

List of Publications

April 22, 2022

1 Publications

1.1 Peer-reviewed journal publications

- [1] **Wasiur R. KhudaBukhsh**, Casper Woroszylo, Grzegorz Rempała, and Heinz Koepl. A Functional Central Limit Theorem for Susceptible-Infected (SI) Process on Configuration Model Graphs. *Advances in Applied Probability*, 2022. To appear in the 09/2022 issue. ArXiv preprint: <https://arxiv.org/abs/1703.06328>.
- [2] Colin Klaus, Matthew Wascher, **Wasiur R. KhudaBukhsh**, Joseph H. Tien, Grzegorz A. Rempała, and Eben Kenah. Assortative mixing among vaccination groups and biased estimation of reproduction numbers. *The Lancet Infectious Diseases*, 2022. To appear.
- [3] Francesco Di Lauro*, **Wasiur R. KhudaBukhsh***, István Z. Kiss, Eben Kenah, Max Jensen, and Grzegorz Rempała. Dynamic survival analysis for non-markovian epidemic models. *Interface*, 2022. (Accepted for publication.) *Both authors contributed equally and are joint first authors. Preprint: <https://arxiv.org/abs/2202.09948>.
- [4] Kai Cui, **Wasiur R. KhudaBukhsh**, and Heinz Koepl. Motif-based mean-field approximation of interacting particles on clustered networks. *Physical Review E*, 2022. To appear. Preprint: <https://arxiv.org/abs/2201.04999>.
- [5] Harley Vossler, Pierre Akilimali, Yuhan Pan, **Wasiur R. KhudaBukhsh**, Eben Kenah, and Grzegorz A. Rempała. Analysis of individual-level epidemic data: Study of 2018-2020 ebola outbreak in democratic republic of the congo. *Scientific Reports*, 12, 2022.
- [6] Ido Somekh, **Wasiur R. KhudaBukhsh**, Elisabeth Dowling Root, Greg Rempala, Eric Simoes, and Eli Somekh. Quantifying the Population-level Effect of COVID-19 Mass Vaccination Campaign in Israel: A Modeling Study. *Open Forum Infectious Diseases*, 2022.

- [7] **Wasiur R. KhudaBukhsh***, Hye-Won Kang, Eben Kenah, and Grzegorz Rempała. Incorporating age and delay into models for biophysical systems. *Physical Biology*, 18(1), 2021. (*Invited paper).
- [8] **Wasiur R. KhudaBukhsh**, Boseung Choi, Eben Kenah, and Grzegorz Rempała. Survival dynamical systems: individual-level survival analysis from population-level epidemic models. *Interface Focus*, 10(1), 2020.
- [9] **Wasiur R. KhudaBukhsh**, Arnab Auddy, Yann Disser, and Heinz Koepl. Approximate lumpability for markovian agent-based models using local symmetries. *Journal of Applied Probability*, 56, 9 2019.
- [10] Hye-Won Kang*, **Wasiur R. KhudaBukhsh***, Heinz Koepl, and Grzegorz Rempała. Quasi-steady-state approximations derived from a stochastic enzyme kinetics. *Bulletin of Mathematical Biology*, 81(5):1303–1336, 2019. *joint first authors.
- [11] Saumya Yashmohini Sahai, Saket Gurukar, **Wasiur R. KhudaBukhsh**, Srinivasan Parthasarathy, and Grzegorz A. Rempała. A Machine Learning Model for Nowcasting Epidemic Incidence. *Mathematical Biosciences*, 2021.
- [12] **Wasiur R. KhudaBukhsh**, Sounak Kar, Bastian Alt, Amr Rizk, and Heinz Koepl. Generalized cost-based job scheduling in very large cluster systems. *IEEE Transactions on Parallel and Distributed Systems*, 31(11):2594–2604, 2020.
- [13] Boseung Choi, Sydney Busch, Dieudonné Kazadi, Benoit Ilunga, Emile Okitolonda, Yi Dai, Robert Lumpkin, Omar Saucedo, **Wasiur R. KhudaBukhsh**, Joseph Tien, Marcel Yotebieng, Eben Kenah, and Grzegorz A. Rempała. Modeling Outbreak Data: Analysis of a 2012 Ebola Virus Disease Epidemic in DRC. *BIOMATH*, 8(2), 2019.
- [14] **Wasiur R. KhudaBukhsh**, Amr Rizk, Sounak Kar, and Heinz Koepl. Provisioning and performance evaluation of parallel systems with output synchronization. *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (TOMPECS)*, 4(1), 3 2019.
- [15] Bastian Alt, Markus Weckesser, Christian Becker, Matthias Hollick, Sounak Kar, Anja Klein, Robin Klose, Roland Kluge, Heinz Koepl, Boris Koldehofe, **Wasiur R. KhudaBukhsh**, Mahdi Mousavi, Martin Pfannemueller, Amr Rizk, Andy Schuerr, and Ralf Steinmetz. Transitions: A protocol-independent view of the future internet. *Proceedings of the IEEE*, 107(4):835–846, 4 2019.
- [16] **Wasiur R. KhudaBukhsh**, Julius Rückert, Julian Wulfheide, David Hausheer, and Heinz Koepl. SchedMix: Heterogeneous strategy assignment in swarming-based live streaming. *Open Transactions on Communication Systems (OTCS)*, 2019. Accepted for publication.

1.2 Peer-reviewed conference proceedings

- [17] **Wasiur R. KhudaBukhsh**, Bastian Alt, Sounak Kar, Amr Rizk, and Heinz Koepl. Collaborative uploading in heterogeneous networks: Optimal and adaptive strategies. In *IEEE International Conference on Computer Communications (INFOCOM)*, 4 2018. < 20% acceptance rate. Best-in-Session Presentation Award.
- [18] **Wasiur R. KhudaBukhsh**, Amr Rizk, Alexander Frömmgen, and Heinz Koepl. Optimizing Stochastic Scheduling in Fork-Join Queueing Models: Bounds and Applications. In *IEEE International Conference on Computer Communications (INFOCOM)*, 5 2017. \sim 20% acceptance rate.
- [19] Adrian Šošić, **Wasiur R. KhudaBukhsh**, A. M. Zourbir, and Heinz Koepl. Inverse reinforcement learning in swarm systems. In *AAMAS Workshop on Transfer in Reinforcement Learning*, May 2017. Available: <http://www.tirl.info/proceedings/2017/SosicEtal-Inverse.pdf>.
- [20] Adrian Šošić, **Wasiur R. KhudaBukhsh**, A. M. Zourbir, and Heinz Koepl. Inverse reinforcement learning in swarm systems. In *International Conference on Autonomous Agents & Multiagent Systems (AAMAS)*, 5 2017. \sim 26% acceptance rate, Best Paper Award Finalist.
- [21] **Wasiur R. KhudaBukhsh**, Julius Rückert, Julian Wulfheide, David Hausheer, and Heinz Koepl. Analysing and Leveraging Client Heterogeneity in Swarming-based Live Streaming. In *IFIP Networking Conference (IFIP Networking) and Workshops*, 5 2016. \sim 26% acceptance rate.
- [22] Mahdi Mousavi, Hussein Al Shatri, **Wasiur R. KhudaBukhsh**, Heinz Koepl, and Anja Klein. Cross-Layer QoE-based Incentive Mechanism for Video Streaming in Multi-Hop Wireless Networks. In *IEEE 86th Vehicular Technology Conference (VTC)*, 9 2017.

1.3 Preprints/Submitted

- [23] **Wasiur R. KhudaBukhsh**, Caleb Deen Bastian, Matthew Wascher, Colin Klaus, Mark Weir, Eben Kenah, Elisabeth Root, Joseph H. Tien, and Grzegorz Rempała. Projecting COVID-19 Cases and Subsequent Hospital Burden in Ohio. *Epidemics*, 2022. Submitted.
- [24] **Wasiur R. KhudaBukhsh**, Sat Kartar Khalsa, Eben Kenah, Grzegorz Rempała, and Joseph Tien. COVID-19 dynamics in an Ohio prison. *Epidemics*, 2021. Submitted. Preprint: <https://www.medrxiv.org/content/10.1101/2021.01.14.21249782v1>.
- [25] Kai Cui, **Wasiur R. KhudaBukhsh**, and Heinz Koepl. Hypergraphon mean-field games. *Chaos*, 2022. Submitted. Preprint: <https://arxiv.org/abs/2203.16223>.

- [26] Matthew Wascher, Patrick Schnell, **Wasiur R. KhudaBukhsh**, Joseph Tien, and Grzegorz Rempała. Monitoring SARS-CoV-2 Transmission and Prevalence in Populations under Repeated Testing. 2021. Submitted.

1.4 Manuscripts in progress

- [27] **Wasiur R. KhudaBukhsh** and Eben Kenah. Semiparametric pairwise regression for infectious disease transmission with external sources of infection.
- [28] Hye-Won Kang, **Wasiur R. KhudaBukhsh**, and Grzegorz A. Rempała. Multiscale approximations of the togashi–kaneko reaction system. 2022.
- [29] Yushuf Sharker*, Zaynab Diallo*, **Wasiur R. KhudaBukhsh**, and Eben Kenah. Pairwise accelerated failure time models with external sources of infection and epidemiological studies of infectious disease transmission. *Joint first authors.

1.5 Thesis and technical notes

- [30] **Wasiur R. KhudaBukhsh**. *Model reductions for queueing and agent-based systems with applications in communication networks*. PhD thesis, Technische Universität, Darmstadt, 2018. Available at: <http://tuprints.ulb.tu-darmstadt.de/7588/>.
- [31] **Wasiur R. KhudaBukhsh**, Mark Sinzger, and Heinz Koepl. Bounds on the spectral radius of real-valued non-negative kernels on measurable spaces. Technical report, 2018. arXiv preprint: <https://arxiv.org/abs/1808.00258>.