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Education:
PhD (Physics) Univ. of Chicago 1983
BS (Physics, High Honours) Univ. of Maryland College Park 1977
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Positions held:

- 1 Aug 2023 - present: Honorary Professor; 26 May 2002 - 31 July 2023: Professor, Department of Physics, Indian Institute of Science, Bengaluru
  - 28 July 2012 - 26 Oct 2016: on lien as Centre Director, Centre for Interdisciplinary Sciences, Tata Institute of Fundamental Research, Hyderabad
  - 1 Feb 2017 - 31 Jan 2020: Adjunct Professor, TIFR
- 26 May 1996 - 25 May 2002: Associate Professor, Department of Physics, Indian Institute of Science
- March 1990 - May 1996: Assistant Professor, Centre for Theoretical Studies (upto 30 June 1995) & Department of Physics, Indian Institute of Science
- May 1986 - March 1990: UGC Research Scientist A, Department of Physics, Indian Institute of Science
- Sep 1983 - May 1986: Postdoctoral Research Investigator, Department of Physics, University of Pennsylvania

Additional affiliations

- Distinguished Visiting Professor, Department of Physics, IIT Bombay, 19 Feb 2024 to 9 Nov 2025
- ICTS Endowed Visiting Professor, International Centre for Theoretical Sciences, TIFR, 1 Feb 2024 - 9 Nov 2025; honorary thereafter

Research Interests:

Nonequilibrium, soft-matter and biological physics

PUBLICATIONS:

Submitted or preprints:

- Segregation dynamics in active-passive mixtures of semiflexible filaments, Chitrak Bhowmik, Aparna Baskaran, Sriram Ramaswamy, arXiv:2512.17240
- Conservation laws and chaos propagation in a non-reciprocal classical magnet, Nisarg Bhatt, Purnendu Das, Subroto Mukerjee, Sriram Ramaswamy, arXiv:2512.13873
- Superdiffusion and antidiffusion in an aligned active suspension, Lokrshi Prawar Dadhichi, Suvendra K. Sahoo, K. Vijay Kumar, Sriram Ramaswamy, arXiv:2510.00740
- Edge states, pairing, and sorting of motile chiral particles, Raushan Kant, Ananyo Maitra, A K Sood, Sriram Ramaswamy, arXiv:2509.00729
- The inconvenient truth about flocks, Ananyo Maitra, Patrick Jentsch, Leiming Chen, Chiu Fan Lee, John Toner, Sriram Ramaswamy, arXiv:2503.17064
- Emergent hydrodynamics in a non-reciprocal classical isotropic magnet, Nisarg Bhatt, Subroto Mukerjee, Sriram Ramaswamy, arXiv:2312.16500
- Active Caustics, R Chajwa, Rajarshi, S Ramaswamy, R Govindarajan, arXiv:2310.01829
- Robust Molecular Computation by Active Mechanics, K Husain, S Ramaswamy, M Rao, arXiv:2204.04838

Published or accepted; refereed journals:

1. Reentrant melting of scarred odd crystals by self-shear, Uttam Tiwari, Pragya Arora, A K Sood, Sriram Ramaswamy, Rituparno Mandal, Rajesh Ganapathy, arXiv:2512.17393, Nature Communications, accepted

2. Screw Symmetry, Chiral Hydrodynamics and Odd Instability in Active Cholesterics, G P Alexander, S J Kole, A Maitra, S Ramaswamy, Phys. Rev. E **112**, 055424 (2025); arXiv:2508.00684

3. Ordering and defect cloaking in non-reciprocal lattice XY models, Pankaj Popli, Ananyo Maitra, Sriram Ramaswamy, Phys. Rev. Lett. **135**, 088303 (2025); arXiv:2503.06480

4. Dynamics and clustering of sedimenting disc lattices, Harshit Joshi, Rahul Chajwa, Sriram Ramaswamy, Narayanan Menon, Rama Govindarajan, J Fluid Mech **1017**, A1 (2025); arXiv:2502.06308

5. Bulk condensation by an active interface, Raushan Kant, Rahul Kumar Gupta, Harsh Soni, A K Sood, Sriram Ramaswamy, Phys Rev Lett **133**, 208301 (2024); arXiv:2403.18329

6. Emergence of planar cell polarity from the interplay of local interactions and global gradients, D Singh, S Ramaswamy, M K Jolly, M S Rizvi, eLife **13**:e84053 (2024); bioRxiv 2021.11.30.468750

7. The Anomalous Long-Ranged Influence of an Inclusion in Momentum-Conserving Active Fluids, Thibaut Arnoulx de Pirey, Yariv Kafri, Sriram Ramaswamy, Phys. Rev. X **14**, 041034 (2024); arXiv:2402.12996

8. Inertia drives concentration-wave turbulence in swimmer suspensions, Purnima Jain, Navdeep Rana, Sriram Ramaswamy, Prasad Perlekar, arXiv:2401.11927; Phys. Rev. Lett. **133**, 158302 (2024)

9. Chirality and odd mechanics in active columnar phases, S. J. Kole, G P Alexander, A Maitra, S Ramaswamy, PNAS Nexus **3**, pgae398 (2024); arXiv:2404.19514

10. Defect turbulence in a dense suspension of polar, active swimmers, N Rana, R Chatterjee, S Ro, D Levine, S Ramaswamy, P Perlekar, Phys Rev E **109**, 024603 (2024); arXiv:2305.15197

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12. Symmetry, Thermodynamics and Topology in Active Matter, M J Bowick, N Fakhri, M C Marchetti, S Ramaswamy, Phys. Rev. X **12**, 010501 (2022)

13. Active nonreciprocal attraction between motile particles in an elastic medium, R K Gupta, R Kant, H Soni, A K Sood, S Ramaswamy, Phys Rev E **105**, 064602 (2022) arxiv:2007.04860

14. Inversion of vortex flow around active microalgae under strong confinement, Debasmita Mondal, Ameya G. Prabhune, Sriram Ramaswamy, Prerna Sharma, eLife 2021;10:e67663

15. Heating leads to liquid-crystal and crystalline order in a two-temperature active fluid of rods, Jayeeta Chattopadhyay, Sindhana Selvi Pannir Sivajothi, Kaarthik Varma, Sriram Ramaswamy, Chandan Dasgupta, Prabal K. Maiti, Phys Rev E **104**, 054610 (2021); arxiv:2105.04571

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Hot Paper: `http://tinyurl.com/ks2c4g8`

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128. Dislocations and grain boundaries in quasicrystals, **S. Ramaswamy**, Phase Transitions **16**, 575 (1989).

129. Frequency-dependent viscosity of membrane solutions, Y. Marathe and **S. Ramaswamy**, Europhys. Lett. **8**, 581 (1989).

130. Static and dynamic properties of incommensurate smectic A_{ic} liquid crystals, T.C. Lubensky **S. Ramaswamy**, and J. Toner, Phys. Rev. **A 38**, 4284 (1988).

131. Comment on "Gravitomagnetic pole and mass quantisation", **S. Ramaswamy** and A. Sen, Phys. Rev. Lett. **57**, 1088 (1986).

132. Theory of shear-induced melting of colloidal crystals, **S. Ramaswamy** and S.R. Renn, Phys. Rev. Lett. **56**, 945 (1986).

133. Dislocation motion in quasicrystals and implications for macroscopic properties, T.C. Lubensky, **S. Ramaswamy**, and J. Toner, Phys. Rev. **B 33**, 7715 (1986).

134. Hydrodynamics of icosahedral quasicrystals, T.C. Lubensky, **S. Ramaswamy**, and J. Toner, Phys. Rev. **B 32**, 7444 (1985).

135. Elasticity and dislocations in pentagonal and icosahedral quasicrystals, D. Levine, T.C. Lubensky, S. Ostlund, **S. Ramaswamy**, P.J. Steinhardt and J. Toner, Phys. Rev. Lett. **54**, 1520 (1985).

136. Reply to "Comment on dynamical theories of the liquid-glass transition", S.P. Das, G.F. Mazenko **S. Ramaswamy**, and J.Toner, Phys. Rev. **A 32**, 3139 (1985).

137. Hydrodynamic theory of the glass transition, S.P. Das, G.F. Mazenko, **S. Ramaswamy**, and J. Toner, Phys. Rev. Lett. **54**, 118 (1985).

138. Smectics A and C are always glasses, **S. Ramaswamy** and J. Toner, Phys. Rev. Lett. **53**, 477 (1984).

139. Solid-like behaviour in liquid layers: A theory of the yield stress in smectics, **S. Ramaswamy**, Phys. Rev. **A 29**, 1506 (1984).

140. Breakdown of conventional hydrodynamics in three-dimensional systems with long-ranged two-dimensional translational order, **S. Ramaswamy** and J. Toner, Phys. Rev. **A 28**, 3159 (1983).

141. Breakdown of conventional hydrodynamics for smectic A, hexatic B and cholesteric liquid crystals, G.F. Mazenko, **S. Ramaswamy**, and J. Toner, Phys. Rev. **A 28**, 1618 (1983).

142. Viscosities diverge as $1/\omega$ in smectic A liquid crystals, G.F. Mazenko, **S. Ramaswamy** and J. Toner, Phys. Rev. Lett. **49**, 51 (1982).

143. The linear and nonlinear hydrodynamics of low friction adsorbed systems, **S. Ramaswamy** and G.F. Mazenko, Phys. Rev. **A 26**, 1735 (1982).

144. Dual mass in general relativity, **S. Ramaswamy** and A. Sen, J. Math. Phys. **22**, 2612 (1981).

145. Particle production by white holes, R.M. Wald and **S. Ramaswamy**, Phys. Rev. D **21**, 2736 (1980).

146. Birkhoff theorem for an R + R^2 theory of gravity with torsion, **S. Ramaswamy** and P.B. Yasskin, Phys. Rev. D **19**, 2264 (1979).

Our work highlighted in the press: Science, Nature Materials, Open Magazine, New Scientist

Invited articles and commentary

1. The matter of life, an interview in The Biologist **66**, 26 (2019)

2. Big Cells Cleave as Fast as Small Ones: the Physics of Cytokinesis, S. Ramaswamy, Biophys J, **106**, 5 (2014)

3. *Filaments band together*, J.-F. Joanny and S Ramaswamy, Nature (News and Views) **467** (2010) 33

4. Rheological chaos in wormlike micelles and nematic hydrodynamics M. Das, R. Bandyopadhyay, B. Chakrabarti, C. Dasgupta, S. Ramaswamy and A.K. Sood, in *Molecular Gels: Materials with Self-Assembled Fibrillar Networks*, Richard G. Weiss and Pierre Terech (editors), Kluwer, Amsterdam (2006).

5. Stripes in sheared non-brownian suspensions with a free surface, R. Govindarajan, P.R. Nott and **S. Ramaswamy**, Proc. Statphys Kolkata 2002 Physica A **318** (2003) 80-84.

6. Statistical hydrodynamics of ordered suspensions of self-propelled particles: waves, giant number fluctuations and instabilities, R.A. Simha and S. Ramaswamy (Proc. STATPHYS21) Physica A **306** (2002) 262-269.

7. Phase Diagram of a Two-Species Lattice Model with a Linear Instability, S. Ramaswamy, M. Barma, D. Das, and A. Basu (Proc. Discussion Meeting on Slow Dynamics and Freezing, JNU), *Phase Transitions* B **75** (2002) 363-375

8. Steady states of dynamically coupled two-species systems, M. Barma and **S. Ramaswamy**, Turk. J. Phys. **24** (2000) 235 (Proc. Regl. Conf. Math. Phys.).

9. Pollen grains, random walks, and Einstein, **S. Ramaswamy**, Resonance **5** (2000) 16-34.

10. Steady states and instabilities in active membranes, **S. Ramaswamy**, J.Toner, and J. Prost, Proc. Raman Research Institute Golden Jubilee Conf. on Liquid Crystals and Other Soft Condensed Matter; Pramana **53** (1999) 237.

11. Hydrodynamic screening in Stokesian fluidised beds: A. Levine, **S. Ramaswamy**, E. Frey, and R. Bruinsma, in *Structure and Dynamics of Materials in the Mesoscopic Domain* (Proc. 4th Royal Society-Unilever Indo-UK Forum in Mat. Sci. and Engg.), Eds. Moti Lal, R.A. Mashelkar, B.D. Kulkarni, V.M. Naik (Imperial College Press and The Royal Society, 1999) pp. 195-206.

12. The nonequilibrium statistical mechanics of sedimentation: **S. Ramaswamy**, in *Dynamics of Complex Fluids*, Eds. M J Adams, R A Mashelkar, J R A Pearson and A R Rennie, Imperial College Press – The Royal Society 1998.

13. (i) Self-diffusion of colloids at freezing; (ii) Shear-enhanced diffusion in colloids; (iii) Excess dissipation in dense emulsions; three chapters in *Dynamical theory of complex fluids* (NATO ASI), Ed. T C B McLeish, Kluwer 1997.

14. The physical properties of entropic quasicrystals: **S. Ramaswamy**, invited paper in Proc. Indo-US workshop on Interfaces (1989), published by Oxford University Press, 1992.

15. The nature of dislocation motion in quasicrystals, S. Ramaswamy, Bull. Mat. Sci. **10**, 75 (1988).

Invited Conferences, Workshops, Schools & Public Lectures

Upcoming included

1. Invited member, KITP program New Trends in Non-equilibrium Dynamics, May-June 2026.

2. Conference on Active Matter, Niels Bohr Institute, Copenhagen, April 2026

3. Invited lecture at Hydrodynamic Approaches to Active Matter: Successes and Future Challenges, MPIPKS Dresden, 6 - 10 October 2025 (conference postponed to Nov 2026)

4. Invited lecture at From flocking birds to migrating cells, Leiden, 7-11 July 2025

5. Invited lecture at 10th International Discussion Meeting on Relaxations in Complex Systems, Barcelona, 20-25 July 2025

6. Theory and Concepts in Biology, EMBL Heidelberg, 6-9 May 2025 (invited organiser)

7. Zachariasen Memorial Lecture, Department of Physics, University of Chicago, 18 Apr 2025

8. Golden Jubilee Distinguished Lecture, University of Hyderabad, 22 Jan 2025

9. KITP program Active solids: from metamaterials to biological tissue, 14 Oct to 20 Dec 2024

10. Lecture in the 8th International Soft Matter Conference, Raleigh NC USA, 29 Jul - 2 Aug 2024

11. Lecture in the workshop Anti-Diffusion in Multiphase and Active Flows, 5 June 2024, in the Programme *Anti-diffusive dynamics: from sub-cellular to astrophysical scales*, Isaac Newton Institute, Cambridge.

12. Lecture as Rothschild Distinguished Visiting Fellow, 5 June 2024, in the Programme *Anti-diffusive dynamics: from sub-cellular to astrophysical scales*, Isaac Newton Institute, Cambridge, Jan-Jun 2024.

13. *Living Matter and Matter Brought to Life*, Public Lecture on National Science Day, Karnatak University Dharwad, 28 Feb 2024.

14. Lecture on Chiral Active Matter in the Symposium on Active and Living Matter, IIT Bombay, 22-23 Feb 2024

15. Lecture Anti-diffusive phenomena in active matter in the workshop Layering — A structure formation mechanism in oceans, atmospheres, active fluids and plasmas, 15 Jan 2024, in the Programme *Anti-diffusive dynamics: from sub-cellular to astrophysical scales*, Isaac Newton Institute, Cambridge, Jan-Jun 2024.

16. Lectures on Active Matter, Advanced School in Theoretical Physics, on Geometry, Topology and Mechanics in Soft Condensed Matter, Israel Institute of Advanced Study, Jerusalem, 1-12 Jan 2024 [Cancelled]

17. Lecture on Non-reciprocal Classical Magnets at Statphys Kolkata XII, SN Bose National Centre for Basic Sciences, 18-22 Dec 2023

18. Lecture at Frontiers in Statistical Physics, Raman Research Institute, Bangalore, 4 - 8 Dec 2023.

19. The Allure of Active Matter: Infosys-ICTS Chandrasekhar Lectures, 6 to 8 Nov 2023, as part of the discussion meeting Active Matter and Beyond, International Centre for Theoretical Sciences, TIFR, Bangalore.

20. Lecture at Active Matter in Complex Environments, 23 Oct 2023 to 3 Nov 2023, ICTS-TIFR, Bangalore

21. Lecture at Frontiers in Physics of Soft and Biological Matter, Raman Research Institute, Bangalore, 25 to 30 Sep 2023.

22. Workshop on Hydrodynamics at all Scales, NORDITA, Stockholm, Sep 2023

23. Programme *New statistical physics in living matter: nonequilibrium states under adaptive control*, Isaac Newton Institute, Cambridge, 3 to 7 July & 2 to 20 Oct 2023; invited lecture at opening workshop, July 2023

24. *Theory and concepts in biology*, EMBL Symposium, EMBL Heidelberg, 18 - 21 Jul 2023

25. Workshop at Nonlinear and Non-equilibrium Physics Unit, OIST, Okinawa, Japan, 26-30 June 2023.

26. Lecture at *Physics of Cells & Tissues*, Biosystems Science and Engineering, IISc, Bengaluru, 15-16 Feb 2023.

27. Lecture at Workshop *From Soft Matter to Biophysics*, in honor of Jean-François Joanny, Les Houches, France, 29 Jan to 3 Feb 2023

28. Lectures at School and Conference on Physics of Active Matter, Coyhaique, Chile, 18-22 Oct 2022

29. Workshop on *Current & Future Themes in Soft and Biological Active Matter*, NORDITA, Stockholm, 1-19 Aug 2022

30. Plenary lecture at the International Liquid Crystal Conference, July 2023, Lisbon

31. Lecture at *Active matter: the next 25 years*, Lorentz Center, Leiden, 22-26 Aug 2022

32. Lecture at *Biological Fluids & Flows*, Centre for Mathematical Sciences, Cambridge University, 31 March 2022

33. Directions in Active Matter; Distinguished Lecture in Natural Sciences, Shanghai Jiao Tong University, 16 Nov 2021

34. Lecture in International Biophysics Workshop *The Physics of Information Transfer in Biological Systems*, hosted (online) by SBASSE, LUMS, Lahore, Pakistan, 25-26 March 2021

35. Public Webinar *Living and Lifelike Matter* hosted by the IIT Alumni Centre Bangalore, 20 March 2021

36. Theoretical Physics Colloquium, Oxford University, 5 March 2021

37. Lecture in Indian National Science Academy Fellows Webinar Series, on Exploring Active Matter, 11 Feb 2021

38. Colloquium, *A journey through active matter*, Department of Physics, University of Tokyo, 15 Jan 2021

39. Israel Physics Colloquium, *A journey through active matter*, 21 Dec 2020

40. Webinar *Aligned active suspensions: superdiffusion and hydrodynamic phase separation*, at Complex Fluids 2020, 12 Dec 2020.

41. Invited webinar entitled *The feeling isn't mutual: non-reciprocal interactions in active matter* in the Statistical and Nonlinear Physics series hosted by SUNY Buffalo, 17 Oct 2020

42. Webinar entitled *The feeling isn't mutual: non-reciprocality in active matter* in the Theory of Living Systems series

43. Correlation, response and entropy production in active matter (tutorial talk) and Non-mutual interactions and stealthy pursuit by motile particles in an elastic medium (research talk) in the *BPPB Seminar Series*, 4 Sep 2020

44. Surprises in Slow Spheroid Sedimentation in the *klogW Seminar Series* of the Topical Group on Statistical & Nonlinear Physics of the American Physical Society, 3 Sep 2020.

45. Coordinator (along with M J Bowick, M E Cates, N Fakhri, and M C Marchetti), of the program *Symmetry, Thermodynamics and Topology in Active Matter* at the Kavli Institute for Theoretical Physics, UC Santa Barbara (originally 16 March - 29 May 2020), held online 1 Apr - 29 May 2020

46. Bose Colloquium, SN Bose National Centre for Basic Sciences, Kolkata, 10 Jan 2020

47. Lecture at *Recent Topics in Statistical Mechanics*, NISER, Bhubaneswar, 11 Dec 2019

48. Lecture at One-day symposium on Soft, Active and Living Matter, in honour of Aditi Simha, 10 Dec 2019, IIT Madras

49. Lecture at Universality: Turbulence Across Vast Scales, Flatiron Institute, New York, 2-6 Dec 2019

50. Lecture at Gordon Conference on Liquid Crystals, Colby-Sawyer College, New London NH, USA, 7-12 July 2019

51. Plenary lecture, International Soft Matter Conference, Edinburgh, 3-7 June 2019

52. Lecture: *Fluid Flocks with Inertia* at workshop Optimal design of soft matter, Isaac Newton Institute, Cambridge, 13-17 May 2019

53. Lecture: Dry Active Matter and Vibrated Grains at one-day conference, Edwards Centre for Soft Matter, Cambridge University, 24 May 2019

54. Lecture at "Advances in Physics of Emergent orders in Fluctuations"(APEF2018), University of Tokyo, Japan, 12-15 Nov 2018.

55. Lectures at "Entropy, Information and Order in Soft Matter", ICTS-TIFR Bangalore, 19-21 Sep 2018

56. Lecture at inaugural Rudolf Peierls Symposium on Theoretical Physics, Oxford University, 5-6 July 2018

57. Lecture at "Physics Next", Long Island, NY, 24-27 Apr 2018

58. Lecture at 2018 MRS Spring Meeting (Symposium on Active Colloids with Order), Phoenix, 2-6 Apr 2018

59. Invited participant, KITP Program on Dense Suspensions, UC Santa Barbara, 12-29 March 2018

60. Science Day public lectures organised by the Karnataka Rajya Vijnana Parishat, Shivamogga, 28 Feb 2018

61. Lectures at School on Statistical Physics, Sarvajanik College, Surat, 18-30 Dec 2017

62. Lecture at Rutgers Meeting on Statistical Physics, 17-19 Dec 2017

63. Lecture at Principal of Condensed Matter: A Symposium in Honor of Tom Lubensky, University of Pennsylvania, Philadelphia, 4-5 Nov 2017

64. Lecture at Indo-Israeli meeting on Frontiers in Condensed Matter Physics, Indian Inst of Science, Bangalore, 17-19 Oct 2017

65. Colloquium Ehrenfestii, Leiden University, 25-28 Sep 2017

66. Lecture, Discussion Meeting on Soft Matter, Georgetown University, 17-18 Aug 2017

67. Lecturer, Bangalore School on Statistical Physics, 4 to 14 July 2017

68. Lecturer, Advanced school on experimental and theoretical approaches to cell mechanics, NCBS, Bangalore, 23 April - 6 May 2017

69. Lecture, Statphys Kolkata, Dec 2016

70. Lecture, CompFlu, Hyderabad, Dec 2016

71. S Datta Majumdar Memorial Lecture, IIT Kharagpur, 16 Nov 2016

72. TEDx lecture on Active Matter, National Institute of Technology Karnataka, Surathkal, 18 Oct 2016

73. Mechanical Forces in Cell Biology: Information at the Cell and Tissue scale, NCBS, Bangalore, 4-6 Oct 2016

74. NISER Foundation Day lecture, 6 Sep 2016, NISER, Bhubaneswar

75. Plenary speaker, STATPHYS26, Lyon, July 2016

76. Lecture, IASBS-ICTP School on Active Matter and Chemotaxis, Zanjan, Iran, May 2016

77. Lecture, SFB on Collective Behavior of Soft and Biological Matter, Hohegeiss, Germany, Nov 2015.

78. Lecture, Soft Matter Gordon Research Conference, 10-14 Aug 2015

79. Lecture, Quantitative Biomedicine Symposium, Warwick Univ, May 2015

80. Lecture, (i) Active Matter Conference, Suzhou, China and (ii) Spring School on Active Matter, Beijing Computational Science Research Centre, May 2015

81. Lecture, Cell Mechanics Conference, Raman Research Institute, Bangalore, 24-26 April 2015

82. Lecture, German Physical Society (special session in honour of Siegfried Hess), Berlin, March 2015

83. Public lecture, S S Bhatnagar Institute for Chemical Engineering and Technology, Panjab University, Chandigarh, 21 Feb 2015

84. Lecture, Current Topics in Condensed Matter Physics, NISER, Bhubaneswar, 19-21 Feb 2015

85. Lecture, Mini Statmech Meeting, Berkeley, Jan 2015

86. Lecture, Focused Program on Physics Approach to Simplifying Complexity in Biology, Hong Kong University of Science and Technology, Dec 2014

87. Public lecture, Soft Matter Program, Syracuse University, October 2014

88. Lecturer, Beg Rohu summer school on statistical physics and condensed matter, Brittany, France, Sep 2014.

89. Lecture, conference in honour of Aneesur Rahman, Univ of Hyderabad, Aug 2014

90. Lecturer at 2014 Summer School on Active Systems, Gwangju Institute of Science and Technology, Gwangju, Korea, 22 Jun - 4 Jul 2014

91. Coordinator (with M C Marchetti and C Schmidt) of the Program on *Active Matter: Cytoskeleton, Cells, Tissues and Flocks*, KITP, UC Santa Barbara, Jan-May 2014.

92. Lecture at the March meeting of the Condensed Matter Division of the American Physical Society, Denver, March 2014

93. Lecture at Conference on Frontiers of Soft Matter Physics: from Non-equilibrium Dynamics to Active Matter, Hong Kong University of Science and Technology, 13 – 17 Jan 2014

94. Lecture at Symposium on Complex Systems : From Physics to Biology" 15-16 Oct 2013, JNU, New Delhi.

95. Lecturer, I-CAMP'13 summer school, programme on the Mathematics of Liquid Crystals, Isaac Newton Institute, Cambridge University, June 2013

96. Invited member, programme on Mathematical Modelling and Analysis of Complex Fluids and Active Media in Evolving Domains, Isaac Newton Institute, Cambridge University, June 2013

97. Prof. Sivaramakrishnan Chandrasekhar Memorial Lecture, Centre for Soft Matter Research, Bangalore, June 2013

98. Motile Matter – Higgs Centre Colloquium, University of Edinburgh, 8 March 2013

99. Public Lecture at Science Day symposium, IISER Pune, 28 Feb 2013.

100. Infosys Prize Lecture, University of Hyderabad, 25 Feb 2013.

101. Lecture at the conference "Self-organization and Emergent Dynamics in Active Soft Matter", Yukawa Institute for Theoretical Physics, Kyoto, 18-20 Feb 2013

102. Lecture at Conference on Condensed Matter and Biological Systems, BHU, Varanasi, 11-14 Jan 2013

103. Lecture at B12B, Silver Jubilee of CCMB, Hyderabad, 25-27 Nov 2012.

104. Lecture at workshop on Nonequilibrium collective dynamics – Bridging the gap between hard and soft materials, Potsdam, Germany, 1-4 Oct 2012.

105. Lecture at Workshop on Active Soft and Biological Matter, in honor of Jacques Prost, Les Houches, France, 30 Sep - 5 Oct 2012.

106. Lecture at Frontiers in Physics, University of Hyderabad, 27-28 Sep 2012

107. Lecture at De Gennes Days on Physics of Cells, from soft to living matter (PhysCell2012), Hyères, France, 4-7 Sep 2012

108. Lecture at IUTAM Symposium "Mobile Particulate systems", Bangalore, 23-27 January 2012

109. Lecture at Current Topics in Condensed Matter, IISER Kolkata 7-9 Oct 2011

110. Lecture at "Emerging paradigms in Physical Biology", 27-28 Aug 2011, NCBS, Bangalore

111. Fluctuations and Response in Active Materials: From Driven Granular Systems to Swarming Bacteria, 20-24 Jun 2011, Lorentz Center, Leiden, Netherlands

112. Individual and Collective Dynamics in Active Suspensions, 9-10 June 2011, Institut Henri Poincaré, Paris

113. Co-director, School and Conference on Mathematics and Physics of Soft and Biological Matter, ICTP, Trieste, 2-13 May 2011

114. The Hydrodynamics of Suspensions of Active Filaments: Indo-US Conference on Gels, Thiruvananthapuram, January 2011

115. Active Matter – liquid-crystal hydrodynamics in a new setting: DAE Solid State Symposium, Manipal, December 2010

116. Lecturer, Workshop on Active Materials, 17 to 19 Nov 2010 at the Universiteit Stellenbosch, South Africa.

117. Lecture, International Workshop on "Statistical physics and biology of collective motion", 8 to 12 Nov 2010 at the Max Planck Institute for the Physics of Complex Systems, Dresden.

118. Lecture, Workshop on Individual and Collective Fluid Mechanics of Swimming Microorganisms, 6-8 July 2010 in Glasgow, Scotland

119. Lecture, 2010 Gordon Research Conference on Granular & Granular-Fluid Flow, 20-25 June 2010 at Colby College, Waterville, Maine.

120. Lecturer, school on nonequilibrium physics, 22 March to 3 April 3 2010, Raman Research Institute, Bangalore.

121. Sivaramakrishna Chandrasekhar Lecture at Workshop on Nonequilibrium Statistical Physics, IIT Kanpur, February 2010.

122. Lecture at conference in honour of Albert Libchaber, entitled Breaking barriers: from Physics to Biology, National Centre for Biological Sciences, Bangalore, January 2010.

123. Lecture, conference on Evolution of Complex Systems, Bangalore, January 2010.

124. Invited panelist at Inaugural Event of the International Centre for Theoretical Sciences, Bangalore, December 2009

125. Lecture, workshop on Flowing Complex Fluids: Rheological measurements and constitutive modeling, Institute for Mathematics and its Applications, University of Minnesota, 14-18 Sep 2009.

126. (cancelled due to illness) Lecture, workshop on Nonequilibrium Physics, Yukawa Institute for Theoretical Physics, Kyoto, 21 July to 14 August 2009.

127. Lecturer, Institut Henri Poincaré, "Physique statistique des systèmes actifs, January 2009.

128. Lecture, Complex Fluids Workshop, Monash University, Melbourne, Australia, August 2008.

129. Lecture, International Conference on Theoretical and Applied Mechanics, Adelaide, Australia, August 2008.

130. Plenary speaker, International Liquid Matter Conference, Lund (Sweden), June 26 - July 1, 2008.

131. Invited organizer of focus session on self propelled particles, APS March meeting, New Orleans, March 2008.

132. Lecture, Conference on Nonequilibrium Phenomena in Condensed Matter, New Delhi, February 2008

133. Lecturer, Autumn School on Physics of New Materials, Tribhuvan University, Kathmandu, October 2007.

134. Lecture, International Conference on Advanced Materials of the International Union of Materials Research Societies, Bangalore, 8-13 October 2007.

135. Lecture, Mesoscale modelling for complex fluids and flows, Oxford University, June 2007.

136. Lecture, meeting of the Condensed Matter Division of the American Physical Society, Denver, March 2007.

137. Lecture, "Assembly, Organization and Propulsion in Complex Systems, 22-24 Feb 2007, IIT Madras.

138. Lecturer, SERC School on Nonlinear Dynamics, Kolkata, 20-21 Dec 2006.

139. Lecture, Third National Symposium on Complex Fluids, 14-15 Dec 2006, IIT Kanpur.

140. Lecture, "Dynamics of Complex Fluids – Ten Years On", 2 to 5 Oct 2006, Isaac Newton Institute for Mathematical Science, Cambridge University, UK

141. Invited member, Kavli Institute for Theoretical Physics, Santa Barbara, May 2006.

142. Invited organiser of Workshop on Driven States in Soft and Biological Matter, Abdus Salam International Centre for Theoretical Physics, Trieste, 18-28 April 2006.

143. Lecture at India-UK Science Networks workshop, Raman Research Institute, November 2005

144. Lecture at Heraeus Workshop on Nonlinear Dynamics of Complex Continua, Bayreuth, Germany, October 2005.

145. Lecture at Conference on Statistical Mechanics of Plasticity and Related Instabilities, Bangalore, August 2005.

146. Lecture at the Workshop on Frontiers of Soft Condensed Matter, ExxonMobil Corporate Strategic Research Laboratory, New Jersey, USA, 18-20 May 2005

147. Lecture at the NBHM Workshop on Hydrodynamics, IISc, Bangalore.

148. Lecturer at the Taiwan Soft Matter Summer School, Yang-ming National Park, Taiwan September 2004.

149. Lecture at the Statphys Satellite meeting on Pattern Formation, S N Bose National Centre for Basic Sciences, Kolkata, July 2004.

150. Lecture at the Statphys Satellite meeting on Statistical Physics of Complex Fluids, Zanjan, Iran, June 2004.

151. Lecturer at the the SERC School on Statistical Physics, TIFR, Mumbai, February 2004.

152. Lecture at TP-2003: National Conference on Theoretical Physics in celebration of 50 years of the Department of Theoretical Physics, Indian Association for the Cultivation of Science, Kolkata, 21-24 Jan 2003

153. Lecture at the 4th KAIST-UCSB Invitation Workshop on Advanced Materials, at the Korea Advanced Institute of Science and Technology (KAIST), 2-5 Nov 2002.

154. Invited member, Institute for Theoretical Physics, Santa Barbara, for the programme on Dynamics of Complex and Macromolecular Fluids, May-June 2002.

155. Lecture at the Indo-Israeli Meeting on Condensed Matter Physics, Israel Academy of Sciences, Jerusalem, Israel, January 2002.

156. Lecture at STATPHYS 21, Cancun, Mexico, July 2001.

157. Lectures at the Discussion Meeting and School on The Physics of Biological Systems, held by the Kumari L A Meera Trust, Mysore, Feb 2001.

158. Lecture at India and Abroad: Research Perspectives and Projections in Condensed Matter Physics, S N Bose National Centre for Basic Sciences, Kolkata, 2-4 January 2001

159. Lecture on the Statistical Mechanics of Sedimentation, at the American Institute of Chemical Engineers Annual Meeting, Los Angeles, 12-17 November 2000.

160. Popli Memorial lecturer (three Lectures) at St Stephen's College, Delhi, 6-8 November 2000.

161. Lectures at a workshop on Soft Matter: Physical and Biological Aspects, Australian National University, Canberra, 22-29 October 2000.

162. Lecture at the Unilever CREF Annual Physical Sciences Review, Port Sunlight, UK, 17-19 October 2000.

163. Invited member and speaker at the Aspen Center for Physics workshop on Stochastic Dynamics of Continuous Media, 19 June to 9 July 2000.

164. Lecture at the Discussion Meeting on Slow Dynamics and Freezing, School of Physical Sciences, Jawaharlal Nehru University, New Delhi, 9 and 10 March 2000.

165. Invited organiser (along with A K Sood) and lecturer at the Discussion Meeting and School on Soft Condensed Matter, held by the Kumari L A Meera Trust, Mysore, 26 Jan to 2 Feb 2000.

166. Lecture at the Complex Materials Conference at the University of California, Santa Barbara, USA 22-27 August 1999.

167. Lecture at the 1st Indo-Israeli Symposium on Condensed Matter and Materials Physics, New Delhi, January 1999.

168. Lecture at the Raman Research Institute Golden Jubilee Conference on Liquid Crystals and Other Soft Condensed Matter, Bangalore, December 1998.

169. Lecture at the UCSB/JNCASR/IISc Workshop on Materials, Bangalore, November 1998.

170. Lecture at the 5th IUMRS International Conference in Asia, Bangalore, October 1998.

171. Three Lectures at 'Physical Concepts at the scale of the cell', Cargèse, July 1998.

172. Invited organiser of a Spring College on The Statistical Mechanics and Dynamics of Soft Condensed Matter, and an Adriatico Research Conference on Complex Fluids Far From Equilibrium, ICTP, Trieste, 4 May - 12 June 1998.

173. Invited keynote lecture at the Royal Society - Unilever - IndoUK Forum on 'Structure and Dynamics of Materials in the Mesoscopic Domain', Pune, December 1997.

174. Lecture, workshop on Polymers and Membranes, Kleinmachnow, Germany, Sep 1996

175. Lecture, Conference on the Dynamics of Complex Fluids, a Royal Society - Unilever - IndoUK Forum, Cavendish Lab and Isaac Newton Institute, Cambridge June 1996.

176. Lectures at the NATO Advanced Study Institute and Workshop on the Dynamics of Complex Fluids, Isaac Newton Institute, Cambridge, 24 March to 20 April 1996.

177. Lecture, DAE Solid State Symposium, Calcutta, December 1995

178. Workshop on The Physics of Biomembranes, Institute for Theoretical Physics, University of California, Santa Barbara, August to December 1994.

179. Gordon Research Conference on Complex Fluids, Irsee, Germany, Sep-Oct 1993.

180. Discussion Meeting on Dynamical Aspects of Fluid Phases, School of Physical Sciences, Jawaharlal Nehru University, New Delhi, January 1993.

181. Aspen Centre for Physics: Membranes workshop, summer 1992.

182. Statistical Physics of Polymers, Disordered Solids & Glasses, Calcutta Dec '91 - Jan '92

183. First International Conference on Liquid Matter, Lyon, France 1990.

184. Nehru Centre Workshop on Complex Fluids, Bangalore 1990.

185. Indo Soviet Discussion Meeting on Phase Transitions, Bangalore 1990.

186. Adriatico 25th Anniversary Conference on Quasicrystals at ICTP, Trieste, 1989.

187. Indo-US Workshop on Interfaces, Bangalore 1989.

188. Modulated Structures, Polytypes and Quasicrystals, Banaras 1988.

189. Quasicrystals Workshop, Institute for Theoretical Physics, Santa Barbara 1987.

190. Aspen Center for Physics, Workshop on Glassy Dynamics, August 1985.

191. Lecture "Unconventional Hydrodynamics of Anisotropic Materials", APS March Meeting, Detroit 1984.

192. Aspen Center for Physics, Workshop on Exotic Ordered Phases, August 1983.

Awards and honours:

1. Elected International Member, US National Academy of Sciences, April 2025
2. Rothschild Distinguished Visiting Fellow, Isaac Newton Institute, Cambridge, 2024
3. SASTRA G N Ramachandran Award for Physics, 2023
4. Meghnad Saha Gold Medal of the Asiatic Society, Kolkata, March 2021
5. KITP Simons Distinguished Visiting Scholar, Kavli Institute for Theoretical Physics, University of California, Santa Barbara, March-April 2018.
6. Alumni Award for Excellence in Research, Indian Institute of Science, 2018
7. Homi Bhabha Chair (Tata Education and Development Trust) Oct 2017-Sep 2020
8. DSc *honoris causa*, Coochbehar Panchanan Barma University, West Bengal, 2017
9. Elected Fellow of the American Physical Society, October 2016
10. H K Firodia Vijnan Ratna Award for 2016
11. Elected a Fellow of the Royal Society, April 2016
12. Infosys Prize for the Physical Sciences 2011
13. Outstanding Referee for the American Physical Society 2010
14. J C Bose National Fellowship since 2007 (renewed 2012, 2017, 2022)
15. G. D. Birla Prize for Science, 2006
16. Elected Fellow of the Indian National Science Academy, Jan 2004
17. Chaire Paris Sciences, ESPCI Paris, May 2003
18. Shanti Swarup Bhatnagar Prize for the Physical Sciences for 2000
19. NASI Young Scientist Millenium Award, 2000
20. B.M. Birla Memorial Prize for Physics for the year 1996 (announced 1998).
21. Elected a fellow of the Indian Academy of Sciences, 1996
22. N.S. Satyamurthy Award for 1988
23. Elected an Associate of the Indian Academy of Sciences 1988-1992

Editorial Board and International Committee Memberships

1. Member, Board of Reviewing Editors, PNAS Nexus
2. Member, International Advisory Committee, STATPHYS28, Tokyo, August 2022.
3. Editorial Board of Reports on Progress in Physics, since March 2021.
4. Editorial Board of Journal of Statistical Mechanics: Theory and Experiment, since January 2004.
5. Advisory Board of Soft Matter since May 2008

Past Editorial Board and International Committee memberships

1. Editorial Committee, Annual Review of Condensed Matter Physics, 1 Jan 2011 - 31 Dec 2020.
2. Editorial Board, Proceedings of the Royal Society A: Mathematical, Physical & Engineering Sciences, Jan 2018 - Dec 2020
3. Member, Scientific Committee, 12th European Biophysical Societies Association, for the 10th ICBP-IUPAP Biophysics Congress, Madrid, July 2019.
4. Advances in Physics, June 2007 - Dec 2018.
5. Member, Editorial Board, European Physical Journal E, Dec 2009 - Dec 2018
6. Physical Review E
7. Member (2006-2011) and vice-chair (2008-2011), C3 Commission (Statistical Physics) of the IUPAP; member, Steering Committee of Statphys24, the XXIV international conference on statistical physics of the IUPAP
8. Liquid Crystals
9. Current Science
10. Resonance

Current and Recent Research Grants:

1. PI on *Theoretical, numerical, and experimental investigation of the collective behaviour of active magnetic swarms*, Core Research Grant from the SERB, India. Co-PI: Ambarish Ghosh, CeNSE and Physics, IISc; Rs 12,514,416 (Rs 1.25 crore)
2. J C Bose Fellowship of the Department of Science and Technology, India; research grant: Rs 2 500 000 per year; 2007-2025 (renewed 2012, renewed 2017, renewed 2022)
3. Homi Bhabha Chair Professorship of the Tata Education and Development Trust, Oct 2017 - Oct 2020; research grant: Rs 1 000 000 per year; research funds till 31 March 2021