- [FGSR⁺14] Juan Fernández-Gracia, Krzysztof Suchacki, José J. Ramasco, Maxi San Miguel, and Víctor M. Eguíluz. Is the voter model a model for voters? *Physical Review Letters*, 112:158701, 2014.
- [FH17] Lorenzo Federico and Remco van der Hofstad. Critical window for connectivity in the configuration model. *Combinatorics, Probability and Computing*, 26(5):660–680, 2017.
- [FJ90] Noah E. Friedkin and Eugene C. Johnsen. Social influence and opinions. *Journal of Mathematical Sociology*, 15(3-4):193–206, 1990.
- [FK15] Alan Frieze and Michał Karoński. *Introduction to Random Graphs*. Cambridge University Press, 2015.
- [FL03] David R. French and Peter J. Larcombe. The catalan number k -fold self-convolution identity: The original formulation. *Journal of Combinatorial Mathematics and Combinatorial Computing*, 46, 2003.
- [FL14] Allen Fill and Vince Lyzinski. Hitting times and interlacing eigenvalues: a stochastic approach using intertwining. *Journal of Theoretical Probability*, 27:954–981, 2014.
- [FO23] John Fernley and Marcel Ortgiere. Voter models on subcritical scale-free random graphs. *Random Structures & Algorithms*, 62(2):376–429, 2023.
- [Gil59] Edgar N. Gilbert. Random graphs. *Annals of Mathematical Statistics*, 30(4):1141–1144, 1959.
- [GKP94] Ronald L. Graham, Donald E. Knuth, and Oren Patashnik. *Concrete Mathematics: A Foundation for Computer Science*. Addison-Wesley Longman Publishing Co., Inc., USA, 2nd edition, 1994.

-
- [GM95] Boris L. Granovsky and Neal Madras. The noisy voter model. *Stochastic Processes and their Applications*, 55(1):23–43, 1995.
 - [HD19] Ran Huo and Rick Durrett. The zealot voter model. *The Annals of Applied Probability*, 29(5):3128–3154, 2019.
 - [HHM23a] Remco van der Hofstad, Pim van der Hoorn, and Neeladri Maitra. Local limits of spatial inhomogeneous random graphs. *Advances in Applied Probability*, 55(3):793–840, 2023.
 - [HHM23b] Remco van der Hofstad, Pim van der Hoorn, and Neeladri Maitra. Scaling of the clustering function in spatial inhomogeneous random graphs. *Journal of Statistical Physics*, 190(6):110, 2023.
 - [HL75] Richard A. Holley and Thomas M. Liggett. Ergodic theorems for weakly interacting infinite systems and the voter model. *Ann. Probability*, 3(4):643–663, 1975.
 - [HLYZ22] Jonathan Hermon, Shuangping Li, Dong Yao, and Lingfu Zhang. Mean field behavior during the big bang regime for coalescing random walks. *The Annals of Probability*, 50(5):1813–1884, 2022.
 - [HN06] Petter Holme and Mark EJ Newman. Nonequilibrium phase transition in the coevolution of networks and opinions. *Physical Review E—Statistical, Nonlinear, and Soft Matter Physics*, 74(5):056108, 2006.
 - [HOC18] Pim van der Hoorn and Mariana Olvera-Cravioto. Typical distances in the directed configuration model. *The Annals of Applied Probability*, 28(3):1739–1792, 2018.
 - [Hof17] Remco van der Hofstad. *Random Graphs and Complex Networks: Volume 1*, volume 43 of *Cambridge Series in Statistical and Probabilistic Mathematics*. Cambridge University Press, 2017.
 - [Hof24] Remco van der Hofstad. *Random Graphs and Complex Networks: Volume 2*, volume 54 of *Cambridge Series in Statistical and Probabilistic Mathematics*. Cambridge University Press, 2024.
 - [Hol24] F den Hollander. Evolution of discordance. *arXiv preprint, arXiv:2410.17808*, 2024.

- [HP99] Yehuda Hassin and David Peleg. Distributed probabilistic polling and applications to proportionate agreement. In *International Colloquium on Automata, Languages, and Programming*, pages 402–411. Springer, 1999.
- [HP24] Remco van der Hofstad and Manish Pandey. Are giants in random digraphs ‘almost’ local? *arXiv preprint arXiv:2403.02137*, 2024.
- [HT14] Laura Hindersin and Arne Traulsen. Counterintuitive properties of the fixation time in network-structured populations. *Journal of The Royal Society Interface*, 11(99):20140606, 2014.
- [Jac08] Matthew O. Jackson. *Social and Economic Networks*. Princeton University Press, 2008.
- [Kin82] John F. C. Kingman. The coalescent. *Stochastic Processes and their Applications*, 13(3):235–248, 1982.
- [KMS19] Varun Kanade, Elchanan Mossel, and Oded Schramm. Consensus time in the voter model with concealed and publicly expressed opinions. In *Proceedings of the 31st ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, pages 123–132. ACM, 2019.
- [KR03] Paul L. Krapivsky and Sidney Redner. Dynamics of majority rule in two-state interacting spin systems. *Physical Review Letters*, 90(23):238701, 2003.
- [LGP22] Hicham Lesfari, Frédéric Giroire, and Stéphane Pérennes. Biased majority opinion dynamics: Exploiting graph k -domination. In *International Joint Conference on Artificial Intelligence*, 2022.
- [Lig85] Thomas M. Liggett. *Interacting particle systems*, volume 276 of *Grundlehren der mathematischen Wissenschaften (Fundamental Principles of Mathematical Sciences)*. Springer-Verlag, New York, 1985.
- [Lig99] Thomas M. Liggett. *Stochastic interacting systems: contact, voter and exclusion processes*, volume 324 of *Grundlehren der mathematischen Wissenschaften [Fundamental Principles of Mathematical Sciences]*. Springer-Verlag, Berlin, 1999.
- [LS00] Francisco J. López and Gonzalo Sanz. Duality for general interacting particle systems. *Markov Processes and Related Fields*, 6(3):305–328, 2000.

-
- [LS06] László Lovász and Balázs Szegedy. Limits of dense graph sequences. *Journal of Combinatorial Theory, Series B*, 96(6):933–957, 2006.
- [MMR20] Arpan Mukhopadhyay, Ravi R. Mazumdar, and Rahul Roy. Voter and majority dynamics with biased and stubborn agents. *Journal of Statistical Physics*, 181:1239–1265, 2020.
- [Mob03] Mauro Mobilia. Does a single zealot affect an infinite group of voters? *Physical Review Letters*, 91(2):028701, 2003.
- [Mor58] Patrick A. P. Moran. Random processes in genetics. *Mathematical Proceedings of the Cambridge Philosophical Society*, 54(1):60–71, 1958.
- [MPR07] Mauro Mobilia, Anna Petersen, and Sidney Redner. On the role of zealotry in the voter model. *Journal of Statistical Mechanics: Theory and Experiment*, 2007(08):P08029, 2007.
- [MQS21] Francesco Manzo, Matteo Quattropiani, and Elisabetta Scoppola. A probabilistic proof of Cooper & Frieze’s “First Visit Time Lemma”. *ALEA, Latin American Journal of Probability and Mathematical Statistics*, 18(2):1739–1758, 2021.
- [MR95] Michael Molloy and Bruce Reed. A critical point for random graphs with a given degree sequence. *Random Structures & Algorithms*, 6(2-3):161–180, 1995.
- [MS10] Andrea Montanari and Amin Saberi. The spread of innovations in social networks. *Proceedings of the National Academy of Sciences*, 107(47):20196–20201, 2010.
- [Muk24] Arpan Mukhopadhyay. Phase transitions in biased opinion dynamics with 2-choices rule. *Probability in the Engineering and Informational Sciences*, 38(2):227–244, 2024.
- [New18] Mark Newman. *Networks*. Oxford university press, 2018.
- [NR06] Ilkka Norros and Hannu Reittu. On a conditionally poissonian graph process. *Advances in Applied Probability*, 38(1):59–75, 2006.
- [Oli12] Roberto I. Oliveira. On the coalescence time of reversible random walks. *Transactions of the American Mathematical Society*, 364(4):2109–2128, 2012.

- [Oli13] Roberto I. Oliveira. Mean field conditions for coalescing random walks. *The Annals of Probability*, 41(5):3420–3461, 2013.
- [OZ24] Charlotte Out and Ahad N. Zehmakan. Majority vote in social networks. *Information Sciences*, 657:119970, 2024.
- [Pen03] Mathew Penrose. *Random Geometric Graphs*, volume 5 of *Oxford Studies in Probability*. Oxford University Press, 2003.
- [PSS20] Yuval Peres, Perla Sousi, and Jeffrey E. Steif. Mixing time for random walk on supercritical dynamical percolation. *Probability Theory and Related Fields*, 176(3-4):809–849, 2020.
- [PT17] Anton V. Proskurnikov and Roberto Tempo. A tutorial on modeling and analysis of dynamic social networks. part i. *Annual Reviews in Control*, 43:65–79, 2017.
- [QS23] Matteo Quattropani and Federico Sau. On the meeting of random walks on random DFA. *Stochastic Processes and their Applications*, 166:Paper No. 104225, 33, 2023.
- [Riv18] Nicolás Rivera. *Voting Models on Graphs*. Phd thesis, King’s College London, 2018.
- [RS18] Frank Redig and Federico Sau. Factorized duality, stationary product measures and generating functions. *Journal of Statistical Physics*, 172(4):980–1008, 2018.
- [SAR08] Vishal Sood, Tibor Antal, and Sidney Redner. Voter models on heterogeneous networks. *Physical Review E*, 77(4):041121, 2008.
- [Sko25] Maciej Skorski. Handy formulas for binomial moments. *Modern Stochastics: Theory and Applications*, 12(1):27–41, 2025.
- [Spi69] Frank Spitzer. Random processes defined through the interaction of an infinite particle system. *Lecture Notes in Mathematics*, pages 201–223, 1969.
- [ST20] Perla Sousi and Sam Thomas. Cutoff for random walk on dynamical Erdős-Rényi graph. *Annales de l’Institut Henri Poincaré, Probabilités et Statistiques*, 56(4):2745 – 2773, 2020.
- [SV25] Bruno Schapira and Daniel Valesin. The contact process on dynamic regular graphs: Subcritical phase and monotonicity. *The Annals of Probability*, 53(2):753–796, 2025.

- [Swa22] Jan M. Swart. A course in interacting particle systems. *arXiv preprint, arXiv:1703.10007*, 2022.
- [YOA⁺13] Ercan Yildiz, Asuman Ozdaglar, Daron Acemoglu, Amin Saberi, and Anna Scaglione. Binary opinion dynamics with stubborn agents. *ACM Transactions on Economics and Computation (TEAC)*, 1(4):1–30, 2013.
- [YPOS10] Mehmet E. Yildiz, Roberto Pagliari, Asuman E. Ozdaglar, and Anna Scaglione. Voting models in random networks. In *Proceedings of the Information Theory and Applications Workshop (ITA)*, pages 1–7. IEEE, 2010.

List of Publications

- Luca Avena, Federico Capannoli, Rajat S. Hazra, and Matteo Quattropani. Meeting, coalescence and consensus time on random directed graphs. *The Annals of Applied Probability*, 34(5):4940–4997, 2024
- Federico Capannoli. Evolution of discordant edges in the voter model on random sparse digraphs. *Electronic Journal of Probability*, 30:Paper No. 6, 24, 2025
- Federico Capannoli and Frank den Hollander. Interacting particle systems on random graphs. volume 40 of *Ensaios Matemáticos*, pages 117–176. Sociedade Brasileira de Matemática, Rio de Janeiro, 2024
- Federico Capannoli, Emilio Cruciani, Hlafo Alfie Mimun, and Matteo Quattropani. A phase transition for opinion dynamics with competing biases. *Submitted*, 2025
- Luca Avena, Federico Capannoli, Diego Garlaschelli, and Rajat S. Hazra. Voter model on heterogeneous directed networks. *arXiv:2506.12169*, 2025

This list is up-to-date as of June 24, 2025.