



# Samriddhi Sankar Ray

## *Curriculum Vitae*

### Personal Information

Date of Birth 13 November, 1981  
Citizenship Indian

### Current Position

Associate International Center for Theoretical Sciences (ICTS-TIFR),  
Professor 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.

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## 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

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## Research Positions

January 2021 – **Associate Professor**

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

July 2015 – **Reader**

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

January 2013 – **Junior Faculty**

June 2015 International Center for Theoretical Sciences (ICTS-TIFR)  
Tata Institute of Fundamental Research,  
Bangalore, India.

April 2010 – **Post-doctoral Fellow**

December 2012 Laboratoire Lagrange,  
Observatoire de la Côte d'Azur, CNRS,  
Nice, France.

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## Professional Experience

- Visiting Professor, **Observatoire de la Côte d'Azur, CNRS, Nice**, France, May–June 2018.
- Visiting Professor, **Fédération Doebelin, University of Nice, Sophia-Antipolis** France, September–October 2017.
- Visitor to **University of Rome Tor Vergata, 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-Planck-Institute for Dynamics and Self-Organization, Göttingen**, Germany, October–November 2011.
- Visitor to **Max-Planck-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 the journals, including **Physical Review Letters, Physical Review E, Europhysical Journal B, Physica D, Proceedings of the Royal Society, Journal of Fluid Mechanics, Journal of Statistical Mechanics** and **Nonlinearity**.

## Principal Research Interests

- Fluid, magnetohydrodynamic, passive-scalar, and Burgers turbulence.
- Inertial (finite-sized) particles in turbulent flows with special application to coalescence processes in clouds.
- Truncated systems, thermalization, and statistical mechanics of turbulent flows.
- Singularities in the Euler equation.
- Multiphase Flows.

## 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 – )

## 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 Vergata, 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. 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)]
2. Dheeraj Kumar [Now: Graduate Student, Sorbonne University, France.]
3. Deeksha Adil [Now: Graduate Student, Toronto University, Canada.]
4. Purba Chatterjee [Now: Graduate Student, University of Illinois at Urbana-Champaign, USA.]
5. Ashok Choudhary [Now: Graduate Student, West Virginia University, USA.]
6. Siddhartha Saha [Now: Graduate Student, Rutgers University, USA.]
7. Ankur Sharma [Now: Graduate Student, Indian Institute of Technology Kanpur, India.]
8. Himani Singhal [Now: Scientist, Shell Corporations, India.]
9. Ritwik Tom [Now: Graduate Student, Carnegie Mellon University, USA.]

### List of Publications

53. *Sedimenting Elastic Filaments in Turbulent Flows*  
R. K. Singh, J. R. Picardo and **Samriddhi Sankar Ray**.  
ArXiv: 2101.00385
52. *Many-body Chaos in a Thermalised Fluid*  
D. Kumar, S. Bhattacharjee, and **Samriddhi Sankar Ray**.  
ArXiv: 1906.00016
51. *Turbulent route to two-dimensional soft crystals*  
M. Gupta, P. Chaudhuri, J. Bec and **Samriddhi Sankar Ray**.  
ArXiv: 1812.06487.
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**, **105**, 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, Grants & Membership

- 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

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 TriadSuppressions*,  
**Colloquium**, Ecole Normale Supérieure,  
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 Hétérogènes,  
**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 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. *The 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-Planck-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-Planck-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