Samriddhi Sankar Ray

Curriculum Vitae

Personal Information

Date of Birth 13 November, 1981
Place of Birth Calcutta (now Kolkata), India
Citizenship Indian

Current Position

Associate Professor
International Center for Theoretical Sciences (ICTS-TIFR),
Tata Institute of Fundamental Research,
Bangalore, India.

Contact Details

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Correspondence

International Center for Theoretical Sciences,
Tata Institute of Fundamental Research,
Survey No. 151, Shivakote,
Hesaraghatta Hobli,
Bangalore 560089, India.

Education

2010 **PhD in Physics**
Department of Physics, Indian Institute of Science, Bangalore, India.
Thesis Title: *Statistical Studies of Fluid, Passive-Scalar, and Burgers Turbulence*
Thesis Advisor: *Professor Rahul Pandit*

2006 **MS in Physics**
Department of Physics, Indian Institute of Science, Bangalore, India.

2003 **BSc in Physics**
Presidency College, Calcutta University, Calcutta, India

Research Positions

January 2021 – Present **Associate Professor**
International Center for Theoretical Sciences (ICTS-TIFR)
Tata Institute of Fundamental Research,
Bangalore, India.

July 2015 – December 2020 **Reader**
International Center for Theoretical Sciences (ICTS-TIFR)
Tata Institute of Fundamental Research,
Bangalore, India.

January 2013 – June 2015 **Junior Faculty**
International Center for Theoretical Sciences (ICTS-TIFR)
Tata Institute of Fundamental Research,
Bangalore, India.

April 2010 – December 2012 **Post-doctoral Fellow**
Laboratoire Lagrange,
Observatoire de la Côte d'Azur, CNRS,
Nice, France.

Professional Experience

- Visiting Professor, **Observatoire de la Côte d'Azur, CNRS, Nice**, France, May–June 2018.
- Visiting Professor, **Fédération Doeblin**, **University of Nice, Sophia-Antipolis** France, September-October 2017.
- Visitor to **University of Rome Tor Vergatta, Rome**, France, May 2015.
- Visitor to **Observatoire de la Côte d'Azur, CNRS, Nice**, France, May 2015.
- Visitor to **NORDITA, Stockholm**, Sweden, June 2014.
- Visitor to **Observatoire de la Côte d'Azur, CNRS, Nice**, France, May–June 2014.
- Visitor to **Observatoire de la Côte d'Azur, CNRS, Nice**, France, May–June 2013.
- Visitor to **Max-Plank-Institute for Dynamics and Self-Organization, Göttingen**, Germany, October-November 2011.
- Visitor to **Max-Plank-Institute for Dynamics and Self-Organization, Göttingen**, Germany, May 2010.

- Visitor to **Laboratoire Poncelet, Moscow**, Russia, September 2008.
- Scientific Secretary, **Problems of Turbulence: 50 years after the Turbulence Colloquium Marseille 1961**, **Marseille**, France, September, 2011.
- Referees for several journals as well as grant proposals for Indian and foreign funding agencies.

Principal Research Interests

- Fluid, magnetohydrodynamic, passive-scalar, and Burgers turbulence.
- Turbulent Transport.
- Truncated systems, thermalization, and statistical mechanics of turbulent flows.
- Singularities in the Euler equation.
- Multiphase Flows.
- Active Turbulence.
- Non-equilibrium Statistical Physics

Current Group Members

Post-doctoral Fellows

1. Dr Siddhartha Mukherjee, PhD (TU Delft), 2020 –

PhD Students

1. Rahul Kumar Singh (2018 –)
2. Sugan Durai Murugan (2020 –)
3. Shashank Roy (2021 –) [Primary Advisor: Amit Apte]

Former Group Members

Post-doctoral Fellows

1. Dr Priyanka Maiti, PhD (Indian Institute of Technology, Kharagpur), 2017 – 2020
   Now: Post-doctoral Fellow, Technische Universität Ilmenau, Germany.
2. Dr Jason Picardo, PhD (Indian Institute of Technology, Chennai), 2017-2019.
   Now: Assistant Professor, Department of Chemical Engineering, Indian Institute of Technology Bombay, Mumbai, India.
3. Dr Divya Venkataraman, PhD (University of Genoa), 2014-2016.
   Now: Assistant Professor, Department of Mathematics, Institute of Chemical Technology, Mumbai, India.

Masters' Students (MS thesis)

1. Mohit Gupta (International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Bangalore) 2017-2019.
   Now: Graduate Student, University of Minnesota, USA.
2. Lokahith Agasthya (Indian Institute of Science Education and Research, Pune), 2017-2018.
   Now: Graduate Student, University of Rome, Tor Vergatta, Rome, Italy.
3. Amal Roy (Indian Institute of Science, Bangalore), 2016-2017.
   Now: Graduate Student, Indian Institute of Science, Bangalore, India.
4. Martin James (Indian Institute of Science, Bangalore), 2015-2016.
   Now: Graduate Student, Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany.
5. Akhil Sivakumar (Indian Institute of Science, Bangalore), 2015-2016.
   Now: Graduate Student, International Centre for Theoretical Sciences, Bangalore, India.

Batchelors' Students (BS thesis)

1. Ritwik Tom (Indian Institute of Science, Bangalore), 2016-2017.
   Now: Graduate Student, Carnegie Mellon University, USA.

Visiting Students

1. Rahul Agrawal [Now: Graduate Student, Stanford University, USA.]
2. Aneek Chakraborty [Now: Masters' Student, TU Delft, The Netherlands.]
3. Deeksha Adil [Now: Graduate Student, Toronto University, Canada.]
4. Aneek Chakraborty [Now: Masters' Student, Delft University of Technology, The Netherlands]
5. Purba Chatterjee [Now: Graduate Student, University of Illinois at Urbana-Champaign, USA.]
6. Ashok Choudhary [Now: Graduate Student, West Virginia University, USA.]
7. Ameya Haldipurkar [Now: Undergraduate Student, Birla Institute of Technology and Science (BITS) Pilani, Hyderabad Campus (under the Summer Research Fellowship Programme (SRFP) of Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore)]
8. Dheeraj Kumar [Now: Graduate Student, Sorbonne University, France.]
9. Siddhartha Saha [Now: Graduate Student, Rutgers University, USA.]
10. Ankur Sharma [Now: Graduate Student, Indian Institute of Technology Kanpur, India.]
11. Himani Singhal [Now: Scientist, Shell Corporations, India.]
12. Ritwik Tom [Now: Graduate Student, Carnegie Mellon University, USA.]

List of Publications

54. *Turbulent route to two-dimensional soft crystals*
    M. Gupta, P. Chaudhuri, J. Bec and **Samriddhi Sankar Ray.**
    ArXiv: 1812.06487 (2018)

53. *Sedimenting Elastic Filaments in Turbulent Flows*
    R. K. Singh, J. R. Picardo and **Samriddhi Sankar Ray**.
    ArXiv: 2101.00385 (2021)

52. *Many-body Chaos in Thermalised Fluids*
    S. D. Murugan, D. Kumar, S. Bhattacharjee, and **Samriddhi Sankar Ray**.
    Physical Review Letters, **127**, 124501 (2021).

51. *Anomalous diffusion and Lévy walks distinguish active turbulence from inertial turbulence*
    S, Mukherjee, R. K. Singh, M. James and **Samriddhi Sankar Ray.**
    Physical Review Letters, **127**, 118001 (2021) *Editors' Suggestion*.
    APS Physics Magazine Synopsis: *Bacteria That Shove Harder, Move Further*, **Physics**, **14**, s116 (2021).

50. *Polymer scission in turbulent flows*
    D. Vincenzi, T. Watanabe, **Samriddhi Sankar Ray** and J. R. Picardo.
    Journal of Fluid Mechanics, **912**, A18 (2021)

49. *Statistics of the Kinetic Energy of Heavy, Inertial Particles in Weakly Rotating Turbulence*
    P. Maity and **Samriddhi Sankar Ray**.
    Indian Academy of Sciences Conference Series, **3:1** (2020)

48. *Bridging Inertial and Dissipation Range Statistics in Rotating Turbulence*
    S. K. Rathore, M. K. Sharma, **Samriddhi Sankar Ray** and S. Chakraborty.
    Physics of Fluids, **32**, 095104 (2020).

47. *Orientation dynamics of spheroids settling in turbulent flow*
P. Anand, **Samriddhi Sankar Ray**, and G. Subramanian.
Physical Review Letters, **125**, 034501 (2020).

46. *Suppressing thermalization and constructing weak solutions in truncated inviscid equations of hydrodynamics: Lessons from the Burgers equation*
S. D. Murugan, U. Frisch, S. Nazarenko, N. Besse and **Samriddhi Sankar Ray**.
Physical Review Research, **2**, 033202 (2020).

45. *Dynamics of a long chain in turbulent flows: Impact of vortices*
J. R. Picardo, R. Singh, **Samriddhi Sankar Ray** and D. Vincenzi.
Philosophical Transactions of the Royal Society A, **378** 20190405 (2020).

44. *Elasto-inertial Chains in a Two-dimensional Turbulent Flow*
R. Singh, M. Gupta, J. R. Picardo, D. Vincenzi, and **Samriddhi Sankar Ray**.
Physical Review E, **101**, 053105 (2020).

43. *Flocking of active particles in a turbulent flow*
A. Gupta, A. Roy, A. Saha, and **Samriddhi Sankar Ray**.
Physical Review Fluids (Rapids), **5**, 052601(R) (2020).

42. *Lagrangian Irreversibility and Dissipation Statistics in Fully-Developed Turbulence*
J. R. Picardo, A. Bhatnagar, and **Samriddhi Sankar Ray**.
Physical Review Fluids (Rapids), **5**, 042601(R) (2020).

41. *Fluid dynamics in clouds: The sum of its parts*
S. Ravichandran, J. R. Picardo, **Samriddhi Sankar Ray** and R. Govindarajan.
Encyclopedia of Complexity and Systems Science, Springer, Berlin, Heidelberg (2020).

40. *Analytic structure of solutions the one-dimensional Burgers equation with modified dissipation*
W. Pauls and **Samriddhi Sankar Ray**.
Journal of Physics A: Mathematical and Theoretical, **53**, 115702 (2020).

39. *Statistics of Lagrangian Trajectories in Rotating Turbulence*
P. Maity, R. Govindarajan, and **Samriddhi Sankar Ray**.
Physical Review E, **100**, 043110 (2019).

38. *Droplet Collisions in Turbulence: Insights from a Burgers Vortex*
L. Aghasthya, J. R. Picardo, S. Ravichandran, R. Govindarajan, and **Samriddhi Sankar Ray**.
Physical Review E, **99**, 063107 (2019).

37. *Flow structures govern particle collisions in turbulence*
J. R. Picardo, L. Aghasthya, R. Govindarajan, and **Samriddhi Sankar Ray**.
Physical Review Fluids (Rapid), **4**, 032601(R) (2019).

36. *Preferential Sampling of Elastic Chains in Turbulent Flows*
J. R. Picardo, D. Vincenzi, N. Pal, and **Samriddhi Sankar Ray**.
Physical Review Letters, **121**, 244501 (2018).

35. *Inertial Ellipsoids in Homogeneous, Isotropic Turbulence*
A. Roy, A. Gupta, and **Samriddhi Sankar Ray**.
Physical Review E (Rapid), **98**, 021101(R) (2018).

34. *Light-cone spreading of perturbations and the butterfly effect in a classical spin chain*
A. Das, S. Chakrabarty, A. Dhar, A. Kundu, D. A. Huse, R. Moessner, **Samriddhi Sankar Ray**, and S. Bhattacharjee.
Physical Review Letters, **121**, 024101 (2018)

33. *Non-intermittent Turbulence: Lagrangian Chaos and Irreversibility*
Samriddhi Sankar Ray.
Physical Review Fluids (Rapid), **3**, 072601(R) (2018).

32. *Droplets in isotropic turbulence: deformation and breakup statistics*
Samriddhi Sankar Ray and D. Vincenzi.
Journal of Fluid Mechanics, **852**, 313 (2018).

31. *Revisiting the SABRA Model: Statics and Dynamics*
R. Tom and **Samriddhi Sankar Ray**.
Europhysics Letters, **120**, 34002 (2018).

30. *Exotic multifractal conductance fluctuations in graphene*
K. R. Amin, **Samriddhi Sankar Ray**, N. Pal, R. Pandit, and A. Bid.
Communications Physics, **1**, 1 (2018).

29. *An Overview of the Statistical Properties of Two-dimensional Turbulence in Fluids with Particles, Conducting Fluids, Fluids with Polymer Additives, Binary-Fluid Mixtures, and Superfluids*
R. Pandit, D. Banerjee, A. Bhatnagar, M.-E. Brachet, A. Gupta, D. Mitra, N. Pal, P. Perlekar, **Samriddhi Sankar Ray**, V. Shukla, and D. Vincenzi.
Physics of Fluids, **29**, 111112 (2017)

28. *Enhanced droplet collision rates and impact velocities in turbulent flows: The effect of polydispersity and transient phases*
M. James and **Samriddhi Sankar Ray**.
Scientific Reports, **7**, 12231 (2017)

27. *The Onset of Thermalization in Finite-Dimensional Equations of Hydrodynamics*
D. Venkataraman and **Samriddhi Sankar Ray**.
Proceedings of the Royal Society, **473**, 20160585 (2017).

26. *Semi-flexible particles in isotropic turbulence*
A. Ali, E. L. C. M. Plan, **Samriddhi Sankar Ray**, and D. Vincenzi.
Physical Review Fluids (Rapid), **1**, 082402(R) (2016).

25. *Lagrangian Statistics for Navier-Stokes Turbulence under Fourier-mode reduction: Fractal and Homogeneous Decimations*
M. Buzzicotti, A. Bhatnagar, L. Biferale, A. S. Lanotte, and **Samriddhi Sankar Ray**.
New Journal of Physics, **18**, 113047 (2016).

24. *Dynamic multiscaling in magnetohydrodynamic turbulence*
Samriddhi Sankar Ray, G. Sahoo, and R. Pandit.
Physical Review E, **94**, 053101 (2016).

23. *Elastic turbulence in a shell model of polymer solution*,
Samriddhi Sankar Ray and D. Vincenzi.
Europhysics Letters, **114**, 44001 (2016).

22. *Intermittency in Fractal Fourier Hydrodynamics: Lessons from the Burgers Equation*,
M. Buzzicotti, L. Biferale, U. Frisch, and **Samriddhi Sankar Ray**.
Physical Review E, **93**, 033109 (2016).

21. *Abrupt growth of large aggregates by correlated coalescences in turbulent flow*,
J. Bec, **Samriddhi Sankar Ray**, E.-W. Saw, and H. Homann.
Physical Review E (Rapid), **93** 031102(R) (2016).

20. *Effect of Inertia on Model Flocks in a Turbulent Environment*,
A. Choudhary, D. Venkataraman and **Samriddhi Sankar Ray**.
Europhysics Letters, **112**, 24005 (2015) (*Editor's Choice*).

19. *Thermalised solutions, statistical mechanics and turbulence: An overview of some recent results*,
Samriddhi Sankar Ray.
Perspectives in Nonlinear Dynamics, **Pramana - Journal of Physics**, **84**, 395 (2015).

18. *Extreme fluctuations of the relative velocities between droplets in turbulent airflow*,
E.-W. Saw, G. P. Bewley, E. Bodenschatz, **Samriddhi Sankar Ray**, and J. Bec.
Physics of Fluids Letters, **26**, 111702 (2014).

17. *Transition from dissipative to conservative dynamics in equations of hydrodynamics*,
D. Banerjee and **Samriddhi Sankar Ray**.
Physical Review E (Rapid), **90**, 041001(R) (2014).

16. *Gravity-driven enhancement of heavy particle clustering in turbulent flow*,
J. Bec, H. Homann, and **Samriddhi Sankar Ray**,
Physical Review Letters, **112**, 184501 (2014).

15. *Multiscaling in Hall-Magnethydrodynamic Turbulence: Insights from a Shell Model*,
D. Banerjee, **Samriddhi Sankar Ray**, G. Sahoo, and R. Pandit,
Physical Review Letters, **111**, 174501 (2013).

14. *Sticky elastic collisions*,
J. Bec, S. Musacchio, and **Samriddhi Sankar Ray**,
Physical Review E, **87**, 063013 (2013).

13. *Real-space Manifestations of Bottlenecks in Turbulence Spectra*,
U. Frisch, **Samriddhi Sankar Ray**, G. Sahoo, D. Banerjee, and R. Pandit,
Physical Review Letters, **110**, 064501 (2013).

12. *Turbulence in Noninteger Dimensions by Fractal Fourier Decimation*,
U. Frisch, A. Pomyalov, I. Procaccia, and **Samriddhi Sankar Ray**,
Physical Review Letters, **108**, 074501 (2012).

11. *Nelkin scaling for the Burgers equation and the role of high-precision calculations*,
S. Chakraborty, U. Frisch, W. Pauls, and **Samriddhi Sankar Ray**,
Physical Review E (Rapid), **85**, 015301(R) (2012).

10. *Dynamic Multiscaling in Two-dimensional Turbulence*,
Samriddhi Sankar Ray, D. Mitra, P. Perlekar, and R. Pandit,
Physical Review Letters, **107**, 184503 (2011).

9. *Universality of scaling and multiscaling in turbulent symmetric binary fluids*,
Samriddhi Sankar Ray and A. Basu,
Physical Review E, **84**, 036316 (2011).

8. *Resonance phenomenon for the Galerkin-truncated Burgers and Euler equations*,
Samriddhi Sankar Ray, U. Frisch, S. Nazarenko, and T. Matsumoto,
Physical Review E, **84**, 016301 (2011).

7. *The Persistence Problem in Two-Dimensional Fluid Turbulence*,
P. Perlekar, **Samriddhi Sankar Ray**, D. Mitra, and R. Pandit,
Physical Review Letters, **106**, 054501 (2011).

6. *Extended Self Similarity works for the Burgers equation and why*,
S. Chakraborty, U. Frisch, and **Samriddhi Sankar Ray**,
Journal of Fluid Mechanics, **649**, 275 (2010).

5. *Statistical Properties of Turbulence: An Overview*,
R. Pandit, P. Perlekar, and **Samriddhi Sankar Ray**,
Pramana - Journal of Physics, **73**, 157 (2009).

4. *Entire solutions of hydrodynamical equations with exponential dissipation*,
C. Bardos, U. Frisch, W. Pauls, **Samriddhi Sankar Ray**, and E. S. Titi,
Communications in Mathematical Physics, **293**, 2, 519 (2009).

3. *Hyperviscosity, Galerkin truncation and bottlenecks in turbulence*,
U. Frisch, S. Kurien, R. Pandit, W. Pauls, **Samriddhi Sankar Ray**, A. Wirth, and J-Z Zhu,
Physical Review Letters, **101**, 144501 (2008).

2. *The Universality of Dynamic Multiscaling in Homogeneous, Isotropic Navier-Stokes and Passive-Scalar Turbulence*,
Samriddhi Sankar Ray, D. Mitra, and R.Pandit,
New Journal of Physics, **10**, 033003 (2008).

1. *Dynamic Multiscaling in Turbulence*,
R. Pandit, **Samriddhi Sankar Ray**, and D. Mitra,
European Physics Journal B 64, 463 (2008).

Awards, Honours, Grants & Membership

- *Elected Member*, National Academy of Sciences India (2021).
- *Guest Editor*, Philosophical Transactions of the Royal Society Special Issues on *Scaling the Turbulence Edifice* (2021).
- *Regular Member*, Division of Condensed Matter Physics in Association of Asia Pacific Physical Societies (AAPPS) (2021–).
- NSM grant from the National Supercomputing Mission, India (2021-2023).
- MTR/2019/001553 grant from DST, India (2020-2023).

- *Life Member*, Indian Physics Association (2019–).
- Cray Dr A P J Abdul Kalam HPC Award for Research (2019).
- ECR/2015/000361 grant from DST, India (2016-2019).
- PI of Airbus Group Corporate Foundation Chair in Mathematics of Complex Systems.
- Co-PI and Member, Indo-French Centre for Applied Mathematics (IFCAM).
  Project : "Theoretical and Numerical Studies of Turbulence in Fluids".
- Funding from the European Research Council under the European Community's Seventh Framework Program (FP7/2007-2013 Grant Agreement No. 240579).
- Member, *European Cooperation in Science and Technology* (COST) on *Flowing Matter – Cost Action* (COST MP1305)
- Member, *European Cooperation in Science and Technology* (COST) on *Particles in Turbulence – Cost Action* (COST MP0806).
- Member, *Optimal transport : Theory and Applications to cosmological Reconstruction and Image processing* (ANR-OTARI).
- PRACE Project (2010-2011) : Awarded access to the PRACE (Partnership for Advanced Computing in Europe) Research Infrastructure for 50,000,000 core-hours on the JUGENE, IBM BlueGene/P, hosted by the Gauss-Centre for Supercomputing member site in Juelich, Germany.
- Young Fellow of the Indian Institute of Science, Bangalore (2000-2003), India.

Workshops, Conferences and Meetings Organised

19. *Sediment Transport in the Ocean and in Clouds* [Upcoming]
    International Centre for Theoretical Sciences, Bangalore, India, March 2022.
    Organisers: E. Meiburg, R. Govindarajan, and **Samriddhi Sankar Ray**

18. *Stochastic Approaches to Turbulence in Hydrodynamical Equations: New Challenges at the Mathematics-Physics Interface* [Upcoming]
    Banff International Research Station, Alberta, Canada, February-March 2022.
    Organisers: U. Frisch, K. Khanin, R. Pandit and **Samriddhi Sankar Ray**

17. *Complex Lagrangian Problems of Particles in Flows* [Upcoming]
    International Centre for Theoretical Sciences, Bangalore, India, February 2022.
    Organisers: M. Cencini, K. Gustafsson, F. De Lillo, and **Samriddhi Sankar Ray**

16. *Indian Statistical Physics Community Meeting 2020*
    International Centre for Theoretical Sciences, Bangalore, India, February 2020.
    Organisers: R. Bandyopadhyay, A. Dhar, K. Jain, R. Pandit, **Samriddhi Sankar Ray**, S. Sabhapandit, and P. Sharma.

15. *Fluids Day*
    International Centre for Theoretical Sciences, Bangalore, India, January 2020.
    Organisers: R. Govindarajan, **Samriddhi Sankar Ray** and G. Tomar

14. *Symposium on Turbulence in Conference on Nonlinear Systems and Dynamics*
    Indian Institute of Technology, Kanpur, India, December 2019.
    Organiser and Chair: **Samriddhi Sankar Ray**.

13. *Indian Statistical Physics Community Meeting 2019*
    International Centre for Theoretical Sciences, Bangalore, India, February 2019.

Organisers: R. Bandyopadhyay, A. Dhar, K. Jain, R. Pandit, **Samriddhi Sankar Ray**, S. Sabhapandit, and P. Sharma.

12. *Indian Statistical Physics Community Meeting 2018*
International Centre for Theoretical Sciences, Bangalore, India, February 2018.
Organisers: R. Bandyopadhyay, A. Dhar, K. Jain, R. Pandit, **Samriddhi Sankar Ray**, S. Sabhapandit, and P. Sharma.

11. *Indian Statistical Physics Community Meeting 2017*
International Centre for Theoretical Sciences, Bangalore, India, February 2017.
Organisers: R. Bandyopadhyay, A. Dhar, K. Jain, R. Pandit, **Samriddhi Sankar Ray**, S. Sabhapandit, and P. Sharma.

10. *CompFlu - 2016*
University of Hyderabad, **Hyderabad**, 2016.
Chair, **Turbulence**.

9. *Indian Statistical Physics Community Meeting 2016*
International Centre for Theoretical Sciences, Bangalore, India, February 2016.
Organisers: A. Dhar, K. Jain, R. Pandit, **Samriddhi Sankar Ray**, and S. Sabhapandit.

8. *Soft-matter: Young Investigators Meet*
Goa, India January 2016.
Mentor

7. *Geodynamo Research (GDR) 2015*
International Centre for Theoretical Sciences, Bangalore, India, June 2015.
Organisers: E. Dormy, S. Fauve, **Samriddhi Sankar Ray**, B. Sreenivasan, and M. Verma.

6. *The Nonlinear Physics of Complex Flows and Amorphous Solids*
International Centre for Theoretical Sciences, Bangalore, India, April 2015.
Organiser: **Samriddhi Sankar Ray**.

5. *Chandrasekhar Lectures by Itamar Procaccia*
International Centre for Theoretical Sciences, Bangalore, India, April 2015.
Organiser: **Samriddhi Sankar Ray**.

4. *Indian Statistical Physics Community Meeting 2015*
International Centre for Theoretical Sciences, Bangalore, India, February 2015.
Organisers: A. Dhar, K. Jain, R. Pandit, **Samriddhi Sankar Ray**, and S. Sabhapandit.

3. *Soft-matter: Young Investigators Meet*
Pondicherry, India, December 2015.
Organisers: P. Chaudhury, **Samriddhi Sankar Ray** and S. Roy.

2. *Indian Statistical Physics Community Meeting 2014*
International Centre for Theoretical Sciences, Bangalore, India, February 2014.
Organisers: A. Dhar, K. Jain, R. Pandit, **Samriddhi Sankar Ray**, and S. Sabhapandit.

1. *Transport of Particles in Turbulent Flows: Experimental, Computational and Theoretical Investigations*

International Centre for Theoretical Sciences, Bangalore, India, October 2013.
Organisers: J. Bec, R. Pandit, and **Samriddhi Sankar Ray**.

(Selected) Invited Talks

82. *Flow structures govern particle collisions in turbulence*,
Euromech Colloquium: Extreme Dissipation and Intermittency in Turbulence
Virtual 2021

81. *The Fascinating World of Turbulent Flows*,
SEDS, BITS Goa
Virtual 2021

80. *The Fascinating World of Turbulent Flows*,
Association of Indian Physics Students
Virtual 2021

79. *Many-body Chaos in a Thermalised Fluid*,
Turbulence: Problems at the Interface of Mathematics and Physics,
Virtual 2020

78. *Turbulent Transport: Beyond the Point Particle Approximation*,
Fluctuations in Nonequilibrium Systems: Theory and applications,
Bangalore, India 2020

77. *Thermalisation and Many-Body Chaos: Lessons from Truncated Hydrodynamics*,
Conference on Nonlinear Systems and Dynamics,
Kanpur, India 2019

76. *Thermalisation, Many-Body Chaos, and Weak Solutions in Truncated Hydrodynamics*,
Thermalization, Many body localization, and Hydrodynamics,
Bangalore, India 2019

75. *Cross-correlators: Probing Many-Body Chaos*,
Universal features of hydrodynamical, optical and wave turbulence,
Nice, France 2019

74. *Turbulent Advection of Elastic Chains*,
Discrete Simulations of Fluid Dynamics (DSFD 2019),
Bangalore, India 2019

73. *Lagrangian Intermittency, Irreversibility, and Flight Crashes*,
Perspectives in Nonlinear Dynamics,
São Paulo, Brazil 2019

72. *Interacting Particles in a Turbulent Flow: From Crystals to Flocks*,
Seminar, Indian Institute of Technology, Kharagpur, Department of Physics,
Kharagpur, India 2019.

71. *Interacting and Non-interacting Particles in a Turbulent Flow*,
Seminar, Jawaharlal Nehru University, Department of Physics,
New Delhi, India 2019.

70. *What makes the motion of small particles in turbulence special?*
Colloquium, Ashoka University, Department of Physics,
Sonapet, India 2019

69. *Particles in a Turbulent Flow: How Rain Drops Form?*
Colloquium, Presidency University, Department of Physics,
Kolkata, India 2019

68. *Interacting and Non-interacting Particles in a Turbulent Flow*,
Colloquium, Indian Institute of Science, Department of Physics,
Bangalore, India 2019

67. *Elastic Chains and Crystals in Turbulent Flows*,
Emerging Trends in Computational Fluid Dynamics,
Bangalore, India 2019

66. *The Decimated Navier-Stokes Equation*,
Seminar, Service de Physique de l'Etat Condensé, CEA Saclay,
Paris, France 2019

65. *Understanding Intermittency through Triad Suppressions*,
Colloquium, Ecole Normale Superiore,
Paris, France 2019

64. *Turbulent Transport: Beyond the Spherical Particle Approximation*,
Seminar, Laboratoire Jean Perrin, Sorbonne University,
Paris, France 2019

63. *Interacting Particles in Turbulence: Chains, Crystals, and Flocking*,
Seminar, Laboratoire de Physique et Mécanique des Milieux Hétérogénes,
Paris, France 2019

62. *Interacting and Non-interacting Particles in a Turbulent Flow*,
Colloquium, NORDITA,
Stockholm, Sweden 2019

61. *New Approaches to Understand Intermittency*,
Seminar, University of Gothenburg, Department of Physics,
Gothenburg, Sweden 2019

60. *OTOC in Classical Models*,
Seminar, NORDITA,
Stockholm, Sweden 2019

59. *Interacting and Non-interacting Particles in a Turbulent Flow*,
Indo-French Workshop for Scientific Cooperation,
Nice, France 2019

58. *The Effect of Generalised Fourier Galerkin Projections on Equations of Hydrodynamics*,
International Conference on Mathematical Modelling in Science and Engineering
Coimbatore, India 2019.

57. *Understanding Turbulence through Computer Simulations*,
National Workshop,
Thanjavur, India 2018

56. *The Fascinating World of Turbulent Flows*
Einstein Lectures
Bangalore, India, August, 2018

55. *Decimated Navier-Stokes Turbulence*
Dynamics of Complex Systems
Bangalore, India, June 2018

54. *Non-spherical Particles and Chains in Turbulence*
Dynamics of Complex Systems
Bangalore, India, June 2018

53. *Droplets in Isotropic Turbulence: Deformation and Break-up Statistics*
Indian Statistical Physics Community Meeting 2018
Bangalore, India, February 2018

52. *Decimated Navier-Stokes Turbulence: Intermittency, Chaos, and an Emergent Reversibility*
Turbulence from Angstroms to Light Years
Bangalore, India, January 2018

51. *Decimated Navier-Stokes Turbulence: Intermittency, Chaos, and an Emergent Reversibility*
Journal of Fluid Mechanics Symposia
Bangalore, India, December 2017

50. *Decimated Navier-Stokes Turbulence*
Institute of Mathematical Sciences (IMSc)
Chennai, India, May 2017

49. *Onset of of thermalisation in hydrodynamic equations: Insights from the Burgers equation*
Indian Statistical Physics Community Meeting 2017
Bangalore, India, February 2017

48. *Droplets in Turbulent Flows: Lessons for the Microphysics of Clouds*
Summer Research Program on Dynamics of Complex Systems
Bangalore, India, July 2016

47. *Intermittency in Turbulent Flows: Time to Look in Fourier Space?*
Indian Statistical Physics Community Meeting 2016
Bangalore, India, February 2016

46. *Settling, collisions, coalescences of inertial particles in turbulent flows*
CSAS - 2016
Chennai, February 2016

45. *Abrupt Growth of Large Aggregates by Correlated Coalescences in a Turbulent Flow: Short Time Results*

CompFlu - 2016
Pune, January 2016

44. *Abrupt growth of large aggregates by correlated coalescences in turbulent flow*
Growing Length Scale Phenomena in Condensed Matter Physics
Bangalore, India, October 2015.

43. *Enhanced Settling and Droplet Growth in Inertial Particles in a Turbulent Flow*
Colloquium
Theoretical Sciences Unit, **Jawaharlal Nehru Centre for Advanced Scientific Research**, **Bangalore**, India, September 2015.

42. *Bottlenecks in Turbulence: Signatures in Physical Space*
European Turbulence Conference 15
Delft, The Netherlands, August 2015

41. *Settling and Coalescences of Inertial Particles in Turbulence*
Seminar
Department of Physics, **Indian Institute of Technology Bombay**, **Mumbai**, India, August 2015

40. *Inertial Particles: Implication for Clouds*
Colloquium
Interdisciplinary Programme (IDP) in Climate Studies, **Indian Institute of Technology Bombay**, **Mumbai**, India, August 2015.

39. *Settling, Collisions, and Coalescences: Droplets in a Turbulent Flow*
Seminar
University of Rome, Tor Vergatta, **Rome**, Italy, May 2015

38. *Gravitational Settling of Heavy Particles*
Indian Statistical Physics Community Meeting 2015
Bangalore, India, February 2015

37. *The dynamics of finite-sized particles in turbulent airflows*
Colloquium
International Center for Theoretical Sciences (ICTS-TIFR), **Bangalore**, India, February 2015

36. *Extreme fluctuations of the relative velocities between droplets in turbulent airflow*
CompFlu - 2014
Bangalore, December 2014

35. *Inertial particles in turbulent flows*
Colloquium
TIFR Center for Inter-disciplinary Sciences, **Hyderabad**, India, August 2014

34. *Gravity-driven enhancement of heavy particle clustering in turbulent flow*
Dynamic Days Asia Pacific 08
Chennai, India, July 2014.

33. *T*he dynamics of finite-sized particles in turbulent flows
Seminar
Jawaharlal Nehru Centre for Advanced Scientific Research,**Bangalore**, India, July 2014

32. *Gravity-driven enhancement of heavy particle clustering in turbulent flow*
Dynamics of Particles in Flows
Stockholm, Sweden, June 2014

31. *Are thermalised solutions meaningful in the equations of hydrodynamics?*
Seminar
Indian Association for the Cultivation of Science Kolkata, India, April 2014

30. *Turbulence: The Grand Challenge*
Seminar
Department of Physics,**Indian Institute of Technology**, **Kanpur**, India, March 2014.

29. *Turbulence in Fractal Dimensions: The Critical Dimension*
Indian Statistical Physics Community Meeting 2014
Bangalore, India, February 2014

28. *Sticky Elastic Collisions*
Soft-matter: Young Investigators Meet
Pondicherry, India, January 2014

27. *Are thermalised solutions meaningful in the equations of hydrodynamics?*
Colloquium
Tata Institute of Fundamental Research – Centre for Applicable Mathematics, **Bangalore**, India, October 2013

26. *Sticky Elastic Collisions*
Monthly StatPhys Meeting
International Centre for Theoretical Sciences — Tata Institute of Fundamental Research, **Bangalore**, India, September 2013

25. *Can Truncated Systems Help Us Understand Turbulence?*
Perspectives in Nonlinear Dynamics
Hyderabad, July 2013

24. *Sticky elastic collisions and the effect of hydrodynamic interactions*
Seminar
International Centre for Theoretical Sciences — Tata Institute of Fundamental Research, **Bangalore**, India, June 2012

23. *Statistical Mechanics and Turbulence*
Colloquium
International Centre for Theoretical Sciences — Tata Institute of Fundamental Research, **Bangalore**, India, June 2012

22. *Resonance phenomenon for the Galerkin-truncated Burgers and Euler equations*
Mathematics of particles and flows
Vienna, Austria, May–June 2012

21. *Sticky elastic collisions*
Particles in Turbulence
Leiden, Holland, May 2012

20. *Statistical Mechanics and Turbulence*
Seminar
Department of Physics, **Indian Institute of Technology**, **Kanpur**, India, January 2012

19. *Inertial Particles in Turbulent Flows and the Effect of Collisions*
Seminar
Department of Physics, **Indian Institute of Technology**, **Kanpur**, India, January 2012

18. *Statistical Mechanics and Turbulence*
Colloquium
Satyandra Nath Bose National Center for Basic Sciences, **Kolkata**, India, January 2012

17. *Statistical Mechanics and Turbulence*
Seminar
Saha Institute of Nuclear Physics, **Kolkata**, India, December 2011

16. *Statistical Mechanics and Turbulence*
Seminar
Indian Institute of Technology, **Kharagpur**, India, December 2011

15. *Resonant phenomenon for the Galerkin-truncated Burgers and Euler equations*
ICTS–TIFR Discussion Meeting on High Precision Computing
Bangalore, India, December 2011

14. *Sticky elastic collisions*
Rencontre Nicoise de Mecanique des Fluides
Nice, France, November 2011

13. *Gravitational settling of heavy particles*
Seminar
Max Planck Institute for Dynamics and Self-Organization, **Göttingen**, Germany, November 2011

12. *Gravitational settling of heavy particles*
Meeting of the ANR
Nice, France, October 2011

11. *The tyger phenomenon for the Galerkin truncated Burgers and Euler equations*
The solar course, the chemic force, and the speeding change of water
Stockholm, Sweden, October, 2011

10. *The Persistence Problem in Turbulence*
Fundamental Problems of Turbulence: 50 years after the Turbulence Colloquium Marseille 1961
Marseille, France, September, 2011

9. *Turbulence in Fractal Dimensions*
Seminar
Saha Institute of Nuclear Physics, **Kolkata**, India, July 2011

8. *Time Scales in Turbulent Flows in Two Dimensions*
   Seminar
   Max-Plank-Institute for Dynamics and Self-Organization, **Göttingen**, Germany, May, 2010

7. *The Universality of Dynamic Multiscaling*
   Seminar
   Saha Institute of Nuclear Physics, **Kolkata**, India, July 2009

6. *Thermalisation*
   Turbulence and Statistical Mechanics
   Les Houches, France, March 2009.

5. *Bottlenecks, thermalization and surprises in the Galerkin-truncated Burgers Equation*,
   Seminar
   Satyendra Nath Bose National Centre for Basic Sciences, **Kolkata**, India, October, 2008

4. *Surprises in the Galerkin-truncated Burgers Equation*
   Transport in Hydrodynamical Flows: Numerical and Analytical Approaches
   Moscow, Russia, September, 2008

3. *Dynamic Multiscaling in Turbulence*
   Seminar
   Max-Plank-Institute for Dynamics and Self-Organization Göttingen, Germany, July, 2008

2. *Galerkin-truncated Burgers Equation and Bottlenecks*
   Rencontres Nicoises de Mecanique des Fluides
   Nice, France, May 2008

1. *Burgers Equation and Hyperviscosity*
   GdR Turbulence: Fundamental Aspects of Turbulence
   Lyon, France March - April 2008