Dr. Manish Kumar

List of Publications

JOURNAL PUBLICATIONS

1. John Augustine, Soumyottam Chatterjee, Valerie King, Manish Kumar, Shachar Meir, David Peleg. *Distributed Download from an External Data Source in Byzantine Majority Settings*. Distributed Computing (DC), 2026. DOI: 10.1007/s00446-026-00520-3

2. Manish Kumar, Manish Kumar. *Fault-Tolerant Distributed Trigger Counting*. Journal of Information Processing Letters (IPL), Volume 192, February 2026, p 106612. DOI: 10.1016/j.ipl.2025.106612

3. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Debasish Pattanayak, Gokarna Sharma. *Faster Leader Election via Mobile Agents and Its Applications*. Theoretical Computer Science (TCS-D), Volume 1059, 4 January 2026, p 115578. DOI: 10.1016/j.tcs.2025.115578. Invited a special issue of selected papers of ICDCIT 2025.

4. Prabhat Kumar Chand, Manish Kumar, Sumathi Sivasubramaniam, Anisur Rahaman Molla. *Fault-Tolerant Dispersion of Mobile Robots*. Discrete Applied Mathematics (DAM), Volume: 377, 31 December 2025, pp. 299-313. DOI: 10.1016/j.dam.2025.06.068.

5. Manish Kumar, Anisur Rahaman Molla. *Sublinear Message Bounds of Authenticated Implicit Byzantine Agreement*. Theoretical Computer Science (**TCS-A**), Volume: 1022, 29 December 2024, p. 11488. DOI: 10.1016/j.tcs.2024.114888. Invited special issue of selected papers of the ICDCN 2024.

6. Manish Kumar, Anisur Rahaman Molla. *On the Message Complexity of Fault-Tolerant Computation: Leader Election and Agreement*. In IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Volume: 34, 01 April 2023, pp. 1115-1127, Issue: 4. DOI: 10.1109/TPDS.2023.3239993.

[0]Authors' names are in alphabetical order.

CONFERENCE PUBLICATIONS

1. Manish Kumar, Anisur Rahaman Molla, Debasish Pattanayak, Subhajit Pramanick Beyond the Boundary: Optimal Grid Dispersion by Spread, Reverse, and Collect 28th International Conference on Distributed Computing and Networking (ICDCN 2027), NIT Surathkal, India.

2. John Augustine, Henning Hillebrandt, Manish Kumar, Christian Scheideler, Julian Werthmann Supervised Distributed Computing: Efficiency and Robustness under a Majority of Adversarial Workers. 45th ACM Symposium on Principles of Distributed Computing (PODC 2026), University of London, United Kingdom. DOI: 10.1145/3796701.3815939

3. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Debasish Pattanayak, Gokarna Sharma. Asynchronous Dispersion with Optimal Time Complexity. 55th International Conference on Parallel Processing (ICPP 2026), Singapore. DOI: 10.1145/3832810.3832921

4. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Debasish Pattanayak, Gokarna Sharma. Asynchronous Dispersion with Optimal Time Complexity. 38th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA-BA 2026), Royal Holloway, University of London, in Egham, UK. DOI: 10.1145/3816782.3819188

5. John Augustine, Soumyottam Chatterjee, Valerie King, Manish Kumar, Shachar Meir, David Peleg. *Distributed Download from an External Data Source in Asynchronous Faulty Settings*. 29th Conference on Principles of Distributed Systems (OPODIS 2025), Iaşi, Romania (December 3-5, 2025). DOI: 10.4230/LIPIcs.OPODIS.2025.18.

6. Prabhat Kumar Chand, Manish Kumar, Anisur Rahaman Molla. *Computing Tree Structures in Anonymous Graphs via Mobile Agents*. 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2025), Kathmandu, Nepal (October 9-11, 2025). (Accepted)

7. John Augustine, Soumyottam Chatterjee, Valerie King, Manish Kumar, Shachar Meir, David Peleg. *Distributed Download from an External Data Source in Byzantine Majority Settings*. 39th International Symposium on Distributed Computing (DISC 2025), Berlin, Germany (October 27-31, 2025). DOI: 10.4230/LIPIcs.DISC.2025.9

8. John Augustine, Soumyottam Chatterjee, Valerie King, Manish Kumar, Shachar Meir, David Peleg. *Distributed Download from an External Data Source in Asynchronous Faulty Settings*. 39th International Symposium on Distributed Computing (DISC-BA 2025), Berlin, Germany (October 27-31, 2025). DOI: 10.4230/LIPIcs.DISC.2025.48.

9. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Debasish Pattanayak, Gokarna Sharma. *Optimal Dispersion Under Asynchrony*. 39th International Symposium on Distributed Computing (DISC-BA 2025), Berlin, Germany (October 27-31, 2025). DOI: 10.4230/LIPIcs.DISC.2025.63.

10. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Debasish pattanayak, Gokarna Sharma. *Dispersion is (Almost) Optimal under (A)synchrony*. 37th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA 2025), pp 367–381, Portland, Oregon, USA, (28 July 2025 - 1 August 2025). DOI: 10.1145/3694906.3743317

[0] Authors' names are in alphabetical order.

11. John Augustine, Soumyottam Chatterjee, Valerie King, Manish Kumar, Shachar Meir, David Peleg. *Distributed Download from an External Data Source in Byzantine Majority Settings*. 44th ACM Symposium on Principles of Distributed Computing, (PODC-BA 2025), pp 166–168, Huatulco, Mexico (June 16 - 20, 2025). DOI: 10.1145/3732772.3733526

12. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Gokarna Sharma. *Near-Linear Time Leader Election in Multiagent Networks*. 24th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2025), pp 1218–1226, Detroit, Michigan, USA (May 19 - 23, 2025). DOI: 10.5555/3709347.3743753

13. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Gokarna Sharma. *Faster Leader Election and its Applications for Mobile Agents with Parameter Advice*. 21st International Conference on Distributed Computing and Intelligent Technology (ICDCIT 2025), pp 108–123, Bhubaneswar, India (January 8–11, 2025). DOI: 10.1007/978-3-031-81404-4

14. Rik Banerjee, Manish Kumar, Anisur Rahaman Molla. *Optimal Fault-Tolerant Dispersion on Oriented Grids*. 26th International Conference on Distributed Computing and Networking (ICDCN 2025), pp 254 - 258, Hyderabad, India (January 4 - 7, 2025). DOI: 10.1145/3700838.3700842

15. Rik Banerjee, Manish Kumar, Anisur Rahaman Molla. *Optimizing Robot Dispersion on Unoriented Grids: with and without Fault Tolerance*. 20th International Symposium on Algorithmics of Wireless Networks (ALGOWIN 2024), pp 31–45, London, United Kingdom (September 5–6, 2024). DOI: 10.1007/978-3-031-74580-5

16. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Gokarna Sharma. *Agent-based Leader Election, MST, and Beyond*. In Proceedings of the 38th International Symposium on Distributed Computing (DISC-BA 2024) (Brief Announcement – Invited), pp. 50:1-50:7, Madrid, Spain (October 28 – November 1, 2024). DOI: 10.4230/LIPIcs.DISC.2024.50.

17. Prabhat Kumar Chand, Manish Kumar, Anisur Rahaman Molla. *Agent-Driven BFS Tree in Anonymous Graphs with Applications*. In Proceedings of the 12th International Conference on Networked Systems (NETYS 2024), pp 67–82, Rabat, Morocco (May 29–31, 2024). DOI: 10.1007/978-3-031-67321-4

18. Manish Kumar, Anisur Rahaman Molla. *Sublinear Message Bounds of Authenticated Implicit Byzantine Agreement*. In Proceedings of the 25th International Conference on Distributed Computing and Networking (ICDCN 2024), pp 124 - 133, Chennai, India (January 4 - 7, 2024). DOI: 10.1145/3631461.3631548

19. Manish Kumar. *Fault-tolerant graph realizations in the congested clique, revisited*. In Proceedings of the 19th International Conference on Distributed Computing and Intelligent Technology (ICDCIT 2023), pp 84–97, Bhubaneswar, India (January 18–22, 2023). DOI: 10.1007/978-3-031-24848-16.

20. Manish Kumar, Anisur Rahaman Molla, and Sumathi Sivasubramaniam. *Improved deterministic leader election in diameter-two networks*. In Proceedings of the 13th International Conference on Algorithms and Complexity (CIAC 2023), pp 323–335, Larnaca, Cyprus (June 13–16, 2023). DOI: 10.1007/978-3-031-30448-4-23.

21. Prabhat Kumar Chand, Manish Kumar, Anisur Rahaman Molla, Sumathi Sivasubramaniam. *Fault-Tolerant Dispersion of Mobile Robots*. In Proceedings of the 9th Annual Inter-

national Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2023), pp 28–40, Gandhinagar, India (February 9–11, 2023). DOI: 10.1007/978-3-031-25211-23

22. Manish Kumar, Anisur Rahaman Molla, and Sumathi Sivasubramaniam. *Fault-tolerant graph realizations in the congested clique*. In Proceedings of the 18th International Symposium on Algorithms and Experiments for Wireless Sensor Networks (ALGOSENSORS 2022), pp 108–122, Potsdam, Germany (September 8–9, 2022). DOI: 10.1007/978-3-031-22050-08.

23. Manish Kumar, Anisur Rahaman Molla. *On the Message Complexity of Fault-Tolerant Computation: Leader Election and Agreement*. In Proceedings of the 2021 ACM Symposium on Principles of Distributed Computing (PODC-BA 2021), pp 259 - 262, virtual event (Originally held in Italy on July 26 - 30, 2021). DOI: 10.1145/3465084.3467949.

MANUSCRIPT(S) UNDER SUBMISSION

1. John Augustine, Valerie King, Manish Kumar, Yun Lu, Shachar Meir, David Peleg, Jared Saia Byzantine-Resilient Computation by Mobile Agents with Bounded Congestion. 26th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2027).

2. John Augustine, Henning Hillebrandt, Manish Kumar, Christian Scheideler, Julian Werthmann Supervised Distributed Computing: Efficiency and Robustness under a Majority of Adversarial Workers. Distributed Computing (DC).

3. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Debasish Pattanayak, Gokarna Sharma. *(Almost) Optimal Dispersion under (A)synchrony*. Distributed Computing (DC).

4. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Gokarna Sharma. *Agentic Distributed Computing*. Journal of Parallel and Distributed Computing (JPDC).

5. Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Gokarna Sharma. *Near-Linear Time Leader Election in Multiagent Networks*. Theoretical Computer Science (TCS).