

SIMON A. LEVIN

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LIST OF PUBLICATIONS

2024

782. E Freedman, A.S., Sheen, J.K., Tsai, S., Yao, J., Lifshitz, E., Adinaro, D., **Levin, S.A.**, Grenfell, B.T., and C.J.E. Metcalf. 2024. Inferring COVID-19 testing and vaccination behavior from New Jersey testing data. *PNAS* 121(17): e231435121. <https://doi.org/10.1073/pnas.2314357121>.
781. Mitchell, J. Jason (Host). (2024, January 15). **Simon Levin**, Princeton University, Economic factors underlying biodiversity loss [Audio podcast episode]. In *A Sustainable Future Podcast Series*. Responsible Investment Research, Man Group plc, London, UK. <https://www.man.com/maninstitute/a-sustainable-future-podcast>.
780. E Choquette-Levy, N., Wildemersch, M., Santos, F.P., **Levin, S.A.**, Oppenheimer, M., and E. Weber. 2024. Prosocial preferences improve climate risk management in subsistence farming communities. *Nature Sustainability* 7: 282-293. <https://doi.org/10.1038/s41893-024-01272-3>.
779. E Deng, J., Taylor, W., **Levin, S.A.**, and S. Saavedra, S. 2024. On the limits to invasion prediction using coexistence outcomes. *Journal of Theoretical Biology* 577: 1116674. <https://doi.org/10.1016/j.jtbi.2023.111674>.
778. E Oh, W.S., Muneeppeerakul, R., Rubenstein, D., and **S. Levin**. 2024. Emergent network patterns of internal displacement in Somalia driven by natural disasters and conflicts. *Global Environmental Change* 84: 102793. <https://doi.org/10.1016/j.gloenvcha.2023.102793>.
777. E Patterson, D., **Levin, S.**, Staver, A.C., and J. Touboul. 2024. Pattern formation in mesic savannas. *Bulletin of Mathematical Biology* 86(3). <https://doi.org/10.1007/s11538-023-01231-7>.

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776. E Nguyen, M.M., Freedman, A.S., Ozbay, S.A., and **S.A. Levin**. 2023. Fundamental bound on epidemic overshoot in the SIR model. *Journal of the Royal Society Interface* 20(209): 20230322. <https://doi.org/10.1098/rsif.2023.0322>.
775. EI Reeves, M., **Levin, S.A.**, Karita, S., Singer, D., and A. Job. (2023, November 27). Toward a flourishing aging society. *BCG Henderson Institute, 2023 Meeting of Minds*. <https://bcghendersoninstitute.com/toward-a-flourishing-aging-society>
774. E Espinoza, B., Adiga, A., Venkatramanan, S., Warren, A.S., Chen, J., Lewis, B.L., Vullikanti, A., Swarup, S., Moon, S., Barrett, C.L., Athreya, S., Sundaresan, R., Chandru, V., Laxminarayan, R., Schaffer, B., Poor, H.V., **Levin, S.A.**, and M.V. Marathe. 2023. Coupled models of genomic surveillance and evolving pandemics with applications for timely public health responses. *PNAS* 120(48): e2305227120. <https://doi.org/10.1073/pnas.2305227120>.
773. E Tian, Y., Sridhar, A., Wu, C.W., **Levin, S.A.**, Carley, K.M., Poor, H.V., and O. Yağan. 2023. Role of masks in mitigating viral spread on networks. *Physical Review E* 108(1): 014306. <https://doi.org/10.1103/PhysRevE.108.014306>.
772. E Sood, M., Sridhar, A., Eletreby, R., Wu, C.W., **Levin, S.A.**, Yağan, O., and H.V. Poor. 2023. Spreading processes with mutations over multilayer networks. *PNAS* 120(24): e2302245120. <https://doi.org/10.1073/pnas.2302245120>.

771. E Saad-Roy, C.M., Morris, S.E., Baker, R.E., Farrar, J., Graham, A.L., **Levin, S.A.**, Wagner, C.E., Metcalf, C.J.E., and B.T. Grenfell. 2023. Medium-term scenarios of COVID-19 as a function of immune uncertainties and chronic disease. *Journal of the Royal Society Interface* 20(205): <https://doi.org/10.1098/rsif.2023.0247>.
770. E Patterson, D., Staver, A.C., **Levin, S.A.**, and J.D. Touboul. 2023. Spatial dynamics with heterogeneity. *SIAM Journal on Applied Mathematics*. <https://doi.org/10.1137/22M1509850>.
769. E **Levin, S.A.**, and E.U. Weber. 2023. Polarization and the psychology of collectives. *Perspectives on Psychological Science*. <https://doi.org/10.1177/17456916231186614>.
768. EI Reeves, M., **Levin, S.**, Van der Veecken, R., Nimer, J., and A. Job. (2023, August 24). Biodiversity: The next arena in sustainable business. *BCG Henderson Institute*. Available from: <https://bcghendersoninstitute.com/biodiversity-the-next-arena-in-sustainable-business/>.
767. E Saad-Roy, C.M., **Levin, S.A.**, Grenfell, B.T., and M. Boots. 2023. Epidemiological impacts of post infection mortality. *Proceedings of the Royal Society B* 290: 2020343. <https://doi.org/10.1098%2Frspb.2023.0343>.
766. EI Dasgupta, P., **Levin, S.A.**, and G. Kell. (2023, May 25). “Economic Factors Underlying Biodiversity Loss.” Interview by Martin Reeves. *BCG Henderson Institute*. Podcast. Available from: <https://bcghendersoninstitute.com/economic-factors-underlying-biodiversity-loss-with-partha-dasgupta-simon-levin-and-georg-kell/>
765. E Perri, S., **Levin, S.**, Hedin, L.O., Wunderling, N., and A.M. Poporato. 2023. Socio-political feedback on the path to net zero. *One Earth* 6: 1-13. <https://www.sciencedirect.com/science/article/pii/S2590332223002403>
764. E Cooney, D.B., **Levin, S.A.**, Mori, Y., and J.B. Plotkin. 2022. Evolutionary dynamics within and among competing groups. *PNAS* 120(20): e2216186120. <https://doi.org/10.1073/pnas.2216186120>.
763. E Traulsen, A., **Levin, S.A.**, and C. Saad-Roy. 2023. Individual costs and societal benefits of interventions during the COVID-19 pandemic. *PNAS* 120(24): e2303546120. <https://doi.org/10.1073/pnas.2303546120>.
762. E Schrom, E., Kinzig, A., Forrest, S., Graham, A.L., **Levin, S.A.**, Bergstrom, C.T., Castillo-Chavez, C., Collins, J.P., de Boer, R.J., Doupe, A., Ensafi, R., Feldman, S., Grenfell, B.T., Halderman, J.A., Huijben, S., Maley, C., Moses, M., Perelson, A.S., Perrings, C., Plotkin, J., and Tiwari, M. 2023. Challenges in cybersecurity: Lessons from biological defense systems. *Mathematical Biosciences* 362: 109024. <https://doi.org/10.1016/j.mbs.2023.109024>.
761. E Jaeger, W.K., Irwin, E.G., Fenichel, E.P., **Levin, S.**, and A. Hertziger, A. 2023. Meeting the challenges to economists of pursuing interdisciplinary research on human-natural systems. *Review of Environmental Economics and Policy* 17(1). <https://doi.org/10.1086/723835>.
760. E Dasgupta, P., and **S. Levin**. 2023. Economic factors underlying biodiversity loss. *Philosophical Transactions of the Royal Society B* 378(1881): 20220197. <https://doi.org/10.1098/rstb.2022.0197>.
759. E Nielsen, B.F., Saad-Roy, C.M., Li, Y., Sneppen, K., Simonsen, L., Viboud, C., **Levin, S.A.**, and B.T. Grenfell. 2023. Host heterogeneity and epistasis explain punctuated evolution of SARS-CoV-2. *PLoS Computational Biology*. <https://doi.org/10.1371/journal.pcbi.1010896>.
758. E Xu, L., Wang, J., Patterson, D., and **S.A. Levin**. 2023. Non-equilibrium early-warning signals for critical transitions in ecological systems. *PNAS* 120(5): e2218663120. <https://doi.org/10.1073/pnas.2218663120>.
757. EI Forrest, S., Kinzig, A., Feldman, S., Graham, A.L., **Levin, S.**, Rexford, J., and E. Schrom. (2023, January 11). Mother Nature’s 7 lessons for a safer world. *Nautilus*. Available from: <https://nautil.us/mother-natures-7-lessons-for-a-safer-world-257526/>.
756. E Walker, B., Crépin, A.-S., Nyström, M., Anderies, J.M., Andersson, E., Elmqvist, T., Queiroz, C., Barrett, S., Bennett, E., Cardenas, J.C., Carpenter, S.R., Chapin III, F.S., de Zeeuw, A., Fischer, J., Folke, C.,

Levin, S., Nyborg, K., Polasky, S., Segerson, K., Seto, K., Scheffer, M., Shogren, J.F., Tavoni, A., van den Bergh, J., Weber, E.U., and J.R. Vincent. 2023. Response diversity as a sustainability strategy. *Nature Sustainability*. <https://doi.org/10.1038/s41893-022-01048-7>.

755. **Levin, S.A.**, and N. Silitch. (2023, January 3). “Can We Tackle Vaccine Hesitancy and Global Warming with a Similar Playbook: Researchers Think So.” In *Princeton Pulse* [podcast]. Center for Health and Wellbeing, Princeton University. [CHW Link](#).

754. E Anderies, J.M., and **S.A. Levin**. 2023. “Conservation of fragility and the collapse of social orders.” In *How Worlds Collapse: What History, Systems, and Complexity Can Teach Us about Our Modern World and Fragile Future*, eds. M. Centeno, P. Callahan, P. Larcey, and T. Patterson, 262-295. New York: Routledge. DOI (for book): <https://doi.org/10.4324/9781003331384>

753. E Hagstrom, G.I., and **S.A. Levin**. 2023. “Phase transitions and the theory of early warning indicators for critical transitions.” In *How Worlds Collapse: What History, Systems, and Complexity Can Teach Us about Our Modern World and Fragile Future*, eds. M. Centeno, P. Callahan, P. Larcey, and T. Patterson, 358-374. New York: Routledge. DOI (for book): <https://doi.org/10.4324/9781003331384>

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752. Adiga, A., Lewis, B., **Levin, S.**, Marathe, M.V., Poor, H.V., Ravi, S.S., Rosenkrantz, D.J., Stearns, R.E., Venkatramanan, S., Vullikanti, A., and L. Wang. 2022. “AI techniques for forecasting epidemic dynamics: Theory and practice.” In *Artificial Intelligence in Covid-19*, eds. N. Lidströmer and Y.C. Eldar, 193-228. Springer. https://link.springer.com/chapter/10.1007/978-3-031-08506-2_9#chapter-info

751. E Cooney, D., Morris, D.H., **Levin, S.A.**, Rubenstein, D.I., and P. Romanczuk. 2022. Social dilemmas of sociality due to beneficial and costly contagion. *PLoS Computational Biology*. <https://doi.org/10.1371/journal.pcbi.1010670>.

750. E **Levin, S.A.**, and A. Rinaldo. 2022. Ignacio Rodríguez-Iturbe (1942-2022): A review of a pathbreaking academic career combining chance and self-organization. *PNAS* 119(49): e2217606119.

749. E Puy, A., Beneventano, P., **Levin, S.A.**, Lo Piano, S., Portaluri, T., and A. Saltelli. 2022. Models with higher effective dimensions tend to produce more uncertain estimates. *Science Advances* 8(42). Doi: <https://doi.org/10.1126/sciadv.abn9450>

748. E Gibbs, T., **Levin, S.A.**, and J.M. Levine. 2022. Coexistence in diverse communities with higher interactions. *PNAS* 119(43): e2205063119. Doi: <https://doi.org/10.1073/pnas.2205063119>

747. EI Job, A., Verb, L., Reeves, M. and **S.A. Levin**. 2022. Aging gracefully: Avoiding corporate decline by embracing lessons from human biology. BCG Henderson Institute. Available from: <https://bcghendersoninstitute.com/aging-gracefully-7d8ea11168c4>

746. E Yang, L., Constantino, S.M., Grenfell, B.T., Weber, E.U., **Levin, S.A.**, and V.V. Vasconcelos. 2022. Sociocultural determinants of global mask-wearing behavior. *PNAS* 119(41): e2213525119. Doi: <https://doi.org/10.1073/pnas.2213525119>

745. E Cooney, D.B., Rossine, F.W., Morris, D.H., and **S.A. Levin**. 2022. A PDE model for protocell evolution and the origin of chromosomes via multilevel selection. *Bulletin of Mathematical Biology* 84: 109.

744. E Leonard, N., and S.A. Levin. 2022. Collective intelligence as a public good. *Collective Intelligence* 1(1). Doi: <https://doi.org/10.1177/26339137221083293>

743. E Fahimipour, A.K., Zeng, F., Homer, M., Traulsen, A., Levin, S.A., and T. Gross. 2022. Sharp thresholds limit the benefit of defector avoidance in cooperation on networks. *PNAS* 119(33): e2120120119. <https://doi.org/10.1073/pnas.2120120119>

742. E Fischer, I., **Levin, S.A.**, Rubenstein, D.I., Avrashi, S., Givon, L., and T. Oz. 2022. Interacting with others while reacting to the environment. *Behavioral and Brain Sciences*. <https://doi.org/10.1017/S0140525X21001291>

741. E Krueger, E.H., McPhearson, T., and **S.A. Levin**. 2022. Integrated assessment of urban water supply security and resilience: Towards a streamlined approach. *Environmental Research Letters* 17(7): 075006.
740. EI Mediavilla, D. (2022, June 27). “No tenemos otra opción que creer que podemos hacer lo necesario para que la humanidad sobreviva.” (Interview with Simon A. Levin). *El País (Ecología)*. Available from: <https://elpais.com/ciencia/2022-06-28/no-tenemos-otra-opcion-que-creer-que-podemos-hacer-lo-necesario-para-que-la-humanidad-sobreviva.html>
739. E Solé, R., and **S.A. Levin**, eds. 2022. Introduction: *Ecological Complexity and the Biosphere: The Next 30 Years: A Theme Issue Compiled and Edited by Ricard Solé and Simon A. Levin*. *Philosophical Transactions of the Royal Society B*: 377(1857). <https://doi.org/10.1098/rstb.2021.0376>.
738. E Solé, R., and **S.A. Levin**. 2022. Introduction: Ecological complexity and the biosphere: The next 30 years. *Philosophical Transactions of the Royal Society B*: 377(1857): 20210376.
737. E Qiu, Z., Espinoza, B., Vasconcelos, V.V., Chen, C., Constantino, S.M., Crabtree, S.A., Yang, L., Vullikanti, A., Chen, J., Weibull, J., Basu, K., Dixit, A., **Levin, S.A.**, and M.V. Marathe. 2022. Understanding the coevolution of mask wearing and epidemics: A network perspective. *PNAS* 119(26): e2123355119.
736. E Fischer, I., Rubenstein, D.I., and **S.A. Levin**. 2022. Vaccination-hesitancy and global warming: Distinct social challenges with similar behavioural solutions. *Royal Society Open Science* 9: 211515.
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731. E Chapin III, F. Stuart et al. (including **S.A. Levin**). 2022. Earth stewardship: Shaping a sustainable future through interacting policy and norm shifts. *Ambio*. <https://doi.org/10.1007/s13280-022-01721-3>.
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725. EI Shmul, Y., Reeves, M., and **S. Levin**. (2022, January 11). Building a mutually reinforcing system of organizational and personal resilience. *BCG Henderson Institute*. Available from: <https://bcghendersoninstitute.com/building-a-mutually-reinforcing-system-of-organizational-and-personal-resilience-d2e4bd69417e>
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723. E Carlson, A.K., Taylor, W.W., DeVries, D.R., Ferreri, C.P., Fogarty, M.J, Hartman, K.J., Infante, D.M., Kinnison, M.T., **Levin, S.A.**, Melstrom, R.T., Newman, R.M., Pinsky, M.L., Rubenstein, D.I., Sullivan, S.M.P., Venturelli, P.A., Weber, M.J., Wuellner, M.R., and G.B. Zydlewski. 2022. Stepping up: A U.S. perspective on the ten steps to responsible inland fisheries. *Fisheries* 47(2): 68-77.
- ## 2021
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721. E **Levin, S.A.**, Milner, H.V., and C. Perrings. 2021. Introduction: The dynamics of political polarization. *PNAS Special Feature on Polarization* 118(50): e2116950118.
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Evolution: Systemic Biosocial Dynamics, eds. M. Convertino and S.F. Pileggi, 170-267. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88971-533-6.

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Letters

- 1L. E1 Manski, C. et al. (including S.A. Levin). 2016. Statement to restore science-based policy in government by concerned members of the U.S. National Academy of Sciences. <https://scientistsforsciencebasedpolicy.org>.