

## PUBLICATIONS (BY YEAR)

DIBYENDU DAS

### 2025

64. “Optimizing search processes in systems with state toggling: exact condition delimiting the efficacy of stochastic resetting strategy”

Hillol Kumar Barman, Amitabha Nandi, and Dibyendu Das  
cond-mat arXiv:2410.06933

63. “Exact distributions of threshold crossing times of proteins under post-transcriptional regulation by small RNAs”  
Syed Yunus Ali, Ashok Prasad, and Dibyendu Das

*Phys. Rev. E* **111**, 014405 (2025).

### 2024

62. “Exact distribution of the vesicle burst size in synaptic transmission”

Krishna Rijal, Nicolas I.C. Muller, Eckhard Friauf, Abhyudai Singh, Ashok Prasad, and Dibyendu Das  
*Phys. Rev. Lett.* **132**, 228401 (2024).

61. “Estimates of differential toxin expression governing heterogeneous intracellular lifespans of *Streptococcus pneumoniae*”, Shweta Santra, Indrani Nayak, Ankush Paladhi, Dibyendu Das, Anirban Banerjee

*Journal of Cell Science* **137**, jcs260891 (2024).

60. “Nature of barriers determines first passage times in heterogeneous media”

Moumita Dasgupta, Sougata Guha, Leon Armbruster, Dibyendu Das, Mithun K. Mitra  
*Soft Matter* **20**, 8353 (2024).

### 2023

59. “Comparing the roles of time overhead and spatial dimensions on optimal resetting rate vanishing transitions, in Brownian processes with potential bias and stochastic resetting”

Saeed Ahmad, and Dibyendu Das, *J. Phys. A: Math. Theor.* **56**, 104001 (2023).

### 2022

58. “First passage in the presence of stochastic resetting and a potential barrier”

Saeed Ahmad, Krishna Rijal, and Dibyendu Das, *Phys. Rev. E* **105**, 044134 (2022).

57. “Exact Distribution of Threshold Crossing Times for Protein Concentrations: Implication for Biological Timekeeping”

Krishna Rijal, Ashok Prasad, Abhyudai Singh and Dibyendu Das, *Phys. Rev. Lett.* **128**, 048101 (2022).

### 2020

56. “Capture of a diffusive prey by multiple predators in confined space”

Indrani Nayak, Amitabha Nandi, and Dibyendu Das, *Phys. Rev. E* **102**, 062109 (2020).

55. “Protein hourglass: Exact first passage time distributions for protein thresholds”

Krishna Rijal, Ashok Prasad, and Dibyendu Das, *Phys. Rev. E* **102**, 052413 (2020).

54. “Role of dimensions in first passage of a diffusing particle under stochastic resetting and attractive bias”

Saeed Ahmad and Dibyendu Das, *Phys. Rev. E* **102**, 032145 (2020).

53. “First passage of an active particle in the presence of passive crowders”

Animesh Biswas, J. M. Cruz, P. Parmananda, and Dibyendu Das, *Soft Matter* **16**, 6138 (2020).

52. “Regulation of microtubule disassembly by spatially heterogeneous patterns of acetylation”

Aparna J. S., Ranjith Padinhateeri, and Dibyendu Das, *Soft Matter* **16**, 3125 (2020).

51. “Rotational synchronization of camphor ribbons in different geometries”,

Jyoti Sharma, Ishant Tiwari, Dibyendu Das, and P. Parmananda, *Phys. Rev. E* **101**, 052202 (2020).

50. “Coarsening dynamics in the Vicsek model of active matter”,

Nisha Katyal, Supravat Dey, Dibyendu Das and Sanjay Puri, *Eur. Phys. J. E* **43**, 10 (2020).

49. “Comparison of mechanisms of kinetochore capture with varying number of spindle microtubules”, Indrani Nayak, Dibyendu Das, and Amitabha Nandi, *Phys. Rev. Research* **2**, 013114 (2020).

### 2019

48. “Velocity distribution of driven granular gases”, V V Prasad, Dibyendu Das, Sanjib Sabhapandit and R Rajesh, *J. Stat. Mech.*, 063201 (2019).

47. “First passage of a particle in a potential under stochastic resetting: A vanishing transition of optimal resetting rate”, Saeed Ahmad, Indrani Nayak, Ajay Bansal, Amitabha Nandi, and Dibyendu Das, *Phys. Rev. E* **99**, 022130 (2019).

46. “Kinetics of polymer tumbling in shear flow: a coarse-grained description”, Sadhana Singh, R. K. Singh, Dibyendu Das, and Sanjay Kumar, *Phys. Rev. E (Rapid. Com.)* **99**, 030501 (2019).

45. “Oscillatory activity regulation in an ensemble of autonomous mercury beating heart oscillators”, Animesh Biswas, Pawan Kumar, Dibyendu Das, and P. Parmananda, *Phys Rev. E* **99**, 032223 (2019).

44. “Rotational synchronization of camphor ribbons”, Jyoti Sharma, Ishant Tiwari, Dibyendu Das, Punit Parmanada, V. S. Akella, and Veronique Pimienta, *Phys Rev. E* **99**, 012204 (2019).

### 2018

43. “Coupling of replisome movement with nucleosome dynamics can contribute to the parent-daughter information transfer”, Tripti Bameta, Dibyendu Das, Ranjith Padinhateeri, *Nucleic Acids Research* **46**, 4991 (2018).

42. “Diffusion dynamics and steady states of systems of hard rods on a square lattice”, Sugata Patra, Dibyendu Das, R. Rajesh, and Mithun K. Mitra, *Phys. Rev. E* **97**, 022108 (2018).

### 2017

41. “Signatures of a macroscopic switching transition for a dynamic microtubule”, Aparna J S, Ranjith Padinhateeri and Dibyendu Das, *Scientific Reports* **7** : 45747 (2017).

40. “Binding of DNA-bending non-histone proteins destabilizes regular 30-nm chromatin structure”, Gaurav Bajpai, Ishutesh Jain, Mandar M. Inamdar, Dibyendu Das, Ranjith Padinhateeri, *PLoS Comput. Biol.* **13**(1): e1005365 (2017).

39. “Sufficient conditions for the additivity of stall forces generated by multiple filaments and motors”, Tripti Bameta, Dipjyoti Das, Dibyendu Das, Ranjith Padinhateeri and Mandar M. Inamdar, *Phys. Rev. E* **95**, 022406 (2017). [*Editor’s suggestion*]

38. “Scaling dependence and synchronization of forced mercury beating heart system”, Animesh Biswas, Dibyendu Das, and Punit Parmanada, *Phys Rev. E* **95**, 042202 (2017).

37. “Shock propagation in locally driven granular systems”, Jilmy P. Joy, Sudhir N. Pathak, Dibyendu Das, and R. Rajesh, *Phys. Rev. E* **96**, 032908 (2017).

36. “Velocity distribution of a driven inelastic one-component Maxwell gas”, V.V. Prasad, Dibyendu Das, Sanjib Sabhapandit and R. Rajesh, *Phys. Rev. E* **95**, 032909 (2017).

### 2016

35. “Theoretical estimates of exposure timescales of protein binding sites on DNA regulated by nucleosome kinetics”, Jyotsana J. Parmar, Dibyendu Das, and Ranjith Padinhateeri, *Nucleic Acids Research* **44**, 1630 (2016).

### 2015

34. “Collective effects in force generation by multiple cytoskeletal filaments pushing an obstacle”, Aparna J S, Dipjyoti Das, Ranjith Padinhateeri and Dibyendu Das, *J. Phys.: Conf. Ser.* **638** 012012 (2015).

33. “Confinement-dependent localisation of diffusing aggregates in cellular geometries”, Mahdi Rezaei Keramati, Vaihbav Wasnik, Liyan Ping, Dibyendu Das, and Eldon Emberly, *Phys. Rev. E* **91**, 012705 (2015).

### 2014

32. “Force-Induced dynamical properties of Multiple Cytoskeletal filaments are distinct from that of Single filaments”, Dipjyoti Das, Dibyendu Das, Ranjith Padinhateeri, *PLoS ONE* **9**(12): e114014 (2014).

31. “Collective force generated by multiple biofilaments can exceed the sum of forces due to individual ones”, Dipjyoti Das, Dibyendu Das and Ranjith Padinhateeri, *New J. Phys.* **16**, 063032 (2014).

30. “Energy decay in Three-dimensional freely cooling granular gas”, Sudhir N. Pathak, Zahera Jabeen, Dibyendu Das and R. Rajesh, *Phys. Rev. Lett.* **112**, 038001 (2014).

29. “Inhomogeneous Cooling of the Rough Granular Gas in Two Dimensions”, Sudhir N. Pathak, Dibyendu Das and R. Rajesh, *Europhys. Lett.* **107**, 44001 (2014).

## **2012**

28. “Spatial Structures and Giant Number Fluctuations in Models of Active Matter”, Supravat Dey, Dibyendu Das and R. Rajesh, *Phys. Rev. Lett.* **108**, 238001 (2012).

27. “Giant number fluctuations in microbial ecologies”, Dipjyoti Das, Dibyendu Das, and Ashok Prasad, *Jr. Theo. Biol.* **308**, 96 (2012).

26. “Broad-tailed force distributions and velocity ordering in a heterogeneous membrane model for collective cell migration”, Tripti Bameta, Dipjyoti Das, Sumantra Sarkar, Dibyendu Das, and Mandar Inamdar, *Europhys. Lett.* **99**, 18004 (2012).

## **2011**

25. “Coarse grained dynamics of the freely cooling granular gas in one dimension”, Mahendra Shinde, Dibyendu Das, and R. Rajesh, *Phys. Rev. E* **84**, 031310 (2011).

24. “Lattice models for ballistic aggregation in one dimension”, Supravat Dey, Dibyendu Das, and R. Rajesh, *Europhys. Lett.* **93**, 44001 (2011).

23. “Intrinsic noise induced resonance in presence of sub-threshold signal in Brusselator”, Supravat Dey, Dibyendu Das, and P. Parmananda, *Chaos* **21**, 033124 (2011).

22. “Dynamics of a flexible polymer in planar mixed flow”, Dipjyoti Das, Sanjib Sabhapandit, and Dibyendu Das, *J. Phys.: conf. ser.* **297**, 012007 (2011).

## **2009**

21. “On the equivalence of the freely cooling granular gas to the sticky gas”, Mahendra Shinde, Dibyendu Das, and R. Rajesh, *Phys. Rev. E* **79**, 021303 (2009).

20. “Predicting the coherence resonance curve using a semi-analytical treatment”, Santidan Biswas, Dibyendu Das, P. Parmananda, Anirban Sain, *Phys. Rev. E* **80**, 046220 (2009).

## **2008**

19. “Accurate statistics of a flexible polymer chain in shear flow”, Dibyendu Das and Sanjib Sabhapandit, *Phys. Rev. Lett.* **101**, 188301 (2008).

18. “Critical behavior of loops and biconnected clusters on fractals of dimension  $d < 2$ ”, Dibyendu Das, Supravat Dey, Jesper Lykke Jacobsen and Deepak Dhar, *J. Phys. A: Math. Theor.* **41**, 485001 (2008).

## **2007**

17. “Violation of Porod law in a freely cooling granular gas in one dimension”, Mahendra Shinde, Dibyendu Das, and R. Rajesh, *Phys. Rev. Lett.* **99**, 234505 (2007).

16. “Persistence of a Rouse polymer chain under transverse shear flow”, Somnath Bhattacharya, Dibyendu Das, and Satya N. Majumdar, *Phys. Rev. E* **75**, 061122 (2007).

## **2006**

15. “Motion of a random walker in a quenched power law correlated velocity field”, Soumen Roy and Dibyendu Das, *Phys. Rev. E* **73**, 026106 (2006).

## **2005**

14. “Persistence of Randomly Coupled Fluctuating Interfaces”, Satya N. Majumdar and Dibyendu Das, *Phys. Rev. E* **71**, 036129 (2005).

13. “Critical Dynamics of Dimers: Implications for the Glass Transition”,  
Dibyendu Das, Greg Farrell, Jané Kondev and Bulbul Chakraborty, *J. Phys. Chem. B* **109**, 21413 (2005).

#### 2004

12. “Landau-like theory of glassy dynamics”,  
Satya N. Majumdar, Dibyendu Das, Jané Kondev, and Bulbul Chakraborty,  
*Phys. Rev. E* **70**, 060501 (Rapid communications) (2004).

11. “Two-dimensional  $O(n)$  model in a staggered field”,  
Dibyendu Das and Jesper Lykke Jacobsen, *J. Phys. A: Math. Gen.* **37** 1-35 (2004).

#### 2003

10. “Activated dynamics at a non-disordered critical point”,  
Dibyendu Das, Jané Kondev and Bulbul Chakraborty, *Europhys. Lett.* **61**(4), 506 (2003).

9. “Jamming in a model glass: Interplay of dynamics and thermodynamics”,  
Bulbul Chakraborty, Dibyendu Das, and Jané Kondev, *Physica A* **318**, 23 (2003).

#### 2002

8. “Topological jamming and the glass transition in a frustrated system”,  
Bulbul Chakraborty, Dibyendu Das, and Jané Kondev, *Eur. Phys. J. E* **9**, 227 (2002).

7. “Aggregate formation in a system of coagulating and fragmenting particles with mass-dependent diffusion rates”,  
R. Rajesh, Dibyendu Das, Bulbul Chakraborty, and Mustansir Barma,  
*Phys. Rev. E* **66**, 056104 (2002).

6. “Phase diagram of a two-species lattice model with a linear instability”,  
Sriram Ramaswamy, Mustansir Barma, Dibyendu Das and Abhik Basu,  
*Phase Transitions* **75** (Nos. 4 & 5), 363 (2002).

#### 2001

5. “Fluctuation dominated phase ordering driven by stochastically evolving surfaces: depth models and sliding particles”,  
Dibyendu Das, Mustansir Barma and Satya N. Majumdar, *Phys. Rev. E* **64**, 046126 (2001).

4. “Weak and strong dynamic scaling in a one-dimensional driven coupled-field model: effects of kinematic waves”,  
Dibyendu Das, Abhik Basu, Mustansir Barma and Sriram Ramaswamy, *Phys. Rev. E* **64**, 021402 (2001).

3. “Particles sliding on a fluctuating surface: phase separation and power laws”,  
Dibyendu Das and Mustansir Barma, *Phys. Rev. Lett.* **85**, 1602 (2000).

#### 1999

2. “Arrested states formed on quenching spin chains with competing interactions and conserved dynamics”,  
Dibyendu Das and Mustansir Barma, *Phys. Rev. E* **60**, 2577 (1999).

1. “Polytype kinetics and quenching of spin chains with competing interactions using trimer-flip dynamics”,  
Dibyendu Das and Mustansir Barma, *Physica A* **270**, 245 (1999).