

Dr. Prabhat K. Jaiswal

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EMPLOYMENT HISTORY

Jun 2023 – Present	Associate Professor , Department of Physics Indian Institute of Technology Jodhpur, Rajasthan, India
Apr 2019 – Jun 2023	Assistant Professor , Department of Physics Indian Institute of Technology Jodhpur, Rajasthan, India
Jul 2018 – Apr 2019	Assistant Professor , School of Physics & Materials Science Thapar Institute of Engineering & Technology, Patiala, India
Oct 2017 – Jun 2018	Postdoctoral Research Fellow Max-Planck Institute for Intelligent Systems, Stuttgart, Germany Max-Planck Research Fellow Prof. Dr. Siegfried Dietrich
Feb 2017 – Sep 2017 Aug 2010 – Dec 2010	Postdoctoral Researcher & Research Associate Jawaharlal Nehru University, New Delhi, India Prof. Dr. Sanjay Puri
Apr 2013 – Dec 2016	Postdoctoral Research Fellow Weizmann Institute of Science, Rehovot, Israel Weizmann Fellow PBC Fellow Prof. Dr. Itamar Procaccia Weizmann Fellow (Apr–Sep 2013) · PBC Fellowship for Outstanding Postdoctoral Researchers from China and India, Council for Higher Education, Israel (Oct 2013 – Dec 2016)
Jan 2011 – Dec 2012	Postdoctoral Research Fellow Johannes Gutenberg University, Mainz, Germany Max-Planck Research Fellow Prof. Dr. Kurt Binder

ACADEMIC QUALIFICATIONS

Aug 2004 – Jul 2010	Ph.D., School of Physical Sciences Jawaharlal Nehru University, New Delhi, India Advisor: Prof. Dr. Sanjay Puri
Aug 2002 – May 2004	M.Sc. in Physics, School of Physical Sciences Jawaharlal Nehru University, New Delhi, India Advisor: Prof. Dr. Ashok Kumar Rastogi
Aug 1999 – May 2002	B.Sc. in Physics, Mathematics, and Chemistry University of Allahabad, Prayagraj, India Advisor: Prof. Dr. Chandra Mohan Bhandari

AWARDS & FELLOWSHIPS

Oct 2017 – Jun 2018	Max-Planck Research Fellow Max-Planck Institute for Intelligent Systems, Stuttgart, Germany
Oct 2013 – Dec 2016	PBC Fellow for Outstanding Postdoctoral Researchers from China and India Council for Higher Education, Israel·Weizmann Institute of Science, Rehovot, Israel
Apr 2013 – Sep 2013	Weizmann Fellow Weizmann Institute of Science, Rehovot, Israel
Jan 2011 – Dec 2012	Max-Planck Research Fellow Max-Planck Institute for Polymer Research, Mainz, Germany
Aug 2006 – Jul 2009	Senior Research Fellow (SRF) University Grants Commission, India
Aug 2004 – Jul 2006	Junior Research Fellow (JRF) University Grants Commission, India
Aug 2002 – May 2004	G. Parthasarathi Endowment Fellow Jawaharlal Nehru University, New Delhi, India

PEER-REVIEWED JOURNAL ARTICLES

1. A. Maiti, S. S. H. Zaidi, P. K. Jaiswal, K. K. Dey, *Effects of crowding and enzyme-driven active fluctuations on particle correlations in colloidal suspensions*, Phys. Rev. E 113(4):045406, 2026. doi:10.1103/rrl4-nxmy
2. V. Yadav, Prabhat K. Jaiswal, R. Podgornik, S. Kumari, *Charge Regulation Effect on Nanoparticle Interaction Mediated by a Polyelectrolyte*, Macromolecules, 2026. doi:10.1021/acs.macromol.5c03412
3. H. Teherpuria, Prabhat K. Jaiswal, S. Mogurampelly, *Molecular insights into temperature-driven transport mechanisms in EC–LiTFSI electrolytes*, Soft Matter 22(5):1262–1271, 2026. doi:10.1039/D5SM00792E
4. S. S. Hasan Zaidi, P. K. Jaiswal, A. Debnath, *Partially active polymer barrier crossing retains kink mechanism similar to a long passive polymer*, J. Chem. Phys. 163(16):164909, 2025. doi:10.1063/5.0291163
5. H. Teherpuria, S. Mohapatra, A. K. Meel, S. S. P. Chowdhury, S. Kanchi, Prabhat K. Jaiswal, S. Mogurampelly, *Ionic conductivity mechanisms in PEO–NaPF6 electrolytes*, Nanoscale 17(37):21573–21581, 2025. doi:10.1039/D5NR01630D
6. S. Suvarna, M. Priya, P. K. Jaiswal, *Dynamical properties of a pinned glass former with increasing softness*, Physics of Fluids 37(7):073130, 2025. doi:10.1063/5.0277764
7. H. Teherpuria, S. S. P. Chowdhury, S. K. Kannam, Prabhat K. Jaiswal, S. Mogurampelly, *Salt Effects on Ionic Conductivity Mechanisms in Ethylene Carbonate Electrolytes: Interplay of Viscosity and Ion–Ion Relaxations*, ACS Macro Letters 14(6):802–807, 2025. doi:10.1021/acsmacrolett.4c00824
8. H. Teherpuria, Prabhat K. Jaiswal, S. Mogurampelly, *On the nature of ion aggregation in EC–LiTFSI electrolytes*, Phys. Chem. Chem. Phys. 27(16):8426–8434, 2025. doi:10.1039/D4CP04606D
9. V. Yadav, M. Priya, M. D. Shrimali, P. K. Jaiswal, *Graph neural network for prediction of phase-ordering kinetics*, Chaos 35(6):061101, 2025. doi:10.1063/5.0273728
10. S. S. Hasan Zaidi, S. Suvarna, M. Priya, S. Puri, P. K. Jaiswal, *Early time wetting kinetics in surface-directed spinodal decomposition for off-critical quenches: A molecular dynamics study*, J. Chem. Phys. 161(15):154703, 2024. doi:10.1063/5.0232743
11. S. Mohapatra, H. Teherpuria, S. S. P. Chowdhury, S. J. Ansari, P. K. Jaiswal, R. R. Netz, S. Mogurampelly, *Ion transport mechanisms in pectin-containing EC–LiTFSI electrolytes*, Nanoscale 16(6):3144–3159, 2024. doi:10.1039/D3NR04029A
12. S. Chauhan, S. Mandal, V. Yadav, P. K. Jaiswal, M. Priya, M. D. Shrimali, *Machine learning based prediction of phase ordering dynamics*, Chaos 33(6):061103, 2023. doi:10.1063/5.0156611

13. S. S. Hasan Zaidi, P. K. Jaiswal, M. Priya, S. Puri, *Universal fast mode regime in wetting kinetics*, Phys. Rev. E 106(5):L052801, 2022 [Letter]. doi:10.1103/PhysRevE.106.L052801
14. P. Das, P. K. Jaiswal, S. Puri, *Surface-directed spinodal decomposition on morphologically patterned substrates*, Phys. Rev. E 102(3):032801, 2020. doi:10.1103/PhysRevE.102.032801
15. M. Priya, P. K. Jaiswal, *Enhanced attraction between particles in a bidisperse mixture with random pair-wise interactions*, Phase Transitions 93(9):895–908, 2020. doi:10.1080/01411594.2020.1813287
16. P. Das, P. K. Jaiswal, S. Puri, *Surface-directed spinodal decomposition on chemically patterned substrates*, Phys. Rev. E 102(1):012803, 2020. doi:10.1103/PhysRevE.102.012803
17. M. Priya, P. K. Jaiswal, M. D. Shrimali, *Host-parasite coevolution: Role of selection, mutation, and asexual reproduction on evolvability*, Chaos 30(7):073103, 2020. doi:10.1063/5.0010057
18. A. K. Dubey, H. G. E. Hentschel, P. K. Jaiswal, C. Mondal, Y. G. Pollack, I. Procaccia, *Scaling theory of the mechanical properties of amorphous nano-films*, Thin Solid Films 669:80–84, 2019. doi:10.1016/j.tsf.2018.10.027
19. H. G. E. Hentschel, P. K. Jaiswal, C. Mondal, I. Procaccia, J. Zylberg, *The sandpile revisited: Computer assisted determination of constitutive relations and the breaking of scaling*, Soft Matter 13(29):5008–5020, 2017. doi:10.1039/C7SM01060E
20. P. K. Jaiswal, I. Procaccia, C. Rainone, M. Singh, *Mechanical yield in amorphous solids: A first-order phase transition*, Phys. Rev. Lett. 116(8):085501, 2016. doi:10.1103/PhysRevLett.116.085501
21. H. G. E. Hentschel, P. K. Jaiswal, I. Procaccia, S. Sastry, *Stochastic approach to plasticity and yield in amorphous solids*, Phys. Rev. E 92(6):062302, 2015. doi:10.1103/PhysRevE.92.062302
22. A. K. Dubey, H. G. E. Hentschel, P. K. Jaiswal, C. Mondal, I. Procaccia, B. Sen Gupta, *Modeling Barkhausen Noise in magnetic glasses with dipole-dipole interactions*, Europhys. Lett. 112(1):17011, 2015. doi:10.1209/0295-5075/112/17011
23. O. Gendelman, P. K. Jaiswal, I. Procaccia, B. Sen Gupta, J. Zylberg, *Shear transformation zones: State determined or protocol dependent?*, Europhys. Lett. 109(1):16002, 2015. doi:10.1209/0295-5075/109/16002
24. R. Krishnan, P. K. Jaiswal, S. Puri, *Phase separation in antisymmetric films: A molecular dynamics study*, J. Chem. Phys. 139(17):174705, 2013. doi:10.1063/1.4827882
25. P. K. Jaiswal, S. Puri, K. Binder, *Phase separation in thin films: Effect of temperature gradients*, Europhys. Lett. 103(6):66003, 2013. doi:10.1209/0295-5075/103/66003
26. P. K. Jaiswal, K. Binder, S. Puri, *Formation of metastable structures by phase separation triggered by initial composition gradients in thin films*, J. Chem. Phys. 137(6):064704, 2012. doi:10.1063/1.4742727
27. P. K. Jaiswal, S. Puri, S. K. Das, *Surface-directed spinodal decomposition: A molecular dynamics study*, Phys. Rev. E 85(5):051137, 2012. doi:10.1103/PhysRevE.85.051137
28. P. K. Jaiswal, K. Binder, S. Puri, *Phase separation of binary mixtures in thin films: Effects of an initial concentration gradient across the film*, Phys. Rev. E 85(4):041602, 2012. doi:10.1103/PhysRevE.85.041602
29. P. K. Jaiswal, S. Puri, S. K. Das, *Hydrodynamic crossovers in surface-directed spinodal decomposition and surface enrichment*, Europhys. Lett. 97(1):16005, 2012. doi:10.1209/0295-5075/97/16005
30. P. K. Jaiswal, M. Vashishtha, S. Puri, R. Khanna, *Morphological phase separation in unstable thin films: Pattern formation and growth*, Phys. Chem. Chem. Phys. 13(30):13598–13603, 2011. doi:10.1039/C0CP03013A
31. P. K. Jaiswal, M. Vashishtha, S. Puri, R. Khanna, *Amplification of fluctuations in unstable systems with disorder*, J. Phys. Chem. B 115(15):4399–4403, 2011. doi:10.1021/jp112354e
32. P. K. Jaiswal, S. Puri, S. K. Das, *Kinetics of surface enrichment: A molecular dynamics study*, J. Chem. Phys. 133(15):154901, 2010. doi:10.1063/1.3491833
33. M. Vashishtha, P. K. Jaiswal, R. Khanna, S. Puri, A. Sharma, *Spinodal phase separation in liquid films with quenched disorder*, Phys. Chem. Chem. Phys. 12(40):12964–12968, 2010. doi:10.1039/C0CP00776E
34. R. Khanna, N. K. Agnihotri, M. Vashishtha, A. Sharma, P. K. Jaiswal, S. Puri, *Kinetics of spinodal phase separation in unstable thin liquid films*, Phys. Rev. E 82(1):011601, 2010. doi:10.1103/PhysRevE.82.011601

1. H. Teherpuria, S. S. Paul Chowdhury, S. Mohapatra, P. K. Jaiswal, S. Mogurampelly, *Diffusion and Ion-Ion Correlations in EC-LiTFSI Electrolytes*, *Advances in Sustainability Science and Technology*:59-70, 2024. doi:10.1007/978-981-99-9009-2_5

PREPRINTS / UNDER REVIEW

1. S. Suvarna, P. K. Jaiswal, M. Priya, *Disorder induced melting and glass formation in a one-component Lennard-Jones system*, arXiv arXiv:2603.02624, 2026. <https://arxiv.org/abs/2603.02624>
2. S. S. Hasan Zaidi, H. Teherpuria, S. Mogurampelly, P. K. Jaiswal, *A molecular dynamics study of surface-directed spinodal decomposition on a chemically patterned amorphous substrate*, arXiv arXiv:2512.10542, 2025. <https://arxiv.org/abs/2512.10542>
3. S. S. Hasan Zaidi, M. Priya, S. Puri, P. K. Jaiswal, *Surface-directed spinodal decomposition in binary fluid mixtures on an amorphous wall: A molecular dynamics study*, arXiv arXiv:2512.06911, 2025. <https://arxiv.org/abs/2512.06911>

REVIEW ARTICLES

1. S. Puri, P. K. Jaiswal, S. K. Das, *Surface-directed spinodal decomposition and enrichment in fluid mixtures: Molecular dynamics simulations*, *Eur. Phys. J. Special Topics* 222(3–4):961–974, 2013. doi:10.1140/epjst/e2013-01898-7

BOOK CHAPTERS

1. S. Puri, P. K. Jaiswal, S. K. Das, *Surface-directed phase separation and surface enrichment in fluid mixtures*, *Simulation and Characterization of Advanced Materials*, Transworld Research Network, pp. 27–46, 2013 Edited by S. Kumar.