Dr. Mathias Staudigl

mathias.staudigl@gmail.com (private) mathias.staudigl@uni-mannheim.de (work)

Publications

- 1. Potential games in volatile environments, Games and Economic Behavior, Volume 72, Issue 1, 2011, pp. 271 287
- 2. Stochastic Stability in asymmetric binary choice coordination games. Games and Economic Behavior, 2012, Volume 75 2012, pp. 372 - 401
- 3. Co-Evolutionary dynamics and Bayesian interaction games, International Journal of Game theory, 2013, Volume 42, Issue 1, pp. 179 210
- 4. Evolution of Social Networks (w/ T. Hellmann), European Journal of Operational Research, 2014, Vol. 234(3): pp. 583 596.
- 5. Constrained Interaction and Social Coordination (w/ Simon Weidenholzer), Journal of Economic Theory, 2014, Vol. 152, pp. 41 63
- 6. A Limit Theorems for Markov decision processes Journal of Dynamics and Games, Pages: 639 659, Volume 1, Issue 4, October 2014
- 7. Large deviations and stochastic stability in the small noise double limit (w/ Bill Sandholm), Theoretical Economics, 2016, 11, pp. 279-355
- 8. On repeated games with imperfect public monitoring: From discrete to continuous time (with Jan-Henrik Steg) Journal of Dynamics and Games, Volume 4, Issue 1, January 2017
- 9. Sample Path Large Deviations for Stochastic Evolutionary Game Dynamics (w/ Bill Sandholm), Mathematics of Operations Research, 2018, Vol. 43, No. 4, pp. 1348-1377
- 10. On the convergence of Gradient-like flows with noisy gradient input (w/ P. Mertikopoulos), SIAM Journal on Optimization, 2018, Vol. 28, No. 1, pp. 163-197
- 11. Stochastic Mirror Descent Dynamics and Their Convergence in Monotone Variational Inequalities (w/ P. Mertikopoulos), Journal of Optimization Theory and Applications, 2018, Vol. 179, Issue 3, pp. 838-867
- 12. Multi-agent online learning in time-varying games (w/ B. Duvo-celle, D. Vermeulen and P. Mertikopoulos). forthcoming Mathematics of Operations Research

- 13. Preface to the Special Issue on "Games, Dynamics and Optimization" (w/ R.I. Bot) Applied Mathematics & Optimization, 81, 651–654 (2020).
- 14. Hessian-Barrier Algorithm for linearly constrained optimization problems (w/ I. Bomze, P. Mertikopoulos and W. Schachinger). SIAM Journal on Optimization, 2019, Vol. 29, No.3, pp. 2100-2127.
- 15. Convergent noisy forward-backward-forward algorithms in non-monotone variational inequalities (w/ P. Mertikopoulos). IFAC-PapersOnLine, 52(3):120–125, 2019.
- 16. Mini-batch Forward-Backward-Forward Methods for solving Stochastic Variational inequalities (w/ R. I. Bot, P. Mertikopoulos and P.V. Vuong), Stochastic Systems, 2021, Vol. 11, No.2, pp. 112-139.
- 17. Incentive compatibility in sender-receiver stopping games (w/ Aditya Aradhye, János Flesch and Dries Vermeulen) Games and Economic Behavior, 2023.
- 18. Inducing strong convergence of trajectories in dynamical systems associated to monotone inclusions with composite structure (w/R.I. Bot, S.M. Grad and D. Meier), 2020, Advances in Nonlinear Analysis, vol. 10, no. 1, 2021, pp. 450-476
- Generalized self-concordant analysis of Frank-Wolfe algorithms (w/P. Dvurechensky, K. Safin and S. Shtern), Mathematical Programming, 2022
- 20. Computing Dynamic User Equilibrium on Large-Scale Networks Without Knowing Global Parameters. (w/ D.V. Thong, A. Gibali and P.V. Vuong) Netw Spat Econ 21, 735–768 (2021).
- 21. First-order methods for Convex Optimization (w/ P. Dvurechensky and S. Shtern), 2021, EURO Journal on Computational Optimization, Vol. 9, 2021.
- 22. Large deviations and Stochastic stability in Population Games (w/S. Arigapudi and W. H. Sandholm) Journal of Dynamics & Games
- 23. A competitive search game with a moving target (w/ B.Duvocelle, J. Flesch and D. Vermeulen), Forthcoming: European Journal of Operational Research
- 24. Mini-batch stochastic three-operator splitting for distributed optimization (w. B. Franci) (2022). IEEE Control & System Letters, 2022
- 25. Stochastic Relaxed Inertial Forward-Backward-Forward splitting for Monotone Inclusions in Hilbert spaces (w. Cui, S., Shanbhag, U. and P.V. Vuong) Computational Optimization and Applications, 83, 465–524 (2022)

- 26. A relaxation-based probabilistic approach for PDE-constrained optimization under uncertainty with pointwise state constraints (w/Kouri, D.P., & Surowiec, T.M.). Computational Optimization and Applications 85, 441–478 (2023). https://doi.org/10.1007/s10589-023-00461-8
- 27. Distributed Random Block-Coordinate descent methods for ill-posed composite convex optimisation problems (w/ P. Jacquot), 2023 in: Fixed Point Theory Algorithms Sci Eng, 14 (2023).
- 28. Hessian barrier algorithms for non-convex conic optimization (w/P. Dvurechensky) Mathematical Programming (2024).
- 29. A regularized variance-reduced modified extragradient method for stochastic hierarchical games, 2024, arXiv preprint arXiv:2302.06497. (w/ S. Cui and U. Shanbhag)
- 30. A conditional gradient homotopy method with applications to Semidefinite Programming arXiv preprint arXiv:2207.03101 (w/ P. Dvurechensky and S. Shtern)
- 31. Tikhonov regularized exterior penalty dynamics for constrained variational inequalities. (w/ S. Qu), IEEE Control & System Letters, 2024, Vol. 8
- 32. Derivative-free stochastic bilevel optimization for inverse problems (w/ Weissmann, S., & van Leeuwen, T.) (2024). arXiv preprint arXiv:2411.18100.
- 33. Asymptotic behavior of penalty dynamics for constrained variational inequalities (w/ Qu, S. & Peypouquet, J.) (2025). arXiv preprint arXiv:2503.03902. (forthcoming in —Applied Mathematics & Optimization.
- 34. Complexity guarantees for risk-neutral generalized Nash equilibrium problems (w./Tao, H., Iannelli, A., Marschner, M., Shanbhag, U. V., & Cui, S. (2025). arXiv preprint arXiv:2506.11409 (submitted for publication to IEEE TAC)

Conference Proceedings

- 1. Tikhonov regularized exterior penalty methods for hierarchical variational inequalities (w./M. Marschner) 64th IEEE Conference on Decision and Control, 2025
- 2. An Online Feasible Point Method for Benign Generalized Nash Equilibrium Problems (w./ Sachs, S., Hadiji, H., van Erven, T)), The 36th International Conference on Algorithmic Learning Theory, 2025
- 3. A Gauss-Seidel method for solving multi-leader-multi-follower games (w/ F. Fabiani, B. Franci, S. Sagratella, M. Schmidt), 2025 23rd European Control Conference (ECC)

- 4. Barrier Algorithms for Constrained Non-Convex Optimization (w/P. Dvurechensky), ICML 2024
- Proximal-like algorithms for equilibrium seeking in mixed-integer Nash equilibrium problems (w/ F. Fabiani, B. Franci, S. Sagratella, M. Schmidt). IEEE 61-st Conference on Decision and Control (CDC), 2022.
- A privacy-preserving distributed computational approach for distributed locational marginal prices (w/O. Bilenne, P. Jacquot, N. Oudjane, and C. Wan), IEEE 61st Conference on Decision and Control (CDC), 2022.
- 7. Equilibrium Tracking and Convergence in Dynamic Games (w/ P. Mertikopoulos). In: IEEE 60th Conference on Decision and Control (CDC), 2021
- 8. A relaxed-inertial forward-backward- forward algorithm for stochastic generalized Nash equilibrium seeking (w/ S. Cui, B. Franci, S. Grammatico, U. V Shanbhag). In: IEEE 60th Conference on Decision and Control (CDC).
- 9. Distributed Convergence to Nash equilibrium in continuous games with Noisy first-order feedback (w/ P. Mertikopoulos). In: 56th IEEE Conference on Decision and Control (CDC), 2017
- 10. On the convergence of stochastic Forward-backward-forward algorithms with Variance reduction in Pseudo-Monotone Variational Inequality Problems (w/ R.I. Bot, P. Mertikopoulos and P.T Vuong) (NIPS 2018 Smooth Games Optimization and Machine Learning Workshop)
- 11. Distributed forward-backward (half) forward algorithms for generalized Nash equilibrium seeking (w/ B. Franci and S. Grammatico), European Control Conference (ECC) 2020
- 12. Self-concordant analysis of Frank-Wolfe algorithms (w/ P. Dvurechensky, P. Ostroukov, K. Safin and S, Shtern), ICML2020