CURRICULUM VITAE

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Citizen of India
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Education:
PhD (Physics) Univ. of Chicago 1983
BS (Physics, High Honours) Univ. of Maryland 1977
All-India Higher Secondary Certificate: The Modern School, New Delhi, 1973

Positions held:

1. 26 May 2002-present: Professor, Department of Physics, Indian Institute of Science, Bangalore

2. 28 July 2012 - 26 Oct 2016: Senior Professor and Centre Director, TIFR Centre for Interdisciplinary Sciences, Hyderabad

3. 26 May 1996 - 25 May 2002: Associate Professor, Department of Physics, Indian Institute of Science, Bangalore.

4. March 1990 - May 1996: Assistant Professor, Centre for Theoretical Studies (upto 30 June 1995) and Dept. of Physics, Indian Institute of Science, Bangalore.

5. May 1986 - March 1990: UGC Research Scientist A, Physics Department, Indian Institute of Science, Bangalore.

6. University of Pennsylvania: Postdoctoral Research Investigator Dept. of Physics, Sep. 1983 -May 1986.

Additional affiliations:

- Adjunct Professor, Tata Institute of Fundamental Research, 2017-20
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Research Interests:

Nonequilibrium, soft-matter and biological physics

PUBLICATIONS:

Submitted or preprints:

- Kepler orbits of settling discs, R Chajwa, N Menon, S Ramaswamy, https://arxiv.org/abs/1803.10269
- Inferring critical points of ecosystem transitions from spatial data, S Majumder, K Tamma, S Ramaswamy, V Guttal https://www.biorxiv.org/content/early/2017/09/12/187799
- Asymmetric exchange in flocks, L P Dadhichi, R Chajwa, A Maitra and S. Ramaswamy, arXiv:1605.00981
- Trapping active rods: motility-induced condensation in a wedge, N Kumar, R K Gupta, H Soni, S Ramaswamy, A.K. Sood, https://arxiv.org/abs/1803.02278

Published or accepted; refereed journals:

1. Origins and diagnostics of the nonequilibrium character of active systems, L P Dadhichi, A Maitra, S Ramaswamy, J Stat Mech (to appear); https://arxiv.org/abs/1808.08997

2. Defect unbinding in active nematics, S Shankar, M C Marchetti, S Ramaswamy and M J Bowick, https://arxiv.org/abs/1804.06350, Phys Rev Lett **121**, 108002 (2018).

3. Stability from activity, A Maitra, P Srivastava, M C Marchetti, J Lintuvuori, S Ramaswamy, and M Lenz, PNAS **115** 69346939 (2018); https://arxiv.org/abs/1711.02407

4. The low noise phase of a 2d active nematic, S Shankar, S Ramaswamy, M C Marchetti http://arxiv.org/abs/1710.05400; Phys Rev E **97** (2018) 012707; Editor's Choice https://journals.aps.org/pre/abstract/10.1103/PhysRevE.97.012707

5. Active Matter, S Ramaswamy, J. Stat. Mech. (2017) 054002

6. Hydrodynamic instabilities in active cholesteric liquid crystals C A Whitfield, T C Adhyapak, A Tiribocchi, G P Alexander, D Marenduzzo, and S Ramaswamy, arXiv:1701.05022, Eur Phys Jour E **40** (2017) 50

7. The glass susceptibility: growth kinetics and saturation under shear, S K Nandi, S Ramaswamy, Phys. Rev. E **94**, 012607 (2016); arXiv:1309.2389

8. Silent Flocks, Andrea Cavagna, Irene Giardina, Tomas S. Grigera, Asja Jelic, Dov Levine, Sriram Ramaswamy, Massimiliano Viale, Phys Rev Lett **114**, 218101 (2015); arXiv:1410.2868; Editor's Choice and highlighted with a Synopsis in Physics http://physics.aps.org/synopsis-for/10.1103/PhysRevLett.114.218101

9. Anisotropic Isometric Fluctuation Relations in experiment and theory on a self-propelled rod, Nitin Kumar, Harsh Soni, Sriram Ramaswamy, and A.K. Sood, Phys. Rev. E **91**, 030102 (R) (2015); arXiv:1502.04466

10. Active Viscoelastic Matter: from Bacterial Drag Reduction to Turbulent Solids, E. J. Hemingway, A. Maitra, S. Banerjee, M. C. Marchetti, S. Ramaswamy, S. M. Fielding, M. E. Cates, Phys Rev Lett **114**, 098302 (2015); arXiv:1410.6077

11. Flocking at a distance in active granular matter, Nitin Kumar, Harsh Soni, Sriram Ramaswamy and A.K. Sood, Nature Communications **5**: 4688 doi:10.1038/ncomms5688 (2014); arXiv:1402.4262v2;
highlighted in http://tinyurl.com/m3quo2f, http://tinyurl.com/l46stfj, http://tinyurl.com/l6zmzt8 http://tinyurl.com/mjcl862

12. Universal power law in crossover from integrability to quantum chaos, R Modak, S Mukerjee, S Ramaswamy, Phys. Rev. B **90** (2014) 075152; arXiv:1309.1865.

13. Aspects of the density field in an active nematic, S Mishra, S Puri and S Ramaswamy, Phil. Trans. R. Soc. A **372**: 20130364 (2014);
http://dx.doi.org/10.1098/rsta.2013.0364

14. Activating membranes, A Maitra, P Srivastava, M Rao and S Ramaswamy, Phys Rev Lett **112** (2014) 258101; arXiv:1311.5055.

15. Clusters, asters and collective oscillations in chemotactic colloids, S Saha, R Golestanian, S Ramaswamy, Phys Rev E **89** (2014) 062316; arXiv:1309.4947.

16. Nonequilibrium noise in electrophoresis: the microion wind, Suropriya Saha, S Ramaswamy, Phys Rev E **89** (2014) 032307

17. Actomyosin contractility rotates the cell nucleus, A Kumar, A Maitra, M Sumit, S Ramaswamy, G V Shivashankar, Sci. Rep. **4**, 3781; DOI:10.1038/srep03781 (2014); arXiv:1302.6052

18. Phase-Synchronized State of Oriented Active Fluids, S. Fürthauer and S. Ramaswamy, arXiv:1307.5705, Phys Rev Lett **111** (2013) 238102

19. Mesoscopic theory for fluctuating active nematics, E Bertin, H Chaté, F Ginelli, S Mishra, A Peshkov, S Ramaswamy, New J. Phys. **15** (2013) 085032; arXiv:1305.0772

20. The actin cortex as an active wetting layer, J.-F. Joanny, K. Kruse, J. Prost, S. Ramaswamy, arXiv:1302.5025, Eur. Phys. J. E **36** (2013) 52

21. Yielding and large deviations in micellar gels: a model, S K Nandi, B Chakraborty, A K Sood and S Ramaswamy, J. Stat. Mech. (2013) P02027; arXiv:1210.1987

22. Live Soap: Order, Fluctuations and Instabilities in Active Smectics, T.C. Adhyapak, S. Ramaswamy, and John Toner, http://arxiv.org/abs/1204.2708, Phys. Rev. Lett. **110** (2013) 118102

23. Hydrodynamics of soft active matter, M. C. Marchetti, J.-F. Joanny, S. Ramaswamy, T. B. Liverpool, J. Prost, M. Rao, R.A. Simha, Rev. Mod. Phys. **85** (2013) 1143-1189, http://arxiv.org/abs/1207.2929

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25. A drop of active matter, J.-F. Joanny and S. Ramaswamy, J. Fluid Mech., **705** (2012) 46-57; `arXiv:1201.2794`.

26. Oscillatory settling in wormlike-micelle solutions: bursts and a long time scale, Nitin Kumar, Sayantan Majumdar, Aditya Sood, Rama Govindarajan, Sriram Ramaswamy and A.K. Sood, Soft Matter **8** (2012) 4310;
Hot Paper: `http://tinyurl.com/ks2c4g8`

27. The mode-coupling glass transition in a fluid confined by a periodic potential: general theory and results in one dimension, S.K. Nandi, S.M. Bhattacharyya, S. Ramaswamy, Phys. Rev. E **84** (2011) 061501.

28. Symmetry Properties of the Large-Deviation Function of the Velocity of a Self-Propelled Polar Particle, Nitin Kumar, Sriram Ramaswamy, and A. K. Sood, Phys. Rev. Lett. **106** (2011) 118001 (Editor's Suggestion)

29. The Mechanics and Statistics of Active Matter, S Ramaswamy, Annu. Rev. Condens. Matt. Phys. **1** (2010) 323-345 (Inaugural Issue)

30. A dynamic renormalization group study of active nematics, S Mishra, R A Simha and S Ramaswamy, J. Stat. Mech. (2010) P02003

31. Dynamics of a stiff biopolymer in an actively contractile background: buckling, stiffening and negative dissipation, N Kikuchi, A Ehrlicher, D Koch, J A Kaes, S Ramaswamy, M Rao, PNAS **106** (2009) 19776-19779

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33. Instabilities and waves in thin films of living fluids, Sumithra Sankararaman and Sriram Ramaswamy, Phys Rev Lett **102** (2009) 118107 (arxiv.org/0809.4918)

34. Exact solution of a Brownian inchworm model for self-propulsion, A. Baule, K. Vijay Kumar and S. Ramaswamy, J. Stat. Mech. (2008) P11008

35. Active elastic dimers: self-propulsion and current reversal on a featureless track, K. Vijay Kumar, S. Ramaswamy and M. Rao, Phys Rev E **77**, 020102 R (2008)

36. Active-filament hydrodynamics: instabilities, boundary conditions and rheology, S. Ramaswamy and M. Rao, New Journal of Physics **9** (2007) 423 (Focus Issue on Physics of the Cytoskeleton).

37. Perspectives on the mode-coupling approximation for the dynamics of interacting Brownian particles, A. Basu and S. Ramaswamy, J. Stat. Mech. (2007) P11003.

38. Long-lived giant number fluctuations in a swarming granular nematic, V. Narayan, S. Ramaswamy, N. Menon, Science **317** (2007) 105 [highlighted in Perspectives: M. van Hecke, Science **317** (2007) 49]

39. Shear-flow-induced isotropic to nematic transition in a suspension of active filaments, S. Muhuri, M. Rao and **S. Ramaswamy**, Europhys Lett **78** (2007) 48002;

40. Superdiffusion of concentration in wormlike-micelle solutions, Rajesh Ganapathy, A.K. Sood, and **S. Ramaswamy**, Europhys Lett **77** (2007) 18007.

41. The mechanics of active matter: Broken-symmetry hydrodynamics of motile particles and granular layers, S. Ramaswamy and R.A. Simha, Sol. Stat. Comm. **139** (2006) 617622

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43. Brownian-drag induced particle current in a model colloidal system, Moumita Das, S. Ramaswamy, A.K. Sood, and G. Ananthakrishna, Phys. Rev. E **73** (2006) 061409

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45. V. Narayan, N. Menon and S. Ramaswamy, Nonequilibrium steady states in a vibrated-rod monolayer: tetratic, nematic, and smectic correlations, J. Stat. Mech. (2006) P01005.

46. Hydrodynamics and phases of flocks, J. Toner, Y. Tu and S. Ramaswamy, Ann. Phys. **318** (2005) 170

47. Routes to spatiotemporal chaos in the rheology of nematogenic fluids, M. Das, B. Chakrabarti, C. Dasgupta, **S. Ramaswamy**, A.K. Sood, Phys Rev E **71** (2005) 021707

48. Flow-induced current and voltage generation in carbon nanotubes, Shankar Ghosh, A.K. Sood, S. Ramaswamy and N. Kumar, Phys. Rev. B **70** (2004) 205423

49. Rheology of active-particle suspensions, Y. Hatwalne, **S. Ramaswamy**, M. Rao and R. A. Simha, Phys Rev Lett **92** (2004) 118101

50. Spatiotemporal rheochaos in nematic hydrodynamics B. Chakrabarti, M. Das, C. Dasgupta, **S. Ramaswamy**, A.K. Sood, Phys Rev Lett **92** (2004) 055501

51. Collective stochastic resonance in shear-induced melting of sliding bilayers Moumita Das, G. Ananthakrishna and S. Ramaswamy, Phys Rev E **68** (2003) 061402

52. Active nematics on a substrate: giant number fluctuations and long-time tails, S. Ramaswamy, R.A. Simha and J. Toner, Europhys Lett **62** (2003) 196-202

53. A ratchet for heat transport between identical reservoirs, S. Das, O. Narayan and **S. Ramaswamy**, Phys Rev E (Rapid Comm.) 66 (2002) 050103

54. Anomalous heat conduction in one dimensional momentum-conserving systems, O. Narayan and **S. Ramaswamy**, Phys Rev Lett **89** (2002) 200601 [highlighted in R Livi and S Lepri, Nature (News and Views) **421** (2003) 327; `https://www.nature.com/nature/journal/v421/n6921/full/421327a.html`]

55. Melt-freeze cycles in relatively sheared crystalline layers, M. Das, **S. Ramaswamy** and G. Ananthakrishna, Europhys Lett **60** (2002) 636-642

56. Driven Heisenberg magnets: nonequilibrium criticality, spatiotemporal chaos and control, J. Das, M. Rao and **S. Ramaswamy**, Europhys. Lett. **60** (2002) 418-424

57. Hydrodynamic fluctuations and instabilities in ordered suspensions of self-propelled particles: living liquid crystals, S. Ramaswamy and R.A. Simha, Phys Rev Lett **89** (2002) 058101.

58. Theory of suspension segregation in partially filled horizontal rotating cylinders, R. Govindarajan, P.R. Nott and S. Ramaswamy, Phys. Fluids (Lett.) **13** (2001) 3517-3520.

59. The physics of active membranes, **S. Ramaswamy** and Madan Rao, C.R. Acad. Sci. Paris (special issue on Physics at the Scale of the Cell) **t. 2, Sér. IV** 817-839 (2001).

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62. Active membrane fluctuations studied by micropipet aspiration, J-B. Manneville, P. Bassereau, **S. Ramaswamy**, J. Prost, Phys. Rev. E **64** (2001) 021908

63. Nonequilibrium noise, steady states, and instabilities in membranes with active proteins, **S. Ramaswamy**, J. Toner, and J. Prost, Phys. Rev. Lett. **84** (2000) 3494

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65. Inequivalence of ensembles in a driven diffusive system, M. Acharyya, A. Basu, R. Pandit, and **S. Ramaswamy**, Phys. Rev. E **61** (2000) 1139-1143

66. Suspensions far from equilibrium, **S. Ramaswamy**, Current Science **77** (Special Section on Nonequilibrium Statistical Systems), 402-410 (1999).

67. Travelling waves in a drifting flux lattice, R.A. Simha and **S. Ramaswamy**, Phys. Rev. Lett. **83**, 3285 (1999).

68. Structure and rheology of the defect-gel states of pure and particle-dispersed lyotropic lamellar phases, G. Basappa, Suneel, V. Kumaran, P.R. Nott, **S. Ramaswamy**, V.M. Naik, and D. Rout, Eur. Phys. Jour. B **12** (1999) 269-276.

69. Mean magnetic field and noise cross-correlation in magnetohydrodynamic turbulence: results from a one-dimensional model, A. Basu, J.K. Bhattacharjee, and **S. Ramaswamy**, Eur. Phys. Jour. B **9**, 725 (1999).

70. Screened and unscreened phases in sedimenting suspensions, A. Levine, **S. Ramaswamy**, E. Frey, and R. Bruinsma, Phys. Rev. Lett. **81**, 5944 (1998).

71. Are steadily moving crystals unstable? R. Lahiri and **S. Ramaswamy**, Phys. Rev. Lett. **79**, 1150 (1997).

72. Power-law forces between particles in a nematic, **S. Ramaswamy**, R. Nityananda, V.A. Raghunathan, and J. Prost, Mol. Crys. Liq. Crys. **288**, 175 (1996).

73. Sponge phase transitions from a lattice model, G. I. Menon, R. Pandit and **S. Ramaswamy**, Mol. Crys. Liq. Crys. **288**, 93 (1996).

74. Anomalous viscous loss in emulsions, A.J. Liu, **S. Ramaswamy**, H. Gang, T. Mason, and D.A. Weitz, Phys. Rev. Lett. **76**, 3017 (1996).

75. Nonequilibrium phase transitions in a driven sandpile model, S.K. Dhar, R. Pandit, and **S. Ramaswamy**, J. Phys. A Lett. **28**, L563 (1995).

76. Shear-induced enhancement of self-diffusion in interacting colloidal suspensions, A.V. Indrani and **S. Ramaswamy**, Phys. Rev. E**52**, 6492 (1995).

77. Comment on 'Noise-induced nonequilibrium phase transition', **S. Ramaswamy**, R. Pandit and R. Lahiri, Phys. Rev. Lett. **75**, 4786 (1995).

78. Shear-induced melting and reentrance: a model, R. Lahiri and **S. Ramaswamy**, Phys. Rev. Lett. **73**, 1043 (1994).

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80. Nonlinear effects of membrane fluctuations in the dilute lamellar phase, **S. Ramaswamy**, J. Prost and T. C. Lubensky, Europhys. Lett. **27**, 285 (1994).

81. Universal diffusion and subdiffusion in colloids at freezing, A.V. Indrani and **S. Ramaswamy**, Phys. Rev. Lett. **73**, 360 (1994).

82. Novel polarisation dependence in multiple scattering of light from colloidal crystals, S. Sanyal, S. Ramkumar, **S. Ramaswamy**, N. Kumar and A.K. Sood, Phys. Rev. Lett. **72**, 2963 (1994).

83. Dynamics of lyotropic lamellar phases, **S. Ramaswamy**, J. Prost, W. Cai and T.C. Lubensky, Europhys. Lett. **23**, 271 (1993).

84. Hydrodynamics of the Renn-Lubensky twist grain boundary phase, and the decoupled lamellar phase, Y. Hatwalne, **S. Ramaswamy**, and J. Toner, Phys. Rev. Lett. **70**, 2090 (1993).

85. Search for a thermodynamic basis for the glass transition, C. Dasgupta and **S. Ramaswamy**, Physica A **186**, 314 (1992).

86. Equilibrium and nonequilibrium dynamics of the dilute lamellar phase, **S. Ramaswamy**, Physica A **186**, 154 (1992).

87. Anomalously rough sandpile models in one dimension: exact decimation results, **S. Ramaswamy**, H.R. Krishnamurthy and S.K. Dhar, Phys. Rev. **A 46**, 1875 (1992).

88. Dynamic structure factor of sponge phases, R. Granek, M.E. Cates, and **S. Ramaswamy**, Europhys. Lett. **19**, 499 (1992).

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90. Shear-induced collapse of the dilute lamellar phase, **S. Ramaswamy**, Phys. Rev. Lett. **69**, 112 (1992).

91. Is there a growing correlation length near the glass transition? C. Dasgupta, A.V. Indrani, **S. Ramaswamy**, and M.K. Phani, Europhys. Lett. **15**, 307 (1991); Addendum: Europhys. Lett. **15**, 467 (1991).

92. Grain boundary structure in incommensurate smectics: a signature of phasons, **S. Ramaswamy** and J. Toner, Europhys. Lett. **15**, 185 (1991).

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94. Direct tests of the entropic model of quasicrystals, Y. Hatwalne and **S. Ramaswamy**, Phys. Rev. Lett. **65**, 68 (1990).

95. Dynamics of freely suspended films with surface tension, Y. Marathe, **S. Ramaswamy**, J. Physique **51**, 2143 (1990).

96. Crumpling and second sound in lamellar phases, T.C. Lubensky, J. Prost, and **S. Ramaswamy**, J. Physique **51**, 933 (1990).

97. How to see the Burgers vector of a quasicrystal dislocation, Y.V. Hatwalne and **S. Ramaswamy**, Phil.Mag.Lett. **61**, 169 (1990).

98. Small-angle grain boundaries in quasicrystals, Y.V. Hatwalne, H.R. Krishnamurthy, R. Pandit, and **S. Ramaswamy**, Phys. Rev. Lett **62**, 2699 (1989).

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

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101. 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).

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

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

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

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

106. 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).

107. 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).

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

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

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

111. 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).

112. 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).

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

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

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

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

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

Invited articles/conference proceedings, chapters in books, and pedagogy:

1. Big Cells Cleave as Fast as Small Ones: the Physics of Cytokinesis, S. Ramaswamy, Biophys J, **106** (2014) 5-6; doi:10.1016/j.bpj.2013.11.3671

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

3. 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).

4. 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.

5. 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.

6. 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

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

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

9. 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.

10. 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.

11. 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.

12. (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.

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

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

Invited Conferences and Workshops

1. Invited lectures at "Entropy, Information and Order in Soft Matter", ICTS-TIFR¡ Bangalore, 19-21 Sep 2018
2. Invited lecture at inaugural Rudolf Peierls Symposium on Theoretical Physics, Oxford University, 5-6 July 2018
3. Invited lecture at "Physics Next", Long Island, NY, 24-27 Apr 2018
4. Invited talk at 2018 MRS Spring Meeting (Symposium on Active Colloids with Order), Phoenix, Arizona, 2-6 Apr 2018
5. Invited participant, KITP Program on Dense Suspensions, UC Santa Barbara, 12-29 March 2018
6. Science Day public lectures organised by the Karnataka Rajya Vijnana Parishat,Shivamogga, 28 Feb 2018
7. Invited lectures at School on Statistical Physics, Sarvajanik College, Surat, 18-30 Dec 2017
8. Invited talk at Rutgers Meeting on Statistical Physics, 17-19 Dec 2017
9. Invited talk at Principal of Condensed Matter: A Symposium in Honor of Tom Lubensky, University of Pennsylvania, Philadelphia, 4-5 Nov 2017
10. Invited talk at Indo-Israeli meeting on Frontiers in Condensed Matter Physics, Indian Inst of Science, Bangalore, 17-19 Oct 2017
11. Colloquium Ehrenfestii, Leiden University, 25-28 Sep 2017
12. Invited speaker, Discussion Meeting on Soft Matter, Georgetown University, 17-18 Aug 2017
13. Invited lecturer, Bangalore School on Statistical Physics, 4 to 14 July 2017
14. Invited lecturer, Advanced school on experimental and theoretical approaches to cell mechanics, NCBS, Bangalore, 23 April - 6 May 2017
15. Invited speaker, Statphys Kolkata, Dec 2016
16. Invited speaker, CompFlu, Hyderabad, Dec 2016
17. S Datta Majumdar Memorial Lecture, IIT Kharagpur, 16 Nov 2016
18. TEDx lecture on Active Matter, National Institute of Technology Karnataka, Surathkal, 18 Oct 2016
19. Mechanical Forces in Cell Biology: Information at the Cell and Tissue scale, NCBS, Bangalore, 4-6 Oct 2016
20. NISER Foundation Day lecture, 6 Sep 2016, NISER, Bhubaneswar
21. Invited speaker, Mathematical Problems of Orientationally Ordered Soft Solids, Oaxaca, Mexico, 4-9 Sep 2016 (cancelled participation)

22. Invited speaker, ICTAM 2016, Montreal, August 2016 (cancelled participation)

23. Plenary speaker, STATPHYS26, Lyon, July 2016

24. Invited speaker, 7th KIAS conference on statistical physics, "Nonequilibrium Statistical Physics of Complex Systems", Korea Institute for Advanced Study, Seoul, 4-7 July 2016 (cancelled participation)

25. Invited speaker, IASBS-ICTP School on Active Matter and Chemotaxis, Zanjan, Iran, May 2016

26. Invited speaker, SFB on Collective Behavior of Soft and Biological Matter, Hohegeiss, Germany, Nov 2015.

27. Invited speaker, Soft Matter Gordon Research Conference, 10-14 Aug 2015

28. Invited speaker, Quantitative Biomedicine Symposium, Warwick Univ, May 2015

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

30. Invited lecture, Cell Mechanics Conference, Raman Research Institute, Bangalore, 24-26 April 2015

31. Invited lecture, German Physical Society (special session in honour of Siegfried Hess), Berlin, March 2015

32. Invited public lecture, S S Bhatnagar Institute for Chemical Engineering and Technology, Panjab University, Chandigarh, 21 Feb 2015

33. Invited lecture, Current Topics in Condensed Matter Physics, NISER, Bhubaneswar, 19-21 Feb 2015

34. Invited lecture, Mini Statmech Meeting, Berkeley, Jan 2015

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

36. Invited public lecture, Soft Matter Program, Syracuse University, October 2014

37. Invited lecturer, Beg Rohu summer school on statistical physics and condensed matter, Brittany, France, Sep 2014.

38. Invited speaker, conference in honour of Aneesur Rahman, Univ of Hyderabad, Aug 2014

39. 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.

40. Invited lecture at the March meeting of the Condensed Matter Division of the American Physical Society, Denver, March 2014

41. Invited 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

42. Invited lecture at Symposium on Complex Systems : From Physics to Biology 15-16 Oct 2013, JNU, New Delhi.

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

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

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

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

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

48. Infosys Prize Lecture, delivered within the conference "Advances in Quantum Theory", University of Hyderabad, 25 Feb 2013.

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

50. Invited talk at Conference on Condensed Matter and Biological Systems, BHU, Varanasi, 11-14 Jan 2013

51. Invited talk at B12B, Silver Jubilee of CCMB, Hyderabad, 25-27 Nov 2012.

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

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

54. Invited talk at Frontiers in Physics, University of Hyderabad, 27-28 Sep 2012

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

56. Invited talk at IUTAM Symposium "Mobile Particulate systems", Bangalore, 23-27 January 2012

57. Invited talk at Current Topics in Condensed Matter, IISER Kolkata 7-9 Oct 2011

58. Invited talk at "Emerging paradigms in Physical Biology", 27-28 Aug 2011, NCBS, Bangalore

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

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

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

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

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

64. Invited lecturer, Workshop on Active Materials, 17 to 19 Nov 2010 at the Universiteit Stellenbosch, South Africa.

65. Invited speaker, 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.

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

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

68. Invited lecturer, school on nonequilibrium physics, 22 March to 3 April 3 2010, Raman Research Institute, Bangalore.

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

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

71. Invited speaker, conference on Evolution of Complex Systems, Bangalore, January 2010.

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

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

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

75. Invited lecturer, Institut Henri Poincaré, "Physique statistique des systèmes actifs, January 2009.

76. Invited speaker, Complex Fluids Workshop, Monash University, Melbourne, Australia, August 2008.

77. Invited speaker, International Conference on Theoretical and Applied Mechanics, Adelaide, Australia, August 2008.

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

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

80. Invited speaker, Conference on Nonequilibrium Phenomena in Condensed Matter, New Delhi, February 2008

81. Invited lecturer, Autumn School on Physics of New Materials, Tribhuvan University, Kathmandu, October 2007.

82. Invited speaker, International Conference on Advanced Materials of the International Union of Materials Research Societies, Bangalore, 8-13 October 2007.

83. Invited speaker, Mesoscale modelling for complex fluids and flows, Oxford University, June 2007.

84. Invited speaker, meeting of the Condensed Matter Division of the American Physical Society, Denver, March 2007.

85. Invited speaker, "Assembly, Organization and Propulsion in Complex Systems, 22-24 Feb 2007, IIT Madras.

86. Invited lecturer, SERC School on Nonlinear Dynamics, Kolkata, 20-21 Dec 2006.

87. Invited speaker, Third National Symposium on Complex Fluids, 14-15 Dec 2006, IIT Kanpur.

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

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

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

91. Invited lecture at India-UK Science Networks workshop, Raman Research Institute, November 2005

92. Invited lecture at Heraeus Workshop on Nonlinear Dynamics of Complex Continua, Bayreuth, Germany, October 2005.

93. Invited lecture at Conference on Statistical Mechanics of Plasticity and Related Instabilities, Bangalore, August 2005.

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

95. Invited lecture at the NBHM Workshop on Hydrodynamics, IISc, Bangalore.

96. Invited lecturer at the Taiwan Soft Matter Summer School, Yang-ming National Park, Taiwan September 2004.

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

98. Invited speaker at the Statphys Satellite meeting on Statistical Physics of Complex Fluids, Zanjan, Iran, June 2004.

99. Invited lecturer at the the SERC School on Statistical Physics, TIFR, Mumbai, February 2004.

100. Invited speaker 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

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

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

103. Invited lecture at the Indo-Israeli Meeting on Condensed Matter Physics, Israel Academy of Sciences, Jerusalem, Israel, January 2002.

104. Invited lecture at STATPHYS 21, Cancun, Mexico, July 2001.

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

106. Invited 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

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

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

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

110. Invited lecture at the Unilever CREF Annual Physical Sciences Review, Port Sunlight, UK, 17-19 October 2000.

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

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

113. 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.

114. Invited lecture at the Complex Materials Conference at the University of California, Santa Barbara, USA 22-27 August 1999.

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

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

117. Invited lecture at the UCSB/JNCASR/IISc Workshop on Materials, Bangalore, November 1998.

118. Invited lecture at the 5th IUMRS International Conference in Asia, Bangalore, October 1998.

119. Three invited lectures at a summer school on 'Physical Concepts at the scale of the cell', Cargèse, France, July 1998.

120. 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.

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

122. Invited lecture at a workshop on Polymers and Membranes, Kleinmachnow, Germany, September 1996.

123. Invited lecture at the Conference on the Dynamics of Complex Fluids, a Royal Society - Unilever - IndoUK Forum, Cavendish Laboratory and Isaac Newton Institute, Cambridge June 1996.

124. Invited 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.

125. Invited lecture at the Solid State Symposium of the Department of Atomic Energy, Calcutta, December 1995.

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

127. Gordon Research Conference on Complex Fluids, Irsee, Germany, September-October 1993.

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

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

130. Statistical Physics of Polymers, Disordered Solids and Glasses, Calcutta Dec 1991 - Jan 1992.

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

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

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

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

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

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

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

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

139. Invited lecture on the Unconventional Hydrodynamics of Anisotropic Materials, at the American Physical Society Meeting, Detroit, March 1984.

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

Awards and honours:

1. KITP Simons Distinguished Visiting Scholar, Kavli Institute for Theoretical Physics, University of California, Santa Barbara, March-April 2018.
2. Alumni Award for Excellence in Research, Indian Institute of Science, 2018
3. Mayent-Rothschild-Institut Curie Award 2018
4. Homi Bhabha Chair (Tata Education and Development Trust) Oct 2017-Sep 2020
5. DSc *honoris causa*, Coochbehar Panchanan Barma University, West Bengal, 2017
6. Elected Fellow of the American Physical Society, October 2016
7. H K Firodia Vijnan Ratna Award for 2016
8. Elected a Fellow of the Royal Society, April 2016
9. Infosys Prize for the Physical Sciences 2011
10. Outstanding Referee for the American Physical Society 2010
11. J C Bose National Fellowship since 2007 (renewed 2012 & 2017)
12. G. D. Birla Prize for Science, 2006
13. Elected Fellow of the Indian National Science Academy, Jan 2004
14. Shanti Swarup Bhatnagar Prize for the Physical Sciences for 2000
15. NASI Young Scientist Millenium Award, 2000
16. B.M. Birla Memorial Prize for Physics for the year 1996 (announced 1998).
17. Elected a fellow of the Indian Academy of Sciences, 1996
18. N.S. Satyamurthy Award for 1988

19. Elected an Associate of the Indian Academy of Sciences 1988-1992

Editorial Board and International Committee Memberships

1. Member, Editorial Board, Proceedings of the Royal Society A: Mathematical, Physical & Engineering Sciences, from Jan 2018

2. Member, Editorial Committee, Annual Review of Condensed Matter Physics, 2011-2015.

3. Member, Editorial Board of Advances in Physics, since June 2007.

4. Member, Editorial Board of the European Physical Journal E, since Dec 2009

5. Member, Editorial Board of Journal of Statistical Mechanics: Theory and Experiment, since January 2004.

6. Member, Advisory Board of Soft Matter since May 2008

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.

Past Editorial Board memberships

1. Physical Review E

2. Liquid Crystals

3. Current Science

4. Resonance

Current Research Grants:

1. Homi Bhabha Chair Professorship of the Tata Education and Development Trust, Oct 2017 - Oct 2020; research grant: Rs 1 000 000 per year

2. J C Bose Fellowship of the Department of Science and Technology, India; research grant: Rs 1 000 000 per year; since 2007 (renewed 2012, renewed 2017).